Master Thesis MSc International Development Studies

"Half a loaf is better than none": Food provisioning strategies of the urban poor in Johannesburg

An examination of how contextual, household and individual factors determine caregivers' (in)ability to access nutritious food for their children

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Abstract

Child malnutrition remains a persistent issue in South Africa and has severe consequences for children's health status. National and municipal food and nutrition security policies mainly focus on production, safety nets and nutritional promotion and education. This research aims to critically assess the assumption of policies that one of the key factors that will improve child nutrition is nutrition promotion and education. Therefore, it seeks to investigate what the key factors are that determine caregivers' food choices for their children in food insecure households in Johannesburg. By looking into the food provisioning strategies of these caregivers, the results of this research demonstrate that there are different contextual, household and individual factors that limit their food options in various ways, and may pose multiple simultaneous restrictions on acquiring, preparing and consuming nutritious and fresh food. As a consequence, caregivers' final food choice is a result of careful considerations within these limited options. Policies that assume that more availability of food as well as nutrition information will lead to improved food and nutrition security, without sufficiently looking at factors that determine access to nutritious food, will therefore have limited effect. As the results show that food and nutrition security is interlinked with broader issues of poverty and exclusion, it is important to take into account the wider context and living situation of the poor.

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1 Introduction

Food lies at the root of human existence and forms a large part of what we do as social beings. A lack of food deprives the healthy functioning of individuals, not only biologically but also socially, culturally and economically (UN Global Compact, 2018). It is therefore not just about a lack of calories, but about the exclusion from care, kindness and dignity (Ledger, 2016). Notwithstanding decades of global efforts to eradicate hunger, the number of undernourished people has been rising since 2015, bringing us back to levels of almost a decade ago in 2017 (FAO, 2018). How is this possible in a time when there is enough food being produced to feed the world population, and large amounts of resources are being spent on reducing hunger?

Although urbanisation has accelerated over the past decades, the challenge of urban food and nutrition security only recently gained attention. This has long been ignored because food is generally associated with rural policy and there is a persistent rural-urban divide in policy, planning and research (Wiskerke, 2015). However, food and nutrition security is an important urban issue; with more than half of the world population currently living in cities, which is expected to rise to 70% by 2050, cities play a central role in the food system (UN Global Compact, 2018). Especially in Sub-Saharan Africa, urbanisation has led to increasing urban poverty, including high levels of food insecurity and poor nutrition. South Africa is not an exception in this. A range of national surveys, using a variety of measures for food security, show that food insecurity burdens a high number of urban poor residents. This number is higher than in rural areas, as there are more people living in urban areas (SANHANES-1, 2012; FAOSTAT, 2018, STATS SA, 2017).

Despite national and local policy efforts to improve food and nutrition security, there is increasing evidence of both overnutrition and undernutrition co-existing, which disproportionately hits the poor. This points to the issue of access to quality food within urban areas (Frayne, Crush & McLachland, 2014). Although the prevalence of child wasting and underweight has decreased over the years, other forms of child malnutrition are a persistent issue. Levels of stunting remain high; Statistics South Africa reported in 2016 that for children under 5 years old, 27.4% is stunted. Between 2005 and 2012, there was even an increase among young children (1 to 3 years) from 23.4% to 26.5%. At the same time, there is a high and growing prevalence of overweight among children. Being malnourished as a child

can have severe consequences, as it can compromise physical and cognitive development (SANHANES-1, 2012). Although the prevalence of both stunting and overweight co-existing seems contradicting, in South Africa these trends are both driven by diets that are high in calories, but poor in nutritional value, and the higher risk of obesity later in life if you are malnourished as a child (Ledger, 2018).

In response to rising child malnutrition in the country, interventions and programmes have been implemented to improve food and nutrition security. However, both at the national and the municipal level, programmes mainly focus on production, nutrition promotion and social safety nets (Battersby, Haysom, Kroll & Tawodzera, 2014). This focus is emphasized in the national budget allocations, with almost 20% of the Department of Agriculture, Forestry and Fisheries' budget being allocated to improving farmers' production for food security purposes, almost 30% of the Department of Basic Education's budget being spent on the national school nutrition programme, and food relief programmes and nutrition promotion are receiving considerable amounts as well (National Treasury, Republic of South Africa, 2018).

Although these programmes provide food relief for many, Hendriks and Olivier (2015) argue that national programmes do not offer a comprehensive solution to food insecurity. The programmes have been criticized for a lack of engagement with the wider food system, pursuing a mainly productionist approach (Battersby et al., 2014) and being focused on nutrition education and promotion, making it largely a personal problem based on poor food choices (Battersby & McLachlan, 2013). As child malnutrition remains a persistent issue, these interventions indeed seem to have limited success. This has severe consequences for children's health status.

This poses the question whether interventions – as they are currently designed and implemented - are effective in improving the nutritional status of children. Ledger (2018) argues that educational programmes assume that people have sufficient access to healthy food and they can choose for a healthy option among a broad range of choices. However, often the options poor people can choose from are limited. Moreover, research finds the role of nutrition knowledge to be uncertain and only one of the factors influencing food choice (Wardle, Parmenter & Waller, 2000; Worsley, 2002; SANANES-1, 2012). Therefore, this research aims to critically assess the assumption that one of the key factors that will improve child nutrition is nutrition promotion and education. As a result, we can get a better

understanding of what food options the urban poor *actually* have, how they choose among those options, and what constraints they face in accessing alternative options.

There is a broad range of research on the influence of nutritional knowledge and personal factors on food choices and what outcomes are in terms of food eaten, but there is limited research available on what factors set limits to the choices the urban poor can actually make (Ledger, 2018; Frayne et al., 2014). There remains a knowledge gap in the literature in understanding 'the urban food environment' and how the urban poor manage to acquire food (Food Lab, 2015). Moreover, there is limited understanding of how this relates to child malnutrition (Frayne et al., 2014). By looking into the the food provisioning strategies of caregivers, we can get a better understanding of the (in)ability they have with regard to accessing nutritious food for their children.

Therefore, the research question is:
What are the key factors that influence the food choices that caregivers make for their children in food insecure households in Johannesburg?

In order to answer the research question, the following sub questions were developed:
1. What is the status of food and nutrition security of the households and children?
2. What are the factors that influence what food options are actually available?
3. What are the factors that influence how food choices are made among actually available options?
4. How do these factors differ from the factors assumed by the government's food and nutrition security policies?

This thesis is structured as follows. Chapter 2 will provide the theoretical framework and chapter 3 the thematic and regional context for this research. In chapter 4, I will elaborate on the research methodology. Chapter 5 and 6 will discuss the empirical findings based on the research questions, and I will relate these in chapter 7 to the government's food and nutrition security policies. Chapter 8 will provide the discussion and chapter 9 will finalize with the conclusion, followed by recommendations for Afrika Tikkun in chapter 10.

2 Theoretical framework

In this chapter, I will elaborate on the major theories and concepts related to the research question. I will first elaborate on the severity of the issue of child malnutrition. Secondly, I will discuss the main concepts and methods related to food and nutrition security, and subsequently introduce the role of gender. Thirdly, as food and nutrition security status are highly related to the wider urban food system, I will briefly go into the most relevant aspects and introduce the food provisioning approach. Fourthly, I will provide a literature review on food choices. Finally, I will look at the main types of interventions for enhancing the nutritional status of the poor.

2.1 Child malnutrition

Malnutrition relates to both under and overnutrition and occurs when the consumption of food is insufficient to meet dietary needs. Especially children are a vulnerable group when it comes to food and nutrition security, as it can have severe and lasting consequences. Insufficient nutrition among children stemming from food insecurity can lead to poor health, asthma and frequent hospitalization. Furthermore, it can lead to an increased risk of delayed cognitive, social and physical development. Malnourished children tend to perform less at school, have a lack of concentration and behavioural issues. Child malnutrition can also lead to health issues as they grow up. Furthermore, it has been found to be positively associated with violent and impulsive behaviour later in life (Vaugh et al., 2016). From an economic perspective, child malnutrition can have a negative impact on the economy, as an unhealthy and less educated labour force will constrain economic growth.

Indicators for child malnutrition that are often used are stunting (low height-for-age), wasting (low weight-for-height) and overweight. Although the negative impact of food insecurity on child nutrition and development has been widely established, some of the literature finds a weak relationship. Theron et al. (2006) investigated the difference in dietary intake between a group of stunted and non-stunted children in Limpopo province, South Africa. They find that dietary intake is insufficient among all children, so they conclude that diet is not the only factor causing stunting; also poverty, hygiene and health play a role. On the other hand, research that did report a relationship found a lower dietary diversity among young children to be associated with stunting (Rah et al., 2010) and household food insecurity to be related to a higher risk of constraint child development, as reported by caregivers (Rose-Jacobs et al., 2008). In the USA, household and child food insecurity has been associated with

child overweight (Casey et al., 2006). Possible explanations for the latter results include the increased intake of low cost, high energy, low nutritional value foods in response to food shortages, over-eating when there is food, fear of restriction of food and metabolic changes as a result of hunger.

These mixed findings indicate that the relationship between food intake and child nutrition is not straightforward, as nutritional status is interlinked with other factors as well. Moreover, it is important to consider which methodologies are used for measuring food and nutrition security, how it is defined and how the results have been interpreted. Therefore, I will look into the concepts of food and nutrition security in the next paragraph.

2.2 Food and nutrition security

This paragraph will first provide background information on the concepts of food and nutrition security and subsequently look into the different definitions and measurements.

2.2.1 Background

Food security is a concept developed during the 1970s and has been a central topic in public discourse since. At the 1974 World food conference, food security was focused on the supply of food on a global and national level; developing agricultural production in developing countries and the building of reserve stocks (FAO, 1974). As a response to the high food prices in the 1970s, the discussion revolved around how the international community could guarantee that developing countries had sufficient access to food.

The availability approach to food security was challenged in the 1980s by Sen's work on famines. He argued that focusing on availability is not sufficient in explaining food security, but that individuals are mainly dependent on access for food security. He therefore introduced the entitlement approach, which focuses on the ability of individuals to access food based on their entitlement relations within society based on legal, economic, political and social characteristics (Sen, 1981). Sen's work highly influenced the general debate on food security and changed the focus from the macro to micro level.

During the World Food Summit in 1996, the definition of food security was extended beyond availability, including the access and stability of food, as well as nutrition. Food security became defined as: *"Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food*

preferences for an active and healthy life". (FAO, 1996) This definition became widely accepted, although the term has been given different meanings over time.

According to the FAO, food security has four dimensions. First of all, physical availability refers to the supply side of food security; whether there is adequate supply of food. Secondly, economic and physical access address individuals' access to food, which is not guaranteed by sufficient supply. Thirdly, food utilization refers to food preparation, (household) practices and diversity of the diet, which influences the nutritional status of individuals. Finally, the dimension of stability underlies the three prior dimensions and stresses the time dimension of food security (FAO, 2008).

2.2.2 Measurement

Although food and nutrition security have been widely researched, the results are difficult to compare and assess, as there are multiple approaches and methods to determine the level of food and nutrition security status. It is therefore important to consider the method used before drawing conclusions, and to measure what you want to measure.

Jones, Ngure, Pelto & Young (2013) provide a clear overview of the different definitions and measurements used. Related to the concept of food security, which is described above, is nutrition security, which is broader than food security as it also entails hygiene, care and health. Furthermore, "undernutrition" relates to both food and nutrition insecurity; it happens when calorie-intake is below the minimum dietary energy required. Finally, "hunger" is part of all three aforementioned concepts and refers to the uneasy feeling due to a lack of food (Jones et al., 2013). However, these concepts are often used interchangeably. For example, the South Africa Health Survey uses the terminology "experience of hunger" and "at risk of hunger" for measurements of perceived household food insecurity. Since this research is looking into the issue of malnutrition, the concepts of food and nutrition security will be used together.

At national and regional levels, food and nutrition security is often determined based on aggregated data. Although this provides a useful general picture, it is usually biased towards the availability component of food security and only draws an "average" picture. For example, the FAO's "prevalence of undernourishment" is based on food supply and utilization data. This is problematic because it assumes that if the total supply of food (produced and imported) equals at least the total required calorie consumption (taking into

account factors such as export, waste and loss) there is no undernourishment. Therefore, these measures disregard lower-level inequalities in accessing food. Household food security measures capture this aspect of food and nutrition security much more. They are based on household surveys, which measure inequalities in economic and physical access to food (Jones et al., 2013).

Both at the global level as well as in South Africa, researchers report that there is a need to align and coordinate measurements, as well as improve them (Hendriks, 2005; Heady & Ecker, 2013). Heady & Ecker (2013) argue that current food and nutrition security measurements are not sufficiently capturing shocks and nutritional value. Dietary diversity indicators do, however, capture best how nutritious and balanced diets are. Although they cannot be assumed to be direct predictors of nutritional status, they are found to be reliable indicators of dietary quality and food security. Furthermore, they have been positively associated with household food expenditures and are vulnerable to shocks. It is also specifically useful for investigating child nutrition, as dietary diversity was positively associated with child growth and nutritional status (Heady & Ecker, 2013). Jones et al. (2013) further compared different dietary diversity indicators. While all indicators have advantages, the Household Dietary Diversity Index (HDDS) contains a larger number of food groups and therefore allows for a more detailed analysis. Misselhorn & Hendriks (2017) in their review of food security studies in South Africa report that the HDDS was the most often used proxy. Although this is not a valid reason in itself to use this proxy, it does allow for comparison with other studies. As Maxwell & Smith (1992) note, assuming the household to be a unified entity in which distribution of food is equal might be problematic. Since the individual members experience food security differently, it may be important to measure the Individual Dietary Diversity Index (IDDS) for individual household members.

Although indirect measures of access such as food consumption and expenditure indicators are useful for assessing poverty status and what food is consumed, it is important to consider that access, acquisition and consumption are different steps in the process (Jones et al., 2013). Therefore, direct, experience-based measures have the potential to provide meaningful information about the perceived (lack of) food access. These measures are perceived as more subjective, as they ask for personal experiences. For that reason, they are found to be less comparable across countries and socio-demographic groups (Heady & Ecker, 2013). However, the Household Food Insecurity Access Scale (HFIAS) is such an experienced-based measure that is perceived as an empirically strong direct measure of food security. Research

found positive associations with this proxy and other food security proxies (Jones et al., 2013).

Other useful measures of food and nutrition security include the coping strategies index and anthropometry. The first is an indirect measure, since it focuses on how households cope with a food shortage. The latter measures how individual members of the household utilize food and what their health status is. It therefore not only serves as an indicator for food security but general health and well-being (Jones et al., 2013). This measure is often used to determine prevalence of malnutrition. For example, the SA Health Survey determines child undernutrition by means of the prevalence of stunting and wasting.

To finalize the discussion, I would like to point to a rather important aspect of food and nutrition security. Food and nutrition security cannot be seen in isolation; it is part of wider livelihood considerations. It is therefore not always a priority and this can be understood in the context of other household considerations and individual members' perceptions and roles. (Maxwell & Smith, 1992). In the next paragraph, I will elaborate on gendered roles and responsibilities with regard to food and nutrition security.

2.2.3 Gendered roles and responsibilities

Due to the gendered nature of roles and responsibilities in society, women have been systematically excluded from access to employment, education, finance and other resources. This makes them more vulnerable to poverty (Ruiters and Wilschutt, 2010). In the literature, this is also referred to as the "feminisation of poverty", highlighting the gendered character of poverty. This feminisation of poverty is not only related to income, but the full spectrum of disadvantages poor women experience that restrict their choices and opportunities. Traditionally, women bear the responsibility to care for the home and men are the primary breadwinners. However, according to Chant (2008), who analyzed cases from all over the world, women's responsibility for dealing with poverty seems to be increasing, leading to growing gender disparities. Moreover, these increasing responsibilities are not being rewarded in any way. Men seem to find it increasingly difficult to economically provide for their families, while not engaging in domestic tasks either. Women are then left with little choice but to work harder both inside as well as outside the home (Chant, 2008).

In relation to food security, women are usually carrying the responsibility of food provisioning within the household, regardless of who generates income. This responsibility is

rooted in traditions and still exists in most societies, independent of class, ethnicity and culture. Food provisioning involves physical work like acquiring, preparing, cooking and serving food, as well as mental and caring work, such as planning meals and worrying about nutrition (Allen and Sachs, 2012). Ironically, as women are more vulnerable to poverty, they are also more likely to be food insecure, which can constrain their ability to execute their food provisioning responsibilities. However, this does not necessarily mean that women are passive victims; they tend to be very innovative in finding ways to provide food for their families (Ruiters and Wilschutt, 2010). Although this research does not specifically focus on gendered roles and responsibilities, it will look at the gender aspect of food and nutrition security, as it cannot be seen separately from the daily lives of the poor.

2.3 Urban food systems

In order to understand urban food and nutrition security, it is important to highlight that it is highly interrelated with the structure of the urban food system. According to Wiskerke (2015) food provisioning is an important urban challenge, although it only recently gained attention. Other challenges that influence the urban food system are governance issues and growing inequalities in wealth and access to services. The first refers to the institutional capacity necessary to manage increasingly growing and complex cities. Acquiring these resources can form a challenge for many countries. The latter relates to a new trend; in most regions in the world, urbanisation has been associated with economic growth. However, in Africa, urbanisation is happening despite limited economic growth, so poverty is 'moving' from rural to urban areas (Wiskerke, 2015).

Urban food systems encompass the different ways and locations in which food is produced, processed, distributed and consumed in urban areas. In this way, it is always a hybrid system existing out of various modes of food provision, determining food and nutrition security on the individual level. Wiskerke (2015) sets out a number of conditions that shape the urban food system.

The first condition is related to globalization and the trends of population growth, urbanization and changing diets. The changing diets entail (1) an increased energy intake and (2) a change in products consumed, also called the "nutrition transition". Therefore, Wiskerke (2015) emphasizes the need for looking beyond food availability when analyzing urban food systems. When looking at access, there are large spatial and economic inequalities between people and neighbourhoods within cities. In relation to adequacy, nutritional value and

cultural appropriateness are important aspects to consider. The second condition that shapes urban food systems are the resource constraints imposed on food supply, in terms of water, land and fossil fuels. Thirdly, the consequences of climate change will have an impact on the organization and resilience of urban food systems. Lastly, concerns about public health, related to nutrition, increasingly determine policies for urban food systems. However, this is mainly a concern in Western countries, which are in a further phase of the nutrition transition (Wiskerke, 2015).

Looking more specifically into the nutrition transition, it appears that globalization has changed the diets of especially urban residents. Urban dwellers consume a more diverse diet, but it also contains more fat, sugar, salt and less fibre. Combined with less active lifestyles this can lead to an increased risk of non-communicable diseases (Cohen & Garrett, 2010). Also Popkin, Aidar & Ng (2012) address the growing issue of a shift in the burden of obesity to the poor in low and middle-income countries, resulting in a 'dual burden' of both undernutrition and overnutrition, which may exist within the same community and even within households.

2.4 Household food provisioning strategies

The structure of the urban food system determines to a great extent household's food and nutrition security, as people are dependent on this system for purchasing food. Frayne et al. (2014) therefore argue for a holistic approach in researching urban food and nutrition security, as nutrition trends cannot solely be explained by individual and household food patterns and behaviours. A household food provisioning approach is particularly useful for this purpose, because it recognizes that food choices are not just determined by individual factors, but are influenced by structural factors in the food system, which is embedded in its given social, cultural and political context, household and individual level resources at a given time and multiple priorities. In this way, it allows for a context-specific analysis of the factors that influence food choice in the everyday lives of the urban poor (Schubert, 2008). This raises the question what 'food choice' means. Therefore, in the next paragraph, I will elaborate on the concepts of food choice and decision-making.

2.5 Food choice

This paragraph will first provide a discussion on the conceptualization of decision-making in the literature. Subsequently, it will look into the different types of factors that can influence food choices.

2.5.1 Conceptualization

Decision-making has been widely studied among different disciplines and as a consequence, there is a range of theories and perspectives that attempt to conceptualize decision-making. These perspectives can be classified broadly into rationalist, structuralist and constructionist approaches to decision-making (Sobial & Bisogni, 2009).

Economic and psychological research into decision-making often takes a 'rational choice' approach. Rationalism assumes individuals are fully informed about the attributes of the possible decision options and know the consequences. In this way, they will always choose the option that maximizes benefits and minimizes costs (Sobal & Bisogni, 2009). The rational choice approach has been criticized for being normative; it often focuses on how decisions should be made and classifies decisions that are not reductionist in the sense of utility optimizing as "irrational". Notwithstanding this criticism, rational choice models remain to be influential in policy making (Boholm, Henning and Krzyworzeka, 2013). In a narrow conceptualization, the cost of food (or the available budget) and the daily required energy intake of 2,000-2,500 kcal are the determining factors of food choice for low-income households, and therefore food will be chosen that is lowest in cost and highest in energy density (Drewnowski and Darmon, 2005). Blaylock, Smallwood, Kassel, Variyam, & Aldrich (1999) take a broader approach, perceiving the household members as producers that aim to maximize utility. The household is constrained to maximize benefits by their resources such as time, income and technologies. Ippolito (1999) assumes that consumers will only change their diets if there is a perceived health gain that is outweighing the extra costs incurred in for example price, convenience and taste.

Furthermore, a structuralist perspective on choice assumes that social structures, institutions and the wider context shape individual decision-making, as they impose norms and values as well as social and physical limitations. According to Sobal & Bisogni (2009), it provides a useful insight into the way economic, social, political, geographical and cultural factors increase or limit the range of food choice options available. For example, Asp (1999) analyzes how dietary guidance should be designed so that it changes individual food behaviour in the direction of healthy diets. She finds that cultural, psychological, lifestyle factors and food trends are important in affecting food choices (Asp, 1999).

Finally, constructionism understands decision-making as a process in which individuals experience, interpret and define the world and interact with structures to construct choice. Boholm et al. (2013) explain that anthropologists look at the interplay between individual action and the structure that guides action, so a combination of internal and

external perspectives. Decisions are therefore seen as socially and culturally embedded and entail meanings, perceptions and feelings, and can change over time. In this way, taking an ethnographic approach, it looks at the actual behaviour and choices made in everyday life, and not at how better choices can be made (Boholm et al., 2013).

Chibnik (2011) is an economic anthropologist and explains that this subfield of anthropology does use economic models, but also takes into account context. In this way, they highlight how historical factors, cultural norms and institutions limit or enhance the possible choices for different groups in society in particular time and place. The author therefore does not reject rational choice theory, but points at the shortcomings of a strict rational approach when studying decision-making in practice. He proposes an ethnographic approach, taking into account context and structural factors, while applying rational choice when possible to seek explanations. The concept of rationality can even be loosened and more easily applied to behaviour in practice by understanding utility not just in monetary terms (Chibnik, 2011). However, this economic anthropology approach has been criticized for mainly paying attention to aspects of economic life, by using reductionist models, and less to the topic of decision and choice. The disparities in objectives between anthropology and economics can be perceived to be too large to overcome (Boholm et al., 2013).

2.5.2 Factors influencing food choice

The urban poor employ various combinations of food provisioning strategies. Their food choices are embedded in the context of wider livelihood strategies. Therefore, food choices should be considered and understood in their everyday context. So although food is seen as a fundamental need, it might not always have priority. Strategies reflect people's own perceptions of vulnerability (Maxwell, 1992). The literature on factors influencing food choices can be broadly divided into environmental, social, historical, cultural and psychological factors and take place on different levels such as the wider national, local, household and individual level (Lawrence and Barker, 2009).

Regarding environmental factors, income and price are regarded as some of the most important factors determining food choice and constraints to eating more nutritious foods for the poor. Also, with fresh produce, it is not just affordability that is considered but also how long it is going to last, depending on the availability of a refrigerator (Lawrence and Barker, 2009). Highly related to costs is time; it takes time to acquire nutrition information, purchase and prepare food, which could also be used differently. For example, when you work more

hours, you can earn a higher income, but have less time left to prepare food (Blaylock et al., 1999).

Besides economic access, physical access and convenience are important factors determining food choices. Globalisation, and the related expansion of supermarkets, has led to an increase in availability of non-nutritious, processed foods that are high in fat, sugar and salt. Furthermore, eating away from home has become more common, especially in urban areas, where food with low nutritional value is easily accessed. These foods are generally very cheap, ready to eat and widely available (Frayne et al., 2014). However, this makes it more difficult for urban residents to make informed decisions, as they do not know the exact nutrient content of the ready-made meals. These meals tend to contain more non-nutritious ingredients that are high in calories than home-cooked meals (Blaylock et al., 1999).

Social factors relate to the interpersonal relationships that influence food choices. Especially the relationships within the household and family are perceived as important. Food choices of women are found to be constrained by the preferences of their partner and children. These preferences can form a barrier to eat healthier, as women might need to trade off maintaining social relations with making healthy food choices. However, women take their children's health very seriously (Lawrence & Barker, 2009).

Historical factors take into account past food experiences, traditions, habits, feelings and taste. These are part of individual life course food trajectories, shaped by the experiences earlier in life. Also cooking skills and taste play a role, which can be either positive or negative. Dislikes developed at a young age are difficult to change and can limit dietary diversity (Lawrence & Barker, 2009).

Cultural factors also have the ability to shape food choices made by individuals. Food habits are embedded in cultural traditions and practices, and determine what is considered appropriate to eat and how it should be prepared. These cultural factors are continuously changing as food habits adapt to changing environments in which cultures are increasingly mixed, due to migration and travel (Asp, 1999).

Lastly, psychological factors form some of the strongest influences on food choices. They entail the perceived control over health and food choices; it has been found that a lack of resources and skills undermines feelings of control over food choices. Self-efficacy relates to the perceived ability to achieve a desired outcome. Believing in your own competence to

change and regulate behaviour was found to be an important factor for change. Furthermore, personal food-choice values regarding health, costs, taste, convenience and maintaining relationships influence the decision, which are often conflicting and therefore need to be traded off (Lawrence & Barker, 2009). In this respect, personal time preference determines whether an individual finds it worthwhile to overcome certain habits and give in on taste now, for uncertain, potential benefits in health in the future (Blaylock et al., 1999).

There is a widespread perception that poorer households eat less healthy food because they have poor nutritional knowledge. As a consequence, many programmes focus on enhancing this knowledge (Ledger, 2018). Although there is a wide range of literature on nutritional knowledge and the influence on behaviour, the role of this knowledge remains uncertain. At best, nutrition knowledge has been found to have a mediating role in differences between socio-demographic factors in the UK, but generally there is scarcity of evidence (Wardle, Parmenter & Waller, 2000; Worsley, 2002).

The South African health survey found that overall, participants knew well what foods make you fat and there was no difference between high and low-income groups in nutritional knowledge. When looking at the factors that are taken into account while grocery shopping, it becomes clear that there are many considerations people make. Mainly women go grocery shopping, and they primarily look at price (64.5%). Furthermore, taste, health considerations, easiness of preparing, nutritional value, convenience and safety are considered (SANANES-1, 2012).

It becomes clear that focusing on enhancing the poor's nutritional knowledge does not necessarily improve their nutritional status. As outlined above, there is a range of different factors that can limit individual's use of their nutrition knowledge. Therefore, policies should not simply focus on education (Lawrence and Barker, 2009).

2.6 Nutrition policies and programmes

From a public health perspective, there has been considerable attention for food security and nutrition. However, nutrition has long been seen as a technical problem, leading to interventions that are proven to work at the biological level. Nutritionists keep doing more of the same, which has been proved to work, but only for specific nutritional problems in specific environments. They are focused on changing knowledge, attitudes and practices, but do not seek to facilitate transformative change. However, nutrition is a complex issue and

therefore requires a deeper understanding of the underlying structures and processes (McLachlan & Garrett, 2008).

The Global Nutrition Policy Review report of the World Health Organization (WHO) (2018) shows that nutrition policies were globally mainly geared towards infant and child nutrition; breastfeeding counselling and nutritional education at schools were most commonly implemented, while supporting healthy diets by, for example, banning vending machines was much less popular. The report concludes that countries preferred the implementation of educational programmes and the distribution of information to changing the food environment. Therefore, they recommend increasing coherence in policies among sectors, the engagement of different actors and using the full range of delivery channels (WHO, 2018).

As a result, policies remain focused on educating and informing people, rather than looking at the broader context of food security, poverty and inequalities (Frayne et al., 2014).

3 Thematic and geographical context

In this chapter, I will present the relevant thematic and geographical context. I will start with a general introduction of the city of Johannesburg, followed by a review of local and national levels of food and nutrition security. Subsequently, I will elaborate on the South African food system and nutrition policy framework. Finally, I will discuss the literature on food provisioning strategies of the South African urban poor.

3.1 The city of Johannesburg

Also called the "City of gold" or the "City of opportunities", Johannesburg was founded in the 18th Century because of the discovery of gold, attracting many to work in the mining industry. Still, many people from all over the country as well as immigrants move to Johannesburg in search for opportunities (South African Cities Network, 2019). It is the largest South African city in terms of size and economic output. In 2011, the city of Johannesburg had a population of about 4.4 million people (STATS SA, 2011). Johannesburg is the capital of the Gauteng province, which is the richest province in South Africa, contributing over one third of national GDP and accommodating more than 24% of the countries population (STATS SA, 2016).

However, aggregated numbers do not show the large disparities and issues within the city: *"Poverty and unemployment, urban violence, insecure housing tenure, a high prevalence of HIV/AIDS, chronic diseases and food insecurity are some of the critical human development issues facing the residents of the city."* (De Wet, Patel, Korth & Forrester, 2008). The rapidly growing and changing city deals with large challenges of urban poverty, inequality and social exclusion.

3.2 Urban food and nutrition security

Although Apartheid officially ended in 1990 and South Africa became a democracy in 1994, the country still bears the consequences of the Apartheid system. The newly elected government made some successful efforts to reduce poverty and inequalities, of which the social security system is an example. However, in 1996 the government took a more neoliberal approach, boosting macro economic growth but lacking to tackle the socio-economic challenges within the country (Hanoman, 2018).

Today, South African cities are highly unequal; this is for example reflected in the unequal access to land, housing and service provisioning throughout the city of Johannesburg,

resulting in large disparities between (adjacent) neighbourhoods. These high inequalities are reflected in a range of survey results on food insecurity. For Johannesburg, the results range from 27% to 41% of households being severely food insecure (Rudolph, Kroll, Ruysenaar & Dlamini, 2012).

In South Africa, there is increasing evidence of overnutrition, co-existing with undernutrition. This points to the issue of access to good and healthy food within urban areas (Frayne et al., 2014). More specifically, data shows that the dietary diversity of one third of the households surveyed in Johannesburg was insufficient. Moreover, food groups that dominated the household's diets were high in calories and low in fibre and nutritional value (Rudolph, et al., 2012). Although child wasting and underweight has decreased over the years, other forms of child malnutrition are a persistent issue. Levels of stunting remain high, with even an increase reported under young children (1 to 3 years) in the South African Health Survey (2012), from 23.4% to 26.5% between 2005-2012. Statistics South Africa report in 2016 that for children under 5 years old, 27.4% is stunted. Said-Mohamed, Micklesfield, Pettifor & Norris (2015) looked into the trend of stunting over time, and although there are difficulties in comparing data because of measurement differences, he also confirms that in particular in the early age group, there is a very high (around 25%) prevalence of stunting. Furthermore, there were no differences found in levels of stunting between rural and urban areas, and the highest levels were found in informal areas. As the number of urban residents living in informal settlements has increased due to urbanisation trends, this means that there is an increase in poor nutritional status in these areas. At the same time, there is a high and growing prevalence of overweight among children. Although the prevalence of both stunting and overweight co-existing seems contradicting, in South Africa these trends are both driven by diets that are high in calories, but poor in nutritional value, and the higher chance to become obese later in life if you are malnourished as a child (Ledger, 2018).

3.3 National & local food and nutrition security policies

Since 1994 various policies have been designed and implemented by the government to improve food and nutrition security in the country. One of the first food security policies was the VAT exemption for staple foods (Boatemaa et al., 2018). Since 2002, three key programmes have guided the national food security framework: the Integrated Food Security Strategy (Department of Agriculture, Forestry and Fisheries (DAFF)), the Integrated Nutrition Programme (Department of Health (DH)) and the National School Nutrition Programme

(Department of Basic Education (DBE)). More recently, the National Policy on Food and Nutrition Security (NPFNS) (DSD & DAFF, 2013) has been developed, aiming to provide a broad framework to improve food and nutrition security (Battersby et al., 2014).

These programmes form a large national expense. Based on the Estimates of National Expenditure (National Treasury, Republic of South Africa, 2018), 1.4 billion Rand was spent on food security within the DAFF, amounting to almost 20% of their budget, and 6.8 million Rand was spent on the National School Nutrition Programme, which adds up to almost 30% of the budget of the DBE. Furthermore, 24.7 million Rand was spent on "health promotion and nutrition", within the DH, and 190 million Rand went to the food relief programme of the department of Social Development (DSD). This latter department also spent 162.6 billion Rand on the social grant system, which forms 94% of their expenses.

Clearly, a lot of money is being spent on these food and nutrition security policies, but what do they aim to do? According to Battersby et al. (2014), these programmes mainly focus on production, nutrition promotion and social safety nets. With regard to health promotion and nutrition, it focuses on specific nutritional treatment and counselling for diseases, including HIV/AIDS, the promotion of breast-feeding and "nutritional promotion, education and advocacy" (Battersby et al., 2014, p.55). The National School Nutrition Programme aims to provide meals, nutritional education and promotes food gardens at schools. So both national and local government are mainly thinking in terms of productionist solutions, with additionally social safety nets, while urban food and nutrition insecurity is especially about a lack of access to quantity and quality food. The City of Johannesburg is in this respect not different; addressing food security does not go further than the promotion of urban agriculture and the distribution of food parcels (Ledger, 2018).

3.4 Food provisioning strategies of the urban poor

For the urban poor, access to nutritious food is often constrained and the options they can choose from are limited. In this paragraph, I will first elaborate on poverty, as this is the main underlying cause of urban food insecurity. After, I will provide a literature review of the various sources of food the urban poor use.

3.4.1 Poverty

Poverty, understood as a lack of income, is found to be the main underlying cause of food and nutrition insecurity in South Africa, which highlights the importance of purchasing food,

especially in urban areas. Data shows that only between 4 and 44% of households across South African municipalities were ever involved in agricultural production in 2011 (Battersby et al., 2014). However, even in rural areas, very few households produce their own food. Being able to afford food is therefore a central concern in poor households and determines the quantity and quality of food available to them for consumption through the market (Ledger, 2018).

The affordability of food is determined by both food prices and income available for food. Food price inflation has been high in South Africa, as a result of the high dependence on the import of food. So a food price crisis, like in 2007, imposes a threat to food security of poorer households (Misselhorn & Hendriks, 2017). This also decreases their dietary diversity, as the prices of most nutritious foods have grown faster than household income over the last years (Ledger, 2018). Frayne et al. (2014) show that healthier alternatives of commonly eaten products cost 10% to 60% more based on price, and 30% to 110% more when comparing the cost of food energy. Also PACSA, a local organisation that monitors the prices of food baskets for low income households in the urban area of Pietermaritzburg, reports for 2017 that the Monthly Minimum Nutritional Food Basket is 2.2 times more expensive (116%) than the Monthly Food Basket, which is not nutritionally sufficient (Smith, Abrahams & Chiya, 2017).

Since 2012, Statistics South Africa measures national poverty lines, of which the lowest one is the Food Poverty Line (FPL). The FPL indicates whether people are able to consume enough food for a set minimum required calorie intake. In 2015, the percentage of people living below this FPL was 25.2%, so more than a quarter of the population, which was an increase compared to 21.4% in 2011. Reasons provided for this worsening situation include low economic growth, high unemployment rates and increasing food and energy prices for consumers (STATS SA, 2018). The same report also shows that for poor households, the largest part of their expenditures went to food in 2015 (30%), which grew with 7% compared to 2006. Furthermore, housing and transport constitute large parts of their expenditures as well (22% and 12.5%, respectively), which have increased sharply between 2006-2015 (22% and 25.7%, respectively). This data shows that there are different, competing claims on (often already limited) household income, restricting the food budget.

With the increase in unemployment, social grants play a central and stable role in poor households' income. It was estimated that in 2014, 22% of the population received a grant from the state. This dependency on grants is so large, that it even impacts household structure and responsibilities within it. As mothers tend to receive a child support grant and the elderly receive state pensions, they become central in many households (Lakhani, 2014).

3.4.2 Market sources

Since urban food systems are characterized by a rapid growth in the number of supermarkets, much research has focused on these formal retail outlets in relation to food security. Although some argue that the growth of supermarkets can contribute to food security through low prices (Igumbor et al., 2012), others point at the low nutritional value of processed food that is being offered by supermarkets (Pereira, Cuneo & Twine, 2014). Also, they might undermine local businesses and the ability of households to invest in own food production (Termeer et al., 2018). Also Battersby & Peyton (2014) looked into the impact of supermarkets on food security in Cape Town, and found that poorer residents experience physical and economic constraints in accessing nutritious and sufficient food. This is because the distribution of supermarkets is adjusted to the neighbourhood in terms of quality and quantity, catering to low or high-income residents. Although many residents shop outside their neighbourhood, the need to travel in order to access a supermarket still imposes a financial and time constraint on them, especially if they are unemployed (Battersby & Peyton, 2014). In another study, Battersby uses a food desert approach to investigate spatial access in Cape Town. Urban food deserts are referred to as those areas in cities where obtaining nutritious food is virtually not possible. Although she concludes that this approach provides a good starting point, it lacks recognition of non-formal and non-market sources of food. Also, it assumes that people shop where they live (Battersby, 2012).

Survey data from Johannesburg shows that more than 90% of poorer households use supermarkets, but the majority only does this about once a month. An important reason for this low frequency of use is the lack of spatial access; the difficulty and the transportation costs of getting to the supermarket and transporting large volumes of food put a constraint on poorer residents. Also, many households do not have the storage and financial ability for buying large amounts of food (Rudolph et al., 2012).

Although there has been less attention for it, the informal food sector, such as street food and vendors, remains of high importance, especially for the urban poor. Besides the fact that supermarkets have replaced informal trade in some areas, informal trade has transformed as well to cater the poorer residents (Crush and Frayne, 2011). Based on the AFSUN survey in Johannesburg, poorer households most frequently visit the informal market and street food, 25% even goes there at least five times a week (Rudolph et al., 2012). Research by the Food Lab (2015) in Cape Town is in line with these findings; the most often used sources are spaza shops (informal convenience shops), which are visited twice or more a day by 66% of the

surveyed population. Furthermore, informal food trade plays a crucial role in township economic activities, as it accounts for 60% of retail. There is a very high density of informal food outlets in these areas, reducing margins for sellers because of the high competition (Ledger, 2018).

Although informal food outlets are not necessarily cheaper than the formal outlets, they cater to the poor as they provide smaller packages, are within walking distance and often allow buying on loan for customers they know. Furthermore, they provide a wide variety of foods, including quality fresh produce for a reasonable price. Ready-cooked food is also a convenient source, but the cheaper options that are affordable for the poor usually contain much fat, sugar and salt (Ledger, 2018).

3.4.3 Non-market sources

The urban poor's food choices are limited by their (volatile) income available for food. Therefore, they combine market sources with non-market sources, for which they do not need cash. In this way, they actively try to address their food and nutrition insecurity. As these food provisioning strategies are often used for the purpose of coping with this insecurity, it seems logical that the nutritional value matters less and less, not least because they do not have much influence on the actual food they receive; it is often just about "having "something" in the stomach" (Lakhani, 2014, p. 52).

Households play an important role in filling up the gap in accessing food left by governments, civil society and the private sector. With regard to accessing food via social networks, a large part of households acquire food through borrowing food, sharing meals with neighbours/others and provision of food by neighbours/others. These strategies are more often used by food insecure households then secure ones and show the strength of the social networks at work. However, it also portrays the vulnerable position many households are in as they form survival strategies, showing the lack of access through other channels (Battersby, 2011). When people have limited access to physical resources, their social capital and relationships become central to their livelihood strategies.

3.5 Research objective

Child malnutrition remains a persistent issue in South Africa and has severe consequences for children's health status. National and municipal food and nutrition security policies mainly focus on production, safety nets and nutritional promotion and education, making it largely a personal problem based on poor food choices (Battersby & McLachlan, 2013). The literature

review provides evidence that the role of nutrition knowledge is uncertain and at best plays a mediating role, and there is a range of different factors that can limit individual's use of their nutrition knowledge (Wardle et al., 2000; Worsley, 2002; SANANES-1, 2012). Therefore, this research aims to critically assess the assumption of policies that one of the key factors that will improve child nutrition is nutrition promotion and education. Therefore, I will investigate the factors that shape caregivers' food choices for their children in Johannesburg. As a result, we can get a better understanding of what food options the urban poor *actually* have, how they choose among those options, and what constraints they face in accessing alternative options.

There is a broad range of research on people's individual food choices and what outcomes are in terms of food eaten, but there is limited research available on what factors in the environment are limiting the choices the urban poor can make (Ledger, 2018; Frayne et al., 2014). There remains a knowledge gap in the literature in understanding 'the urban food environment' and how the urban poor manage to acquire food (Food Lab, 2015). Moreover, there is limited understanding on how this relates to child malnutrition (Frayne et al., 2014).

As a result, for the purpose of this research, I will use a household food provisioning strategies approach. By looking into the ways caregivers get access to food, the choices they make and their perceived (in)access to alternative sources, allows for an analysis of how the wider economic, political, social and cultural context imposes limitations on what choices people can make with regard to food consumption. In taking this more holistic approach, this research contributes to the knowledge gap that exists in the literature as well as between policy and practice.

4 Methodology

In this chapter, I will first discuss the research questions, the conceptual framework and the methods. Subsequently, I will introduce Afrika Tikkun, the organisation I collaborated with for this research project and elaborate on the research sites. Finally, I will discuss my positionality in the field and the limitations of the research. The ethical review and reflection can be found in Appendix A and B, respectively.

4.1 Research question

In order to get a better understanding of the factors that shape caregivers' food choices, the research question is: *What are the key factors that influence the food choices that caregivers make for their children in food insecure households in Johannesburg?*

In order to answer the research question, the following sub questions were developed:

1. What is the status of food and nutrition security of the households and children?
2. What are the factors that influence what *food options* are actually available?
3. What are the factors that influence how *food choices* are made among actually available options?
4. How do these factors differ from the factors assumed by government's food and nutrition security policies?

4.2 Conceptual framework

Based on the literature review and the research questions developed, the conceptual framework will be as per figure 1.

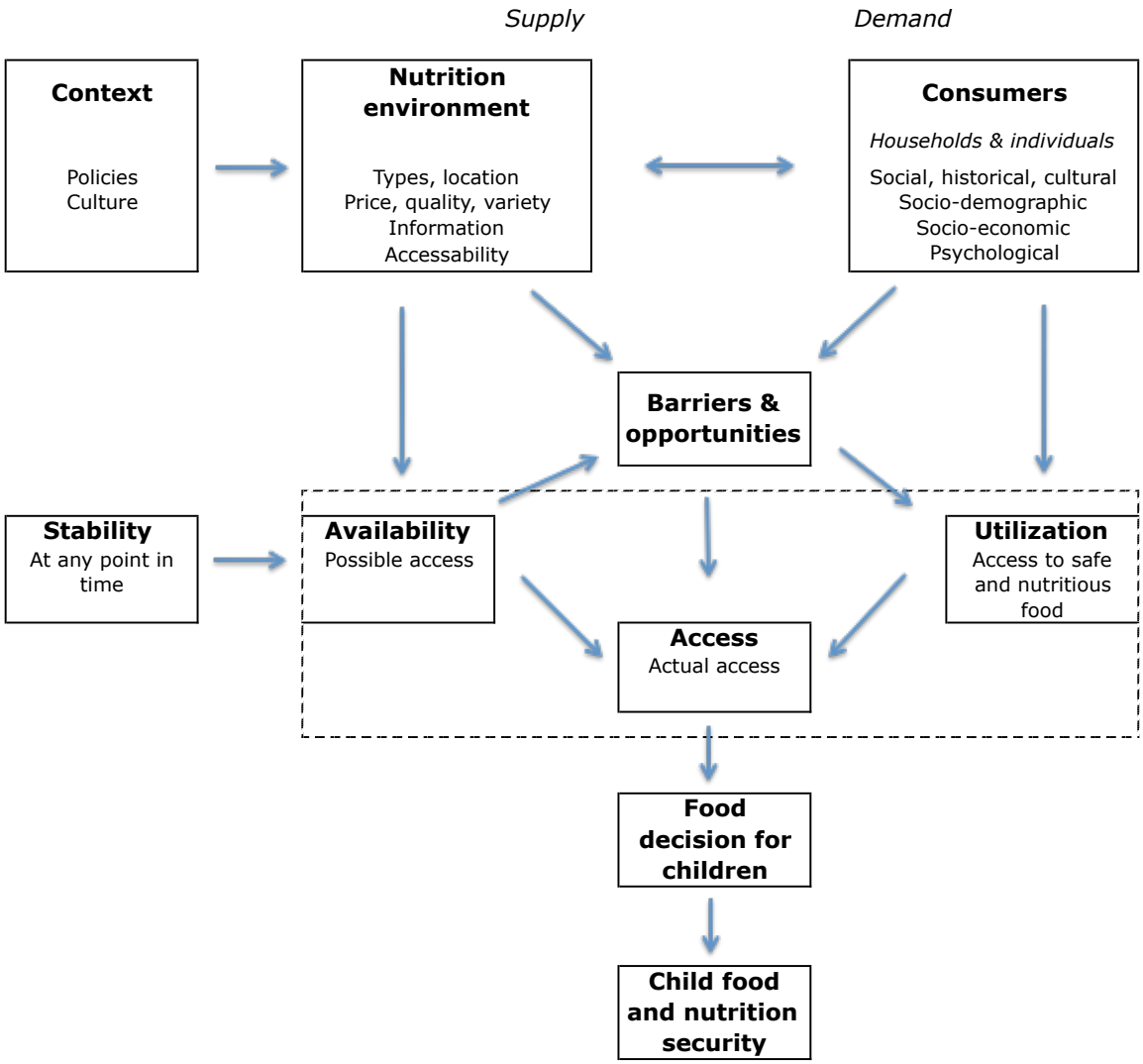


Figure 1. Conceptual framework. Adapted from "Conceptual Model of Food Access", by J. Sharkey, S. Horel & W. Dean, 2010, *International Journal of Health Geographies, 9*(26), p.3. Copyright 2010 by Creative Commons Attribution Licence.

The model shows the relationship between the nutrition environment (supply) and consumers (demand) and how they influence access. To include the nutrition aspect of food and nutrition security, I use the term and model of "nutrition environments", to analyze the complex influences from the food system. These interlinked nutrition environments are: the community (type, location and accessibility of food outlets), the organizational environment (physical and institutional spheres where food is consumed), the consumer (availability, price and information about foods in food outlets) and information (from media and advertising) (Glanz et al., 2005). I will use this model to identify and categorize the factors in the food system that influence food choices for caregivers.

The nutrition environment is influenced by its political and cultural context, characterized by contextual factors and influences demand. The consumer side is characterized by household and individual factors that influence, in turn, the nutrition environment. In accordance with the household food provisioning strategies approach, it shows that both structure and agency play a role. The characteristics of both the nutrition environment and the consumers, as well as what food is available, determine barriers and opportunities to actually access and utilize the available food (possible access). Moreover, stability of availability, access and utilization influences the food options at any given point in time. Actual access determines what food options are available to choose from, leading to a food decision for children and this subsequently influences child food and nutrition security.

4.3 Research methods

I conducted fieldwork in four different areas within Johannesburg, between February and May 2019. Different sites have been included in the research at varying distances from the city centre and with differing as well as similar characteristics. This allows for a comparison between different nutrition environments, which contain important determinants for food choice. Collaborating with local NGO Afrika Tikkun provided me with the opportunity to include four different sites: Berea, a neighbourhood in the city centre; Alexandra, a township close to the centre; Diepsloot, a township in the Northern part of the city and close to Pretoria; and Orange Farm, a peri-urban township in the South of Johannesburg. After visiting all areas for an exploration of the local nutrition environments, focus group discussions and structured interviews, in collaboration with NGO representatives, we decided to continue the research project at two sites to get an in-depth understanding of food provisioning strategies, because of time constraints. I decided to do this in the townships of Diepsloot and Alexandra, because of access and safety considerations. I will further elaborate on Afrika Tikkun and its beneficiaries in paragraph 4.4 and the research areas in paragraph 4.5.

I used mixed methods as the fieldwork approach to this research, by mixing both quantitative and qualitative methods (Hennink, Hutter and Bailey, 2011). I first collected primary and secondary quantitative data to establish the food and nutrition security status of the children, families as well as the wider group of NGO beneficiaries. I also collected data on local food prices. Subsequently, by using qualitative data collection methods, I sought an in-depth understanding of the household food provisioning strategies employed by caregivers.

4.3.1 Primary data collection

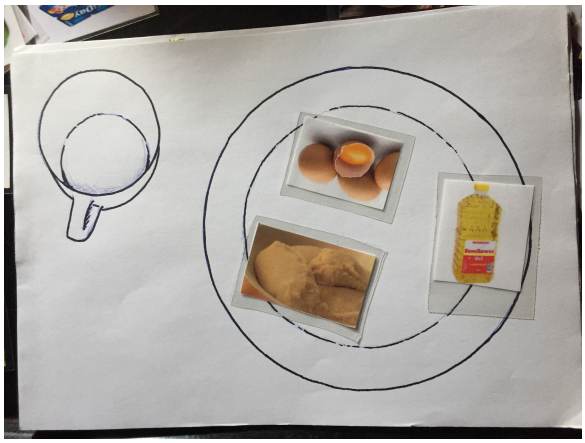
The primary data collection entailed the following methods, which have been chosen considering suitability, validity and reliability. Copies of all focus group and interview guides can be found in Appendix C.

The first method was an exploration of the local nutrition environments. By walking around, visiting shops and talking to vendors and shop owners, I analyzed the basic structure of the nutrition environments in all four areas, focusing on aspects such as the types, locations and accessibility of food outlets and what can be bought for what price. It is important to note that I did not cover every food outlet in each entire area or township. However, this does not form a limitation, as it was the aim to cover every *type* of outlet that the participants used within their *local area*, and in this way obtain a representative sample of the area. Timing is also an important aspect; informal food vendors may have different hours of operation and location depending on the (time of the) day. Except for Berea, I walked around the local areas not just during the exploration of the nutrition environment, but also on other days and times to go to the participants, which limits the bias in timing. Therefore, this method gained insight into the food options available within the direct environments of the participating caregivers, which established a basis for the structured interviews and for answering subquestion 2.

Secondly, four focus group discussions were conducted with NGO representatives in each area. The number of participants varied between 3 and 11, they were all social (auxiliary) workers or students and worked together in teams in their respective area at the time. Since they know the NGO beneficiaries and areas well, the aim of these discussions was to get an understanding of both the general and the food and nutrition specific situation in the areas. Furthermore, I wanted to ask them to collaborate for the research. In this way, they are informants, participants and partners in this research. Before the discussion started, I explained the aim of the research, the agenda of the discussion and asked for consent and approval to voice record the discussion. Topics included food habits and traditions, sources of food and the services Afrika Tikkun provides. Therefore, this method adds to the internal and external validity of the data. In qualitative research, credibility is used to evaluate internal validity and transferability is used to assess external validity. The first is enhanced because I could triangulate the data from different sources and the latter allowed me to contextualize the data (Golafshani, 2003).

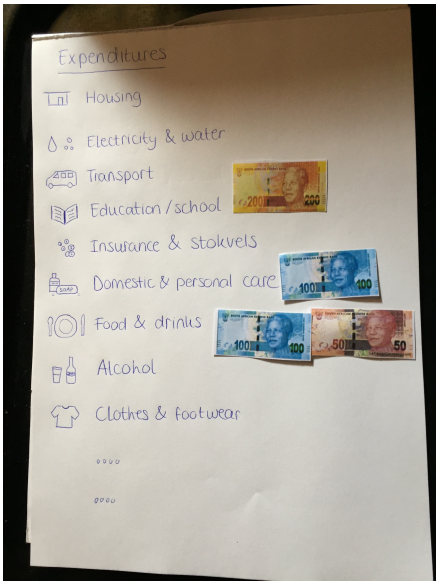
Thirdly, I conducted 26 structured interviews with caregivers who were taking care of children in food insecure households. Therefore, a purposive sample was drawn from Afrika Tikkun's beneficiaries classified as orphans and vulnerable children (OVC), whose caregivers participated in a survey conducted by Afrika Tikkun. They were chosen based on the survey results, which includes a question about nutritional status, as well as the judgement of the social (auxiliary) workers of Afrika Tikkun, who know the families well. As the topic is quite specific, but the research aims to gain in-depth information, I initially decided to sample 6 caregivers for each area, so 24 in total. However, since I conducted two short extra interviews in Berea, this became 26. For safety and access reasons, only caregivers that are beneficiaries of Afrika Tikkun were sampled. This may cause a bias in the sample, in the sense that these families are already receiving services and might therefore be better off than other families in the community. However, this bias is limited by the fact that the families are assessed as being OVC by Afrika Tikkun and are selected for this research based on their low score on nutritional status. They represent a large group of people that struggle every day to put food on the table. To limit this bias, I asked the social (auxiliary) workers about the community situation in general and I situated the findings from the sample into the wider context by using secondary data, on which I will further elaborate at the end of this paragraph.

Before I started the interviews, I introduced myself, explained the objective of the research, the agenda of the interview and confidentiality. Furthermore, I asked permission to voice record the interview and asked for written consent. In order to collect both quantitative and qualitative data during the structured interviews, I designed exercises to let the participants visualize their childrens' eating patterns and their own food provisioning strategies (Figure 2a and b).



a.

b.



c.

Figure 2. Examples of visualization exercises used during structured interviews. *a*. Breakfast of one of the children, *b*. Categorizing groceries according to source by one of the caregivers, *c*. Monthly household expenditures in ZAR by one of the caregivers. Sources photographs: S. Geurts

I chose this method because the participants would feel more comfortable doing exercises, while answering questions, instead of only answering questions, as advised by NGO representatives. I perceived this as important to the validity and credibility of the data, as child malnutrition is a sensitive subject. Caregivers generally find their child's health very important and feel ashamed if they cannot provide sufficient healthy food for their children. For this reason, I also decided to conduct interviews individually. I found that most of the caregivers enjoyed doing the exercises, which created a positive atmosphere in which we could establish good contact. Moreover, I decided to do the interviews at the homes of the caregivers, so that they would feel more at ease, I could see their living situation and they

could show me where they store, prepare and cook food. This adds to the validity of the data collected, as I could triangulate what they told me with what I saw.

In order to measure the nutritional status of the children, I used the guidelines for the Individual Dietary Diversity Score (IDDS) for children to measure the quality of children's diets based on 8 food groups (Swindale & Bilinsky, 2006; FAO, 2013), as it was found to best capture how nutritious and balanced diets are (Heady & Ecker, 2013). Instead of writing down what the children ate in the last 24 hours, I asked the caregivers to visualize their plates and cups (see figure 2a), and always asked whether certain foods were missing from the pictures. I made photographs of every "plate and cup". However, while analysing the IDDS, I realised it does not take into account amounts and nutritional quality of the food. Therefore, I added an analysis based on the food-based dietary guidelines of South Africa (Vorster, Badham & Venter, 2013). Although the guidelines for measuring the IDDS indicate that, to assess a typical diet, it can be measured any time, the IDDS is still only a snapshot. Therefore, to add to the reliability, I collected additional secondary and qualitative data on the households' food and nutrition security situation.

Furthermore, quantitative data was collected regarding the households' main monthly expenses by means of another visualization exercise (see figure 2c). Predefined categories were shown, but I always asked whether a category was missing. The remainder of the structured interviews evolved around qualitative data collection based on the caregivers' food provisioning strategies and choices.

Fourthly, I conducted 17 semi-structured interviews with part of the same caregivers I conducted the structured interview with, to get an in-depth understanding of their food provisioning strategies and food choices. For the first round of these follow-up interviews, I went back to all caregivers in Diepsloot and Alexandra, except for one, because she was not fully in charge of food purchases and the budget and it was difficult to establish contact. For the second round of follow-up interviews, I went back to 3 caregivers in each area, who were chosen based on the relationships I had established with them, and their openness and willingness to talk with me. During these interviews, I also asked about more sensitive subjects, such as their experienced food insecurity. I brought advertisement papers of the major local supermarkets to let them show how they would go about their groceries shopping. Although this is obviously different than in reality, the majority confirmed they look at the papers beforehand, so this added to the reliability of the data. Building relationships with the participants and interviewing them on multiple occasions adds to the validity of the data

received as well (Brink, 1993). This qualitative data was used to answer all of the research subquestions.

Finally, I wrote field notes to account for decisions made in the field, which adds to the consistency or reliability of the data and allowed for reflexion throughout the research process.

4.3.2 Secondary data collection

The secondary data collected consists of two data sets. The first set was provided by Afrika Tikkun. They conducted a survey with 50 questions regarding different poverty indicators, called "Poverty Stoplight", for which participants assess themselves with red (very poor/level 1), yellow (poor, level 2) or green (not poor, level 3) (Bergh, 2018). This initial survey was conducted during the second half year of 2018, with 297 of their beneficiaries, who are assessed as being OVC. I used the results for comparison with the data from the interviews and to situate them within the wider group of beneficiaries. However, based on data from the focus group discussions, the reliability of the data might be limited, as personal biases may have occurred. Although still useful, I used to data with precaution, which I will elaborate on in the results chapters.

Furthermore, I received access to another secondary data set, based on the 2017/18 Quality of Life Survey commissioned by the Gauteng City-Region Observatory (GCRO), a partnership of the University of Johannesburg (UJ), the University of the Witwatersrand, Johannesburg, and the Gauteng Provincial Government. By randomly selecting more than 24.000 participants across the region, they aim to track the quality of life of residents (ResearchGo, 2019). I used this data to situate the participants within the wider population of the areas and to provide background information.

4.3.3 Data analysis

All of the interviews and focus group discussions were voice recorded with permission and turned into a verbatim transcript by the researcher. This process adds to the accuracy of the transcripts (Brink, 1993). The transcripts were created and analysed within a week after the interviews, so that emerging topics could be incorporated in the following interviews and remaining questions could be addressed with either NGO representatives or caregivers. Moreover, this allowed me to reflect on the interview process and to keep learning and improving during the project. Coding was conducted in Nvivo by repeatedly reading the transcripts and notes, open coding, creating hierarchies for codes to categorize them and

creating main themes. Furthermore, photographs of the meals of the children were turned into descriptions and further analyzed based on the IDDS guidelines for children and photographs of the households' expenses were analyzed in Excel. The secondary data sets were analyzed in SPSS, by performing descriptive analyses and calculating the Pearson's r correlations for the stoplight survey data. Pearson's r was chosen because the variables in the stoplight survey data are interval. During the whole process, different (sources of) data were compared in order to triangulate and identify commonalities as well as discrepancies.

4.4 Host organisation: Afrika Tikkun

Afrika Tikkun was founded in 1994 with the aim to meet the day-to-day needs of children. Later on, the organisation started to focus more broadly on overall development and economic empowerment. Currently, Afrika Tikkun directs its activities towards child and youth development, from "cradle to career" The organisation takes a holistic approach in supporting children and young people, through a range of programmes and services, which they run in different centres across Johannesburg and one in Cape Town (Afrika Tikkun, 2016).

Caregivers need to register their children before the start of the school year if they want them to join one of the educational programmes. If there is space in the respective programme and caregivers pay the school fee, the child will be admitted. However, some programmes are very popular, so they often have waiting lists. After registering, the social (auxiliary) workers do assessments with the children and their families based on financial, physical, educational and psychosocial factors. Based on this assessment, they can determine whether they get exempted to pay the school fees and what additional support they need. This group of beneficiaries is classified as OVC. Therefore, caregivers get access to additional support, such as monthly food parcels and workshops, only if (one of) their child(ren) is attending an Afrika Tikkun centre (Focus group discussions, NGO representatives).

Caregivers get to know about Afrika Tikkun through recommendations by others in their social network and through marketing by Afrika Tikkun. They regularly have pop-up stands at the local malls, they hand out flyers, go door-to-door, and hold introduction meetings to provide information (Focus group discussions, NGO representatives). Therefore, several possible biases in their group of beneficiaries can occur. First of all, Afrika Tikkun is restricted to the maximum number of children they can accommodate, although they are a big organisation already. In 2016, a total of almost 7.500 children and youth were registered for an educational programme and a bit more than 4.800 children and their families were registered for supporting services (Afrika Tikkun, 2016). Secondly, to register, you need a

valid ID and the birth certificate of the child, which some people, especially foreigners, do not have (Interview caregiver, Diepsloot, April). Furthermore, other people do not want help or are afraid to ask for it (Focus group discussions, NGO representatives), do not know about it or do not care: "*Other parents they don't care, do you know that? Other parents they can't ask their kids, do you have homework? Can I check your books? They just say, as long as we surviving, everything is okay."* (Interview caregiver, Diepsloot, April). So besides practical constraints such as an ID, birth certificate and waiting lists, Afrika Tikkun's beneficiaries are a group of people that *have* children and also *care* about their education and development, which forms a bias. Since this research *is* focused on caregivers and their children, only the latter characteristic forms a bias.

4.5 Research sites

Figure 3. Map of Johannesburg with the locations of the research areas. Source: https://www.google.nl/maps. Adapted by S. Geurts

The locations of the research sites within the city are depicted in figure 3. Alexandra is a very densely populated township; it had almost 180.000 inhabitants in 2011, while having the smallest area of the three townships (7km²). Furthermore, there is high unemployment and a strong social division between the 'old' and the 'new' part (De Wet et al., 2008). The research was conducted in the old part. Diepsloot is the second densest township with 138.000

inhabitants on 12km², and has the highest number of informal houses (almost 90%). Orange Farm is less dense (77.000 inhabitants, 12km²), but has experienced a large influx of people over the last years. Berea is a small suburb (43.000 inhabitants, 1km²) where many people live as squatters in abandoned buildings. In all of the areas, the majority is black African (between 97,1% in Berea and 99% in Orange Farm) and speaks isiZulu as their first language, except for Diepsloot, where this is Sepedi. However, all 11 national languages, as well as other international languages, are being spoken in the respective areas, showing how diverse they are (STATS SA, 2011). Especially in Berea and Diepsloot, a large number of respondents from the Quality of Life survey (GCRO, 2018) migrated into Gauteng from another country (28,7% and 21,9%, respectively), and even more respondents migrated from another province in South Africa (highest percentages are in Alexandra (45,4%) and Diepsloot (62,2%)).

Table 1 provides an overview of the linkages between the research subquestions, data, methods and population.

Table 1.

Linkages between the research sub questions, methods and population

Research subquestion	Operationalization	Method	Population
1. What is the status of food and nutrition security of the households and children in the four areas?	IDDS of children	Structured interviews	Caregivers
	Nutritional status of families sampled	Secondary data analysis, Stoplight survey	Caregivers
		Focus group discussions	Social (auxiliary) workers
		Structured & semi-structured interviews	Caregivers
	Nutritional status of wider group of beneficiaries	Secondary data analysis, Stoplight survey	Participating OVC beneficiaries Afrika Tikkun
		Focus group discussions	Social (auxiliary) workers
	Nutritional status of wider area	Secondary data analysis, QoL survey	QoL survey respondents, research sites
2. What are the factors that influence what food options are actually available in the four areas?	Structure of nutrition environment, using model of Glanz et al. (2005).	Exploration of nutrition environment	Researcher and NGO representatives
		Informal communication	NGO representatives and food vendors
		Structured & semi-structured interviews	Caregivers
	Contextual, household and individual factors	Structured & semi-structured interviews	Caregivers
		Secondary data analysis	QoL survey respondents, research sites
	costs of a basic nutritional diet	Exploration of nutrition environment	Researcher and NGO representatives
3. What are the factors that influence how food choices are made among actually available options?	Contextual, household and individual factors	Structured & semi-structured interviews	Caregivers
		Focus group discussions	Social (auxiliary) workers
4. How do these factors differ from the factors assumed by government's nutrition policies?	Comparison findings and policy documents	Structured & semi-structured interviews	Caregivers
		Focus group discussions	Social (auxiliary) workers

4.6 Reflection on positionality in the field

The subjective nature of qualitative research requires a reflection on the position of the researcher as well as the participants and how this influences the data collected (Hennink et al., 2011).

Firstly, my cultural background and assumptions have had an influence. Although I asked the NGO representatives beforehand what I should wear and dressed accordingly, I stood out as a tall, white woman who was clearly not from the area. In two areas, this and the resulting safety situation made me feel uncomfortable, especially when I noticed that the NGO

representatives who were with me felt uncomfortable as well. These personal feelings and interview settings have influenced the personal dynamics between the participants and me in a few cases, which impeded the data collection process and as a consequence, the data quality. Therefore, certain small parts of the data are not taken into account in the findings.

From the perspective of the participants, cultural differences may have posed a challenge of trust and providing honest information. Caregivers may have provided information about their children that draws a more positive picture than reality, because they were ashamed or did not trust me. In order to limit the consequences of these challenges, I interviewed participants within their homes and cross-referenced the data with other sources. Moreover, I only went back to part of the participants for follow-up visits, because I felt safe in those areas and I had developed good relationships there. During these interviews, most of the participants also seem to feel more comfortable.

Furthermore, I am aware that the participants in this research are solely beneficiaries of Afrika Tikkun. Although this enhanced trust because the NGO representatives that joined me know the participants, this could have created an incentive to not provide honest information, to impress the representative. For this reason, I always explained and emphasized that the answers they provided would not influence any services they receive from Afrika Tikkun; nor in a positive or negative way, and that I was interested in their view; not the "correct" answer.

Secondly, there were some practical constraints. There was a time constraint of three months for conducting the research. This posed limits on the time available to get acquainted with the research environment and build relations with possible participants and informants. Secondly, there was a language barrier. English is only one of the 11 official languages spoken in South Africa and for many people it is not their first language. For this reason, I asked the NGO representatives whether they could interpret for me during the interviews, if the caregiver wanted to speak in another language than English. However, this procedure still impacted the quality of the data gathered, because the information was not always being received verbatim.

Notwithstanding these limitations, I am positive about the contribution of this research. The results will contribute to an in-depth understanding of food and nutrition security in this particular urban context.

5 Results: the nutrition environment & food and nutrition security status

In this chapter I will present the empirical results. In the first paragraph, I will introduce the caregivers and the areas to set the scene. In the subsequent paragraphs, I will discuss the structure of the nutrition environment based on the model of Glanz et al. (2005). After that, I will provide an analysis of the food and nutrition security status of the children and households. All names of the participants have been changed in the results chapters.

5.1 Setting the scene

Who are these caregivers that are responsible for making food choices for their children every day? There are 26 caregivers, of whom 25 are female, and their age ranges from 25 to 64 years. Three of them are married, one is divorced and three were married before, but their partner passed away, and three are living together (cohabiting). The rest, 16 caregivers, are single or have a partner not living with them, so they are the sole caregivers at home. The majority of the caregivers are from South Africa (69%), while almost one fifth (19%) is from Mozambique and 12% from Zimbabwe (secondary data, Afrika Tikkun, March 2019).

Most caregivers take care of 2 or 3 children, while two caregivers have one child and one caregiver has 7 children to take care of. In a few households, there are also sons or daughters (in law) living in the home who are older than 18, who sometimes have children of their own. Also, in two households, the mother of the caregiver is living there (temporarily) as well, and it may be that caregivers are not the parents of the children, but a grandmother, aunt or older sister. Fathers of the children have often left and do not provide for the children. An NGO representative indicates that it is difficult to involve fathers in their programmes; there are only a few who actively attend the centres (Informal conversation, Feb. 2019).

In what sort of conditions do the families live? Table 2 provides an overview of the responses from the wider group of beneficiaries. Looking from an even broader perspective, the Quality of Life survey data (GCRO, 2018) for the respective areas shows that 48% of the respondents is (very) dissatisfied with their dwelling, mainly because it is too small, badly constructed and because of a lack of services.

Table 2.

Percentage of respondents that assessed themselves positively on indicators of living conditions and access to services, per area

	Alexandra	Diepsloot	Uthando	Orange Farm
We have a modern toilet	25%	79%	72%	85%
We have constant electricity	65%	51%	65%	82%
We have a fridge and other appliances	22%	9%	54%	66%
We have a stove and kitchen area	27%	7%	39%	70%
We have drinking water	41%	15%	76%	95%
A health care centre is nearby	45%	5%	85%	89%
We live in an unpolluted environment	29%	42%	57%	89%
We have good, regular transportation	14%	84%	26%	41%
We live in a safe neighbourhood	67%	56%	50%	68%

Note. Uthando is the name of the Afrika Tikkun centre that serves beneficiaries from different areas in the city centre, including Berea. The percentages represent the share of respondents that responded with "good" (level 3). Based on data from poverty stoplight survey, participating OVC families, Afrika Tikkun, second half 2018.

During Apartheid, townships were racially segregated urban areas, usually at the periphery of cities, where "non-whites" had to live when they were working in "white-only" areas. This segregation still characterizes the city, although formally people can live wherever they want. So what characterizes the areas now? Caregivers indicate their neighbourhoods have become densely populated; there are a lot of people moving there from all over South Africa as well as other African countries (Interviews caregivers, Alexandra & Diepsloot). One of the NGO representatives explains that many people who move to the townships build informal shacks on "empty" pieces of land, like yards. Once they are settled, they start protesting for basic services. This can become very violent, with roadblocks and fires, especially before elections (Informal communication, Orange Farm, March). QoL survey data (2018) indicates that the main concerns of these protests are regarding water, electricity and access to social housing.

The area of Berea is located in the centre of the city, and is perceived as very unsafe, with high crime levels and alcohol and drug abuse. People live in abandoned buildings that were left unattended by the rich white population in 1994, when South Africa became a democracy. They were scared that the majority black population would start a war against them so they fled. These buildings are now largely unserviced.

These issues also appear from the QoL survey data, indicating that the largest perceived community issues are crime and drugs in Berea, crime and a lack of basic services

in Alexandra and Diepsloot, and Orange Farm, the largest problem is unemployment (QoL survey, GCRO, 2018).

So why do so many people live in these areas, while there are so many issues? The main reason for moving here is to look for a job (QoL survey, GCRO, 2018). Some caregivers explain that their parents already moved to Joburg for work, and that they were born here, or moved here as well when they were older. Joburg is perceived as "the city of opportunities": notwithstanding the often harsh and unsafe living conditions, which is especially challenging with children, people stay here because there are opportunities, unlike the rural areas.

"For me, like myself, I am sometimes thinking that, I can take my kids to study at home. Other thing is that, in Limpopo there is not much opportunities. Like in Joburg, Joburg is having a lot of opportunities." (Interview caregiver, Diepsloot, April).

5.2 Structure of the nutrition environment

Now that we have seen what the areas characterize, I will look at the local food systems in the areas. Using the model of nutrition environments (Glanz et al., 2005), various variables can be distinguished that determine the structure of nutrition environments and which food options are available.

Table 3.

Structure of the community and consumer nutrition environments, per type of food outlet

	type	**low-price supermarket**	**better-quality supermarket**	**spaza**	**street vendor (fruit & veg)**	**hot food vendor**
community nutrition environment	location	depends, usually further away	far away	close by	close by	close by
	accesibility	standard opening hours	standard opening hours	differs, depending on weather	differs, depending on weather	differs, depending on weather
consumer nutrition environment	healthy options	limited	good	very limited	good	limited
	quality, safety	good, stable	high	low	large differences	large differences
	price	low, but depends	high	high	low	differs
	promotion	yes	yes	no	no	no
	placement	basic shelfs, specials promoted	nice shelfs	stockroom	stall	stall
	nutrition information	limited	good	no	no	no
	provide credit	no	no	sometimes	sometimes	sometimes

Note. Data based on explorations of the nutrition environments by the researcher and NGO representatives and interviews with caregivers in the research areas, March and April, 2019.

First, there is the community nutrition environment (see table 3). Supermarkets are usually located in malls or near main roads and can be divided into low-price supermarkets, usually found in poorer areas, and better-quality supermarkets, usually found in middle and higher-income areas, but this is not a clear-cut division. *Spaza shops*[1] are always located inside the neighbourhood and their density differs per area. Street vendors have stalls with fruits, vegetables and some snacks and hot food vendors usually have a *braai*[2] to grill meat or a stove with pots of cooked food.

Although these informal food systems are well organised, the system is fragile and there are big differences between the vendors. While most of the larger spaza shop owners, vendors and wholesalers seem to make a profit with their businesses, the small street vendors often do this for survival purposes; any income is eaten right away. The latter group usually sells one and the same stuff and it is difficult to differentiate because of high competition and poverty. Many people move to Joburg in search for a job, but this turns out to be difficult

[1] Informal convenience shop

[2] South African barbecue

because of the high unemployment rates. Therefore, many end up doing piece jobs for each other or selling goods on the street.

Amahle sells fruits, vegetables and snacks outside her home, which is a small, single room shack, located at a narrow, relatively quiet, dirt road just off the main street. She explains that the price of tomatoes has gone up, and for that reason people do not buy it anymore. Although tomatoes are generally one of the most affordable and consumed vegetables, people are replacing them with bottled tomato sauce. Tomatoes are highly perishable and therefore she decided to not stock them anymore. Many other vendors have stopped selling them as well (Interviews, caregiver)

Nolwazi also has a small business selling stuff for children, like toys, sweets, snacks and cosmetics. Her stall is located at the main road, which is just around the corner from her families' room next to her brothers' RDP[3] house. She explains that competition has increased; there are more people selling the same things, so she travels to Pretoria and into Joburg to get stock that is a bit different. She used to have a table and a tent for her stall and would leave it at the road during her breaks, but once when she came back she found her tent stolen and table broken. She thinks it is her competitors who did that. Furthermore, she struggles to get cash when it is raining, because she cannot sell due to the rain coming into the tent (Interviews, caregiver).

Furthermore, there is the consumer nutrition environment (see table 3). Fresh food is mainly provided by street vendors, who sell fruit, vegetables and chicken. They also sell little bags of beans, *samp*[4], rice, nuts and grains. Their prices and quantities are generally affordable for caregivers. Hot food vendors selling *plates*[5] are generally perceived as expensive, but some fast food is cheaper, such as fries, fried chicken (feet), *bunny chow*[6] and *vetkoek*[7]. However, these are unhealthy as some vendors use the oil for too long (Focus group discussion, Berea). Spaza shops usually sell dry food like maize meal, sugar, flour and snacks, but also soft drinks, milk, tinned food, eggs and bread. Their prices are relatively high and they do not

[3] Reconstruction and development programme (RDP) housing are government-subsidized houses for low-income families.

[4] Dried, stamped and chopped corn kernels, but not as fine as maize meal.

[5] A plate of ready-made food usually contains pap and meat or chicken. Extras are salad and potatoes.

[6] Bunny chow or kota; white bread with fries, polony and acha (pickles).

[7] Deep fried bread dough, often stuffed with polony

have promotions, but they do sell in small quantities and sometimes offer credit to customers they know. The food at these informal outlets differs a lot in quality and freshness, with many vendors and spaza shops selling bad and expired food, which limits caregivers' options in obtaining healthy food:

"Because at the spaza shop they refrigerate it, especially when you go and maybe want to go and buy chicken feet, it's better to go to shoprite, because people they buy it most of the time. But in the spaza shop, it's there for too long in the fridge."(Interview caregiver, Berea, March).

Low-price supermarkets sell dried food in bulk, as well as tinned food, snacks, soft drinks and juice, and fresh food. There is limited variety in products and they are focused on promoting their low prices and "specials", which are focused on dry and tinned food. Bread and meat is also cheap, but fruit and vegetables are perceived as unaffordable. This is often because of the large quantities they are sold in. Advertisement is generally focused on soft drinks; especially "light" versions of soft drinks are promoted as a healthier alternative to the regular ones.

Thirdly, there is the organizational nutrition environment that may include home, work or school. For people living in these areas, they usually eat at home, as they are unemployed or doing piece jobs close to home. People that do have jobs like to get fast food or ready-made meals on the street, but this is generally unaffordable for the unemployed. At school, many children get a basic meal provided. However, if they have a little pocket money, they like to buy sweets and fast food at the *tuck shop*[8], conveniently located near schools.

The information environment and government policies influence the structure of the nutrition environment as well. Because of the increased awareness about non-communicable diseases, there are more and more light-products available, with lower sugar and fat levels. These products are advertised on television and promoted in stores. Government policies include the tax exemption for certain basic foods, which keeps their prices low (Focus group discussion, NGO representatives, Diepsloot). However, caregivers only perceive maize meal as cheap, fruits and vegetables are still regarded as expensive. At clinics, pregnant and ill people get informed about good nutrition and health (Interview caregiver, Diepsloot). Free service

[8] Small informal shop where snacks such as cakes, sweets, fries and pies are sold.

delivery by the government is limited to certain (formal) areas and areas that have electricity are regularly affected by load shedding. Whether there is electricity, water and a garbage disposal affects food safety and quality available.

There is a broad range of options available in terms of types of food outlets, their locations and their products. However, formal and informal outlets adjust the range of products they offer to the neighbourhood, resulting in spatial differences in diversity and quality of the food available. On the one hand, the combination of formal and informal outlets in poor areas seems to add to the diversity in products and quality available, but on the other hand, supermarkets may have undermined informal outlets, because the food in the latter has often "been there for too long", indicating that food gets old because less people buy there.

5.3 Status of food and nutrition security

Before looking into the factors that shape the food options caregivers actually have and which choices they make, I will first look at the food and nutrition security status of the children and the households, to see how severe the issue of malnutrition is in their particular situation. In order to do so, I will first analyze the diets of the children and subsequently relate this to the food and nutrition security status of the families and wider population.

5.3.1 Children's dietary diversity

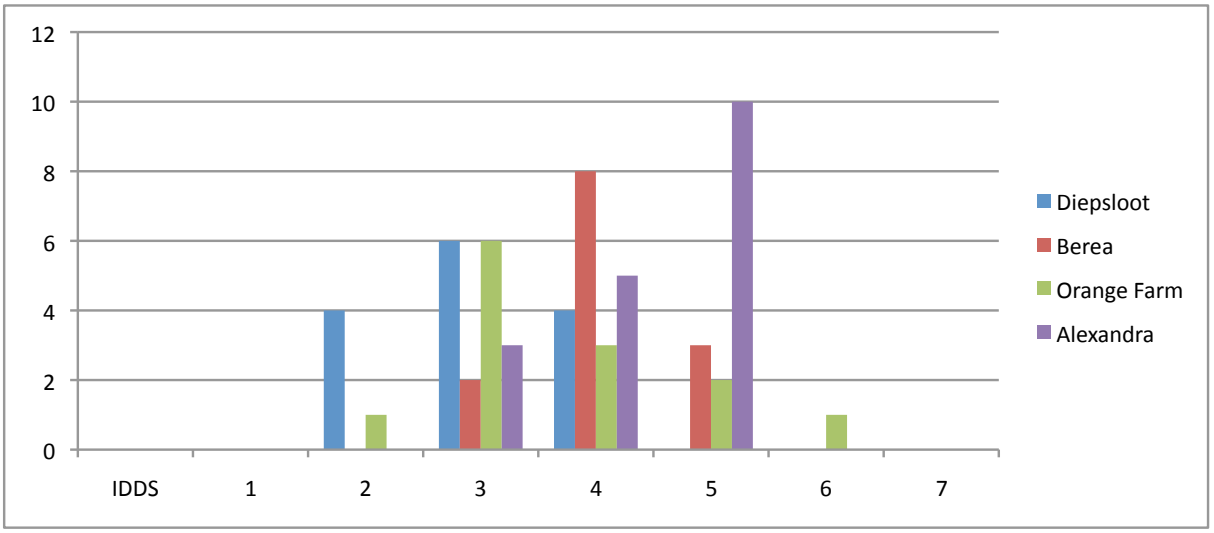


Figure 4. Distribution of children's IDDS per area. Data based on interviews with caregivers, March 2019.

Table 4.

Number of children and average IDDS, per area, age and education group

	Number of children				Average IDDS			
	Diepsloot	Berea	Orange Farm	Alexandra	Diepsloot	Berea	Orange Farm	Alexandra
Age								
6-12 mnths	0	0	0	0				
12-36 mnths	0	1	1	0		5,0	4,0	
3-6 yrs	4	10	4	3	4,8	5,3	5,5	5,3
6+	10	2	8	15	3,7	4,0	4,4	5,4
total	15	13	13	18	4,0	5,1	4,7	5,4
Education								
at home	5	2	1	0	3,8	5,0	4,0	
school	7	0	1	9	3,7		4,0	5,6
school + AT	0	2	7	9		4,0	4,4	5,2
creche	0	1	1	0		5,0	3,0	
creche at AT	3	8	3	0	5,0	5,4	6,3	
total	15	13	12	18	4,0	5,1	4,7	5,4

Note. At home= does not go to school and/or AT, school= attends primary or high school, AT= attends an educational programme at an Afrika Tikkun centre, creche= attends a preschool programme. Data based on interviews with caregivers, March 2019.

The Individual Dietary Diversity Indicator (IDDS) for children includes 8 food groups that are perceived as important contributors to a nutritious diet for children. The groups are divided into the following categories: Grains, roots and tubers; Vitamin A-rich plant foods; Other fruits and vegetables; Meat, poultry, fish and seafood; Eggs; Pulses, legumes and nuts; Milk and milk products; and Foods cooked on oil or fat (Swindale & Bilinsky, 2006). There is no agreement on a cut-off point, but generally, a dietary diversity of 4 is perceived as inadequate, and smaller than 4 as poor (Labadarios, Steyn & Nel, 2011). The total average IDDS among the children in this study population between 6 months and 18 years old is 4.8, of which 28.9% has an IDDS of 4 and 8.5% an IDDS of 3. These numbers represent a limited dietary diversity. The distribution of the children's IDDS per area is shown in figure 4 and table 4 contains details on the average IDDS per area, age and education group. I identified a number of important factors that influence the dietary diversity of the children, which I will shortly describe before going into the analysis of the children's diets based on the food-based dietary guidelines for South Africa.

The age of the children determines how diverse their diet should be, what they eat and where. Babies until 6 months are advised to only get breastfeeded (Vorster, Badham & Venter, 2013), so these are excluded from the total average IDDS calculation and the numbers in figure 4 and table 4.

Also, it is important to consider whether the children stay at home, attend creche or a school and whether they attend an Afrika Tikkun centre (see table 4). Most schools provide

(a) meal(s) to children that cannot afford to bring a lunch box (Focus group discussion, NGO representatives, Alexandra), which is part of the national school nutrition programme. The main part of these meals is starch with usually a side, similar as to what the children eat at home and filling for the stomach. Most of the children going to primary school eat these meals (Interviews caregivers; focus group discussion, NGO representatives, Berea). The Quality of Life Survey (GCRO, 2018) supports the fact that many are benefiting from this programme. It indicates that 42%, 33% and 55% of the respondents in Alexandra, Diepsloot and Orange Farm, respectively, have children that use this programme. In the centre of the city, in Berea, this percentage is lower (12,5%). However, it generally does not add to the children's IDDS.

Many children do (also) bring a lunch box, which is usually filled with bread, polony, juice and snacks. These snacks can be sweets, crisps and other salty snacks, danone (sweetened yoghurt) or in some cases a banana or apple (Interviews caregivers). So even though food is provided at school, the lunch box seems to be an important element for many caregivers. 6 of the 8 caregivers interviewed in Berea would buy snacks and food for the lunch box if they had 100 ZAR extra to spend (Interviews caregivers, Berea). At high school, it is not cool to bring a lunch box, so some children do not eat anything, and only buy snacks at the tuck shop. However, this only happens occasionally and only if the caregivers can afford it (Focus group discussion, NGO representatives, Alexandra; interviews caregivers). These foods do not add to the IDDS of the children either, unless the lunch box contains fruit or danone.

Whether children attend one of the Afrika Tikkun centres, *does* appear to have an influence on their IDDS, because of the meals they get at the centres and the food parcels their families receive. It is therefore important to take into account whether the children attend one of the centres, when the families received their food parcel and whether it is the end or the beginning of the month if they receive social grants. In Diepsloot, the caregivers were visited in the first week of the month, so they had received the child grant, if eligible, but they had not received the food parcel yet. The children attending Afrika Tikkun clearly have a higher score than the ones that do not, but they have a lower score than the children from other centres that also attend creche at Afrika Tikkun. This is because they did not get fruit and some no vegetables there. In Berea, the caregivers were visited in the second week of the month, so they had received the child grant, which they all do, two weeks before and the food parcel the week before. This is clearly reflected in the children's good IDDS (figure 4). The

caregivers were visited in a good period, so at their best, because otherwise they would not be ready for a visit. The reason for this is that alcohol abuse is a large problem in this area, especially after month-end, when people receive social grants or other income (Focus group discussion, NGO representatives, Berea). Orange Farm was visited in the third week of the month. All but one of the caregivers had received a food parcel and two their social grant at the beginning of the month. This diversity and being at mid-month is reflected in the children's IDDS (figure 4). Again, there is a large difference in IDDS between children attending Afrika Tikkun or not. This is especially evident among the children between 3-6 years old, which is mainly boosted by Afrika Tikkun's diverse meals. Finally, the township of Alexandra was visited in the last week of the month, so the caregivers that are supposed to receive a food parcel (4 out of 6) had received it the day before the visit. The social grant was not paid out yet, were five of the families depend on. What stood out was that most of the children had well balanced meals at home, especially the ones receiving a food parcel. Therefore, there is only a slight difference in average IDDS between children attending Afrika Tikkun or only go to school.

When looking at the food groups and the recommendations from the food-based dietary guidelines for South Africa, most of the children consume diets that are not balanced in accordance with the food-based dietary guidelines in terms of quantity and quality. A detailed analysis of the children's diets based on the guidelines can be found in Appendix D.

What stands out is that low-fibre starchy food and food cooked in oil and fat are overrepresented, while there is an absence of vitamin A-rich fruits and vegetables among all children. Other fruits and vegetables are not eaten every day and not in sufficient amounts, even if the children attend Afrika Tikkun. Eggs are not eaten sufficiently and beans, peas, lentils and soya were not consumed at all. Dairy is consumed much more regularly, but not by every child and often in the form of milk powder. The consumption of chicken and fish forms an important source of protein. People generally like fast food, snacks and sweets and some caregivers give them regularly. In general, caregivers always add sugar in the tea and porridge for their children.

Concluding, it is important to note that this analysis is only based on the recall of one day. Therefore, timing was found to be an important determinant for IDDS. Most of the children consume diets that have limited (low to medium) diversity. This is in accordance with findings from Rudolph et al. (2012) in many of the same areas in Johannesburg, where they

found a lack a sufficient dietary diversity among one third of the respondents, and a high consumption of micronutrient-poor foods.

5.3.2 Individual perceptions on food and nutrition security status

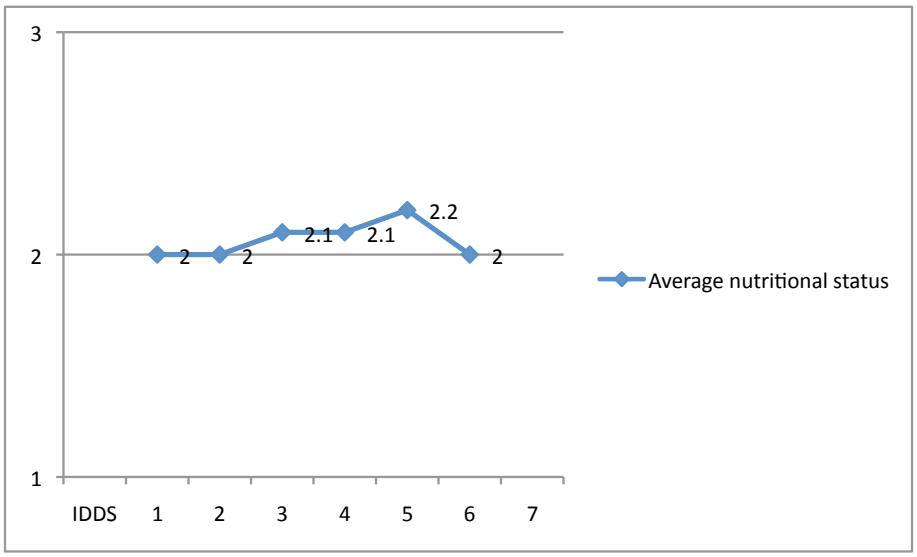


Figure 5. Average nutritional status reported in relation to the children's IDDS. Data based on interviews caregivers, March 2019, and Poverty Stoplight results, Afrika Tikkun, second half 2018.

Figure 5 shows that the self-assessed nutritional status of the families by the caregivers (poverty stoplight survey, Afrika Tikkun, second half of 2018), only shows a very small uplift between an IDDS of 3 and 5, indicating that most caregivers rated themselves as level 2, out of 3 levels (1 being bad and 3 being good). Level 2 means:

"The family's diet does not include all the food types in green list and/or not all the members of the family eat 2 meals per day. The family may have access to some good food, but are not educated about nutritional requirements. One or two family members struggle with obesity or malnutrition." The "green list" referred to states: *"The family eats enough - beef, chicken or fish; milk and dairy products, vegetables; fruits; rice and noodles; potato; beans; sweet corn, or any other cereal - to stay healthy."* (Poverty Stoplight Survey, English version, 2018).

As this answer is quite broadly formulated and susceptible to interpretation, it could be that many of the caregivers placed themselves in this category, while being in different situations.

Looking at the total results of the survey among the wider group of OVC beneficiaries also shows that the majority of the families assess themselves as level 2 (55%), while 38%

mark themselves as level 3 (good) and 7% as level 1 (bad) nutrition (poverty stoplight survey, Afrika Tikkun, second half of 2018). However, one of the NGO representatives explained that many of the families marked themselves as level 3 and level 2 on nutrition, but they know that the actual situation is different, as they know the families:

"…that even though we can see that this people, they are not eating nutritional food, we don't have to tell them like "no mammie, you are lying, we can see", so we just respect what they are answering, not questioning their answers." (Focus group discussion, NGO representatives, Berea).

They explained that this happens because caregivers feel embarrassed that they cannot feed their children properly. Also, since these families are receiving food parcels from Afrika Tikkun, they may feel like there situation has improved already and they do not want to come across as unthankful for that. Another explanation entails the personal perception of people; to many, if they have their basic products, which is mainly starch (maize meal, flour, bread) and they can get a vegetable like cabbage or a tomato, it is a balanced meal to them (Focus groups and informal conversations, NGO representatives). As a result, the survey may have been completed with certain interests in mind, because it is being conducted and monitored by Afrika Tikkun. Furthermore, the questions are subject to personal bias and interpretation.

The Quality of Life Survey confirms that food and nutrition security is an issue in the respective areas. Although this data covers the complete townships and not just the poorer areas, where Afrika Tikkun is active in, it shows that 21%, 14%, 8% and 8% of the respondents in Alexandra, Diepsloot, Orange Farm and Berea, respectively, ever had insufficient money to meet their children's feeding requirements. Moreover, for the same areas, respectively, 28%, 33%, 16% and 11% of the respondents or other adult skipped a meal in the last year (GCRO QoL Survey, 2018).

Indeed, caregivers indicate that the food parcels help them to get through the month. Obviously, it depends on the number of family members how long the parcel lasts (Interviews, caregivers). Generally, they only need to buy extra halfway through the month; mainly mealie meal, oil and sugar, which are their absolute basic needs.

Lerato always starts with mealie meal when she has some money, which is the most important thing: "Mealie meal, must not stay in the house without mealie meal for the children." Then

after, she explains, she buys chicken or maas, because you need something to swallow the pap with. Chicken is considered important to her, and she buys it whenever she has some money, as that is the cheapest meat she can afford. So she only buys basic food to fill the stomach, not for enjoying it. At the end of the month, she explains she has almost no money so she bought a bag of potatoes to go with some pap, which was, at the moment, the cheapest she could get and most filling. She is often worried about the food running out and explains she gets stressed about it. As a single, older caregiver, she has the full responsibility of a household with children from different ages and generations. She feels like she has no choice but to try and deal with their food insecurity on a daily basis (Interview caregiver).

Although Lerato indicates that she has the main responsibility in the household because she is a single parent, female caregivers that do have a husband or boyfriend are usually still the main responsible within the household, like Nolwazi.

Nolwazi works outside the home as a street vendor. At home, she manages the food during the month; she buys food, cooks, cleans and checks what is needed or running out. She prefers to do this and be in control, because her husband would buy cheaper products and would not care about quality, just to have some change left. However, she thinks that he is not providing enough for the household, in terms of income. She is annoyed by this, but sees it everywhere around here. So at the end of the day, she does all the household chores and runs her business on the street, while also being worried about the budget and food provisioning for her children (Interviews caregiver).

Lerato's and Nolwazi's stories reflect the daily lives of many caregivers. Although they all have their own specific circumstances, sources of income and ways of dealing, they are all, in one way or another, food and nutrition insecure. The majority eats food to survive, not to enjoy it. They are worried often, because they have the responsibility of caring for their children. This concern is portrayed in the following quote: "*Because I have got kids. They do not care if there is no food or if there is food. If they want food, they want food. […] Because they will say, mama I want food. You can't say there is no food to them. There is no bread, no. I go to try buy."* (Interview caregiver, Alexandra, April). Furthermore, this food insecurity is in no way stable or fixed and differs per moment; it all depends on "if there is money" and "if I have got something" and what other, non-monetary, options they have for dealing with their food insecurity on that particular moment. Because of their food and nutrition insecurity,

caregivers indicate they often eat food they do not like or that “has been there for a while”. Also, they borrow money, consume fewer, smaller and less diverse meals when they run out of food. Some can rely on their family and social ties for help, but others have to deal with it by themselves.

6 Results: Factors influencing food options & choice

In the last chapter, we have seen how the nutrition environments in the respective areas are structured, so what food options are available, and what the status is of the childrens' and households' nutrition and food security. This raises the following questions: To what available options do the caregivers have actual access? How do they choose among these options? And what other strategies do they employ to limit their food and nutrition insecurity? In this chapter, I will first discuss what factors determine the food options caregivers have. Subsequently, I will analyze what factors influence their food choices. Finally, I will look into the coping strategies.

6.1 What factors influence what options caregivers actually have?

This paragraph will discuss the factors that determine which options caregivers can actually choose from, by looking into the caregivers' food provisioning strategies.

6.1.1 Affordability

Not surprisingly, income and its stability are important determinants, as they set the food budget. There are high unemployment rates in the townships and many people rely on social grants: 43% of the households in the respective areas receive a social grant and 62% of the respondents are unemployed and looking for work (QoL survey GCRO, 2018) Most of the caregivers interviewed receive a social grant as well (20 out of 26); mainly the child support grant, but also the care dependency grant for disabled children. Not receiving a social grant does not mean it is no needed, but many do not have a South African ID, so they cannot apply. Due to the lack of jobs, many people create their own informal jobs, called "piece jobs". Piece jobs are casual jobs that pay per "task", such as washing and cleaning for others (Interviews caregivers). A large part of the caregivers (7 out of 26) do piece jobs or have a small business as a street vendor (4) (secondary data, Afrika Tikkun, 2019). The households' monthly budgets range from approximately 200 to 3.300 ZAR[9] (around 12 - 200 Euro), with the average lying well below the poverty line of 2.000 ZAR (125 Euro) per month. Municipal indigent policy, however, takes 3.200 ZAR as the threshold for qualifying as indigent, which is referred to as the "lack of necessities in life" (STATS SA, 2017), so different poverty lines are used across organisations. The caregivers are no exception with their low income; 32% of the households in these areas have an income between 0 and 3.200 ZAR (GCRO QoL Survey,

[9] Self-reported monthy expenditures by all caregivers, March 2019.

2018). So besides employment, the level and stability of income is also determined by the age and health of the caregiver, children and other household members and whether they have a South African ID.

Lerato is an older lady who does not work anymore. She depends on the child support grant that she receives for her grandchildren and sometimes her mother contributes part of her pension, when she comes to stay with them. However, she cannot depend on that, since her mother has more children to visit (Interview caregiver).

Nandi is younger and depends on income from piece jobs, including washing, ironing and cleaning for other people. She does not receive the child support grant because she is from Zimbabwe and does not have a South African ID. Depending on how much she has worked, she usually gets her money by month-end (Interview caregiver).

Although the food budget available is in no way static, there are a few expenses that get prioritized, which are rather fixed. Only a few of the caregivers pay rent (27%), but if they do, this is a priority. Furthermore, most of the caregivers (62%) have funeral insurance, which is a fixed amount per month that needs to be paid first. Primary health care and basic education are provided for free, but the costs of transport and related costs are for the families to pay. Therefore, a fixed expense is transport, if the children cannot walk to school or if one of the household members has a disability or illness and needs to visit the clinic regularly. Also, school uniforms need to be purchased. All of these expenses highly influence the food budget.

Furthermore, food prices influence the affordability of food. Caregivers complain that food is expensive for them and prices are always going up (Interview caregiver, Alexandra). This is for example reflected in the purchasing of fruit and vegetables; caregivers have to go and check what is the cheapest and what they can afford at that moment (Interview, Orange Farm). Food price inflation was found to be high in South Africa, due to its high reliance on the import of food (Misselhorn & Hendriks, 2017), especially for more nutritious foods (Frayne et al., 2014). Families that have very low-income levels have no other option than to get the cheapest and most filling food: maize meal.

Based on the local prices that were gathered and the minimum dietary requirements advised by the Food-Based Dietary Guidelines for South Africa (Vorster et al., 2013), the costs of a

basic nutritional diet was calculated (see Appendix E for details), which gives an indication of these costs for the caregivers and their children in the respective research areas. The results are presented in table 5.

Table 5. *Cost of a basic nutritional diet per month in the research areas, per energy group*

Energy group (gender(age))	Boys/girls (5-9)	Boys (10-13) & girls/women (10+)	Boys(14+) & male adults
Energy needs (kj)	6500	8500	10500
Cost per food group (ZAR)			
Starchy foods	68	96	130
vegetables	135	135	135
fruit	59	59	59
Beans, peas, lentils	19	19	19
Fish, chicken, meat, eggs	88	88	88
Milk, maas	114	114	114
Oil & fat	13	20	27
Sugar	5	15	15
Other (salt, tea)	16	16	16

Note: Based on food prices at local food outlets used by the caregivers in the research areas and collected by the researcher. Products per category and energy group derived from Smith et al., 2017, and required amounts derived from Vorster et al., 2013.

Based on the child support grant, which is 410 ZAR (around 26 Euro) per month, it would not even be possible to buy a nutritious diet for your children, let alone pay for other expenses. On average, the caregivers interviewed spend 109 ZAR per person per month on food, based on their self-reported expenditures[10] (Interviews, all caregivers, March). These food expenses *already* constitute more than one third (37%) of their total expenditures, which is a large share and shows how tight their budgets are. Statistics South Africa (2017) shows that household food expenditures constituted 30% for poor households, while this was 10.5% for non-poor households in 2015. These results mean that the caregivers are not able to provide a nutritious diet for their children, given their food budget and food prices. This is especially apparent in the food groups of vegetables, fruit, dairy and meat, which are groups that are important for a nutritious diet, but form the largest expenses. Moreover, due to their limited food budget and resources, caregivers cannot benefit from buying in bulk for lower prices.

6.1.2 Food related costs and resources

It is not just affordability of food itself, but also related costs and resources play a role in determining food options. These costs include transport costs and fuel for cooking.

[10] This only accounts for purchased food, so excluding food acquired in different ways, such as food aid.

Especially in Orange Farm and Alexandra, the distance to a supermarket is an issue for caregivers; the nearest one is at least 30 minutes walking distance. As Johannesburg is very much spread out, transport is a major issue. However, when you have a job, you travel around and go to other places, where you can find food outlets and can do grocery shopping. On the other hand, people who do not have a job, like many of the caregivers, seem to be stuck where they live; they do not need to go anywhere so their transport expenses would be solely for shopping: *"Because I was working I was going all over, where I can get nice food. Even to Woolworth, I can buy, Spar. Now I can't afford."* (Interview caregiver, Alexandra, April). As a result, they would need to spend extra to go to a (better quality) supermarket, which gives them a double disadvantage. Therefore, when they have time and are physically able, caregivers do not mind walking if that means they can save some Rands, which could mean being able to buy an extra loaf of bread (Interviews caregivers, Orange Farm). Furthermore, if they have young children that cannot be left at home alone for long, they become less mobile, while having older children that can help carrying bags forms a benefit. Therefore, availability and prices of transport, and caregivers' and other household members' employment, age and health influence their mobility and transport costs.

Table 6.

Factors in the home structure affecting food options in the research areas

	Abandoned building	**Shack**	**Brick house or room**
			
Electricity	Unstable and unsafe illegal electricity connection.	No electricity, using paraffin.	Electricity present, regular load shedding.
			
Fridge	No fridge.	No fridge.	Fridge usually present.
Storage	Limited, because of small space. Also, the often polluted environment brings along rats and mice, who can easily get in.	Limited, because of small space. Also, the often polluted environment brings along rats and mice, who can easily get in.	Depends on the space available. Rats and mice cannot easily get in.

Note. Data based on interviews with caregivers in the respective areas, so perceived from their specific location and circumstances, March and April, 2019. Sources photographs: M. Dijkstra (2008) (shack Diepsloot), S. Geurts (other photographs).

Furthermore, the home structure determines to a large extent what food options caregivers have (See table 6). Caregivers either live in an abandoned building (Berea), shack (Diepsloot, and one in Orange Farm) or a constructed room or house (Alexandra and Orange Farm). When caregivers do not have (stable) electricity, they use paraffin to cook. The cost of paraffin constitutes a large part of their household expenses (on average, 16%, as reported by caregivers, Diepsloot & Berea). Therefore, they need to be fast and flexible when cooking, so they avoid food that takes longer to cook. However, this food is often more nutritious, like dried beans: *"She likes the sugar beans, but the reason why she doesn't buy them because they take long to cook. And paraffine will finish. […] Also the samp, it takes longer, but the problem is paraffine."* (Interview caregiver, Diepsloot, March). In this way, nutritious food becomes even *more* expensive. Also, households with electricity are regularly affected by load shedding, which also affects their cooking ability: *"Because there was no electricity, I did not cook. I only cook pap, then they eat again the amaas."* (Interview caregiver, Orange Farm, March).

Also, caregivers living in the abandoned building or a shack have very limited storage ability. If families without a fridge want to cook using perishable food, they have to buy and cook it that day. Therefore, they only buy small quantities, like one tomato to cook for dinner. This makes buying non-perishable food, like tinned beans and fish, attractive. Moreover, cooked food goes bad easily, especially in summer. As a result, takeaway food becomes more attractive, because cooking is more expensive when taking into account the cost of paraffin and there are no left overs that need to be stored.

Additionally, besides the limited space, the often polluted environment brings along pests like rats and mice, which can easily get into the abandoned building or shack: *"She goes there every day to buy fresh tomatoes as well as other veggies. Because she can't keep them here, because of the rats."* (Interview caregiver, Diepsloot, March). As a result, food cannot be safely stored in the home unless it is in a thick, lockable bucket. This polluted environment and lack of space also restricts caregivers from growing their own vegetables, which is an issue in all areas, except for Orange Farm. In Berea, one of the caregivers even comments that she cannot grow vegetables because, besides the issue of space and pests, *"people pee everywhere"* (Interview caregiver, Berea, March).

Comparing these results with the poverty stoplight results (Afrika Tikkun, second half of 2018), shows that, indeed, nutritional status is directly or indirectly influenced by other poverty indicators. The significant correlations with the nutrition question are represented table 7.

Table 7.

Correlation table: significant correlations with nutritional status

Correlation	*we have good nutrition*	Correlation	*we have good nutrition*
We have enough income	0,150**	*There are separate bedrooms*	0,202**
We have savings	0,131*	*We have a stove and kitchen area*	0,309**
We have drinking water	0,361**	*We have enough furniture & crockery*	0,299**
A health care centre is nearby	0,440**	*We live in a safe neighbourhood*	0,117*
We have good hygiene	0,221**	*We have enough clothing*	0,196**
We get treated for illness	0,114*	*We know how to read & write in English*	0,153**
We are vaccinated	0,127*	*Our children go to school*	0,195**
We manage our sexual health	0,136*	*Our children are getting quality education*	0,203**
We are active parents	0,127*	*Our children have supplies & transport for school*	0,317**
We manage our garbage responsibly	0,235**	*We have a budget*	-0,130*
We live in an unpolluted environment	0,258**	*We solve our own problems*	0,129*
We have legal property rights	0,232**	*We are confident & trust in ourselves*	0,117*
We have a safe home structure	0,261**	*We are law-abiding and consider others*	0,195*
We have constant electricity	0,186**	*We like our appearance & appreciate beauty*	0,248**
We have a fridge & other appliances	0,323**		

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Note. Based on data from poverty stoplight survey, participating OVC families, Afrika Tikkun, second half 2018.

Although income is generally the most important constraint caregivers mention for not having sufficient (nutritious) food, this does not appear directly from the data set. Income above the poverty line is correlated, but not strongly. Also, stable employment and access to credit are not significantly correlated with nutrition. A moderate correlation is shown between nutrition and quality health care, while the rest of the correlations are weak. As explained by NGO representatives, the survey results may have been subject to bias. Notwithstanding this feedback, the results show that related costs, household resources and access to services all, directly or indirectly, influence the nutritional status of the families. Therefore, not just affordability of food, which entails both food prices and income, but also wider inequalities should be taken into account.

6.1.3 Differences between the areas

Table 8.

Factors influencing food options for caregivers per area

		Orange Farm	Alexandra	Diepsloot	Berea
Nutrition environment	Distance to city centre	far	close (16km)	far, closer to Pretoria	in the centre
	Distance formal outlet(s)	relatively far	relatively far	close by	relatively close by
	Density informal outlets	low density	high density	high density	Medium density
	Credit at informal outlets	no	no	yes	sometimes
Home structure	Electricity	yes	yes	no	no or unstable
	Fridge	yes	yes	no	no
	Storage ability	sometimes limited	sometimes limited	very limited	very limited
	Ability to grow food	yes	no	no	no

Note. Based on interviews with caregivers in the respective areas, so perceived from their specific location and circumstances, March and April, 2019.

There are a number of factors influencing the food options caregivers actually have that differ per area (table 8). Although distance is a factor for everyone, the low density of informal outlets and relatively far distance to a supermarket in Orange Farm causes transport to be an important factor for the caregivers. Due to the distance to the city centre, it is less easy to start a small business as a street vendor, because that is the place where vendors can stock. At the same time, this is the only township where it is possible to have a vegetable garden, because of space and less pests, which provides caregivers with an additional option to get nutritious food. Five of the caregivers use this option, and one was going to start again soon. In Alexandra, transport is an important determinant as well, as the quality and prices of food in the informal sector are often not acceptable and they do not provide credit, as reported by caregivers, and the supermarket is further away. Moreover, there is no space to grow food. It is easier here to start a small business as a street vendor due to the proximity to the centre, and many people do so. So in these two areas, transport costs are a major determinant, while the nutrition environments are completely different. This is partly due to the similar home structures of the caregivers.

In Diepsloot and Berea, the home structure is the main determinant restricting their food options. All caregivers, except for one, in these areas do not have (stable) access to

electricity and limited storage ability within their home. This means that caregivers are more dependent on informal outlets for getting their food, as these are located closeby (they need to go and buy perishable food when they need it) and sell small quantities. These outlets (sometimes) provide credit and it is relatively easy to start a small business yourself. Although Diepsloot is far from the centre, there are wholesalers in the area who stock in Pretoria and sell to small vendors. So although these areas have a completely different infrastructure, the nutrition environment as well as the home structure is relatively comparable, causing the caregivers to have similar constraints.

6.2 What factors influence food choices for caregivers?

Now that we have seen what factors determine what food option caregivers can choose from, and how this differs per area, household and caregiver, the question arises how they choose among these options. By looking into the caregivers' food provisioning strategies, this paragraph will identify the factors that influence their food choices.

6.2.1 Contextual factors

Contextual factors are determined by the local and wider community and include the distance to a food outlet, the quality, quantities and variety they offer and for what price (Lawrence and Barker, 2009). Furthermore, the easiness to prepare plays a role as well. Caregivers indicate that they mainly look at price when they buy food. However, they usually do not prefer to buy in larger quantities, especially for perishable food, as their food budget is limited and not certain and they can only carry so much at once. Therefore, they cannot benefit from better prices when buying in bulk at the supermarket. Supermarkets usually have the lowest prices and best quality, as reported by the majority of the caregivers. So if they have money, they first look for their basic products that are cheap, filling and non-perishable so that at least there is always something in the house. This includes mealie meal, cooking oil, flour and sugar (focus group discussion, NGO representatives, Alexandra). However, as they are often located at a distance, the cost of transport and time are taken carefully into account, and they do not go just for one thing.

Lerato carefully checks the advertisement papers of different supermarkets before she actually goes there. There are four different supermarkets located in the same mall, so she can compare prices and go wherever something is cheapest. She has to plan her trip to the mall carefully, because she is using a taxi to go there, which costs 16R, back and forth (about

1 Euro). Another option for her is to go to a spaza shop closer by, but these are more expensive and often sell bad and expired stuff, so she does not like them. However, later in the month, she explains that she had no choice then to go and buy a small carton of milk at the spaza shop, because she only had 10 Rand (Interview, caregiver).

During the month, usually on a day-by-day basis, caregivers check if and how much money they have available at that moment for side dishes like vegetables, chicken, maas, potatoes or just some soup powder mixed with oil and water, which they buy from street vendors or spaza shops because of the price, quantities and proximity. Moreover, these food outlets sometimes allow buying on credit, but this differs per area (Interviews caregivers, Diepsloot). Caregivers that cook with a paraffin stove take the cost of paraffin into account, which influences the decision as to what and whether to cook. Because the cost of paraffin is taken into account, takeaway food becomes a convenient and cost-efficient option as well.

Other contextual factors are cultural (Asp, 1999). Traditions influence what is considered appropriate to eat: "*So with us, our people, are predominantly black. So if in this area, you don't have maize meal that is something to stress about. But if you don't have rice, it's nothing."* (Focus group discussion, NGO representatives, Berea). However, if people cannot afford certain traditional food, they do not use it anymore: *"[…] and at the village we use peanut butter (to cook), but here, at this time, they use cooking oil every day. […] our children, they take cooking oil every day."* (Interview caregiver, Orange Farm, March). Caregivers come from different rural areas across South Africa, Zimbabwe and Mozambique. Most of the traditional food is also available in the townships, and caregivers do still eat them, like *morogo*[11], different kinds of pumpkin, *tripe* or *mogodu*[12] and mopane worms. Although these foods are easily available and relatively affordable to them, other foods, like ground nuts (peanuts), watermelon, certain pumpkins and fish, are less affordable or available. *Mague* is a traditional drink based on porridge that some caregivers used to make themselves, but is now bought ready-made in the shops (Interview caregiver, Diepsloot). Moreover, they do complain about the quality of the products: "*Even the mealies (corn cobs) is not fresh here, at home is fresh fresh fresh, nice. Here, it sits for a long time, they cook it and serve for one week.*" (Interview caregiver, Alexandra, April). With regard to the mopane worms:

[11] Leafy green vegetable, like spinach.
[12] Intestines of the cow or other animals.

"*So she is saying that those people who come from Zimbabwe, they sometimes come with them to South Africa, but they don't taste nice, because she thinks they are rotten or they have been there for too long, they have been stored for too long."* (Interview caregiver, Diepsloot, April).

Almost all caregivers attend church. There are different churches around the areas. In Diepsloot, there are two caregivers that are a member of a church that does not allow them to eat meat, except for chicken and beef, so they check the ingredients of products before they buy them (Interviews caregivers, Diepsloot). This church also organises events for its members where food is served. The members that have found a job are supposed to buy the food, to thank the church for praying for them (Interview caregiver, Diepsloot). Christmas is considered very important as well. Caregivers save money throughout the year in order to be able to buy extra food and new clothes for their children in December, *"Because every child, you have to buy them for Christmas present. It's a culture for us here in South Africa."* (Interview caregiver, Diepsloot, March). They do this mainly through *"late-buying"*[13] clothes at stores or by saving in a *stokvel*[14] to buy food in bulk collectively in December and share between the members. In this way, they will have enough food in the home for December, to treat the children (Interview caregiver, Alexandra).

According to black African traditions, funerals are big events attended by the whole family and community, of which food entails a large expense for the family. The family and community members that come to express condolence need to be fed and for the funeral itself, the family needs to buy a living cow, which costs between 6 and 9 thousand Rand (Between around 375-560 Euro):

"*It has to come to [...] where there is a funeral. And they slaughter it there. It comes alive and the men will kill it before watching. And they believe that once it cries, if it cries, there is going to be another funeral in that house. But if it doesn't cry, everything goes well. That's their belief."* (Interview, caregiver, Diepsloot, April).

[13] After choosing which goods you want to late-buy, you pay the total amount in monthly instalments until you have paid the total amount and pick up the goods.

[14] A self-organised group of women coming together to save money for future personal expenses or for a pre-defined collective goal, like food.

Because these funerals are so expensive, many caregivers have funeral insurance. This can be arranged through a company, but many are a member of a *society*[15] (Interviews caregivers). However, not everyone has one, as some indicate they cannot afford. When people without insurance pass away, the family tries to find a way to still make the funeral happen, but this is stressful and may involve borrowing money (Interview caregiver, Alexandra; informal conversation, Diepsloot, April).

6.2.2 Household factors

An important household factor influencing food decisions relates to interpersonal relationships (Lawrence and Barker, 2009). The caregivers usually purchase the food and cook, while children help, and try to take into account what their children like or dislike, if money allows. If there is a father living in the home, his likings are taken into account as well.

Bringing a lunch box to school is considered important, even though most of the children also get a meal at school. Caregivers want their children to be like the other children and therefore sometimes feel pressured to give them certain food: "*So she buys this, nutriday (danone)... So that they can be like other kids and get excited. […] everyone, for lunch, it's a snack for, her in South Africa, every day, even it's not every day, but you have to try and give your child a nutriday."* (Interview caregiver, Diepsloot April). Older children ask for money, because the other children go and buy snacks at school and they want that as well. So for older children, it is more difficult to control what they eat during the day. For meals at home, caregivers indicate that their children like meat and often do not like certain vegetables, like cabbage. However, many of the caregivers just cook the vegetables and tell their children to eat it: *"If I say to them, it's pap and cabbage, even if the meat is there (in the fridge), it's pap and cabbage, that's it, all of us will go and eat that."* (Interview caregiver, Alexanda, April).

One of the NGO representatives explains that men can be very picky when it comes to food; they often demand meat and women have to cater to that. If women dish up for their partner, they make his plate bigger and nicer than their own plate, with more meat, so they sometimes end up eating double as much (Interview caregiver, Alexandra).

Thobeka has three young children and lives in a shack, from where she sells homemade acha (pickles). Her brother and cousin live alone, so they come and eat with Thobeka and her children around twice a week. Sometimes they bring sides, but sometimes nothing, because

[15] Self-organised group of people in a community, usually "back home", saving money collectively in case someone in their families passes away, and making their own rules for this insurance.

Thobeka always cooks. Before they come, they tell her so that she cooks with a bigger pot. They also ask her what she is cooking, because if it is something they do not like, they will not join. She explains that men like heavy food, like pap and meat. This fills their stomach, especially if they want to go to the bar later. Moreover, meat tastes well with the alcohol they drink there (Interviews caregiver).

6.2.3 Individual factors

Individual factors include historical factors and psychological factors. Historical factors take into account past food experiences, traditions, habits, feelings and taste. Dislikes developed at a young age are difficult to change and can limit dietary diversity (Lawrence & Barker, 2009). The majority of the caregivers indicate that taking into account taste is a luxury they cannot afford, so they have no or very limited options to choose for taste: "*Whatever I eat. If you can consider the taste, you are gonna suffer from hunger. As long I have something in my stomach, there is no problem."* (Interview, caregiver, Diepsloot, March). Others sometimes buy things they like, but only if money allows. Caregivers that have more to spend on food, become pickier. They go for original brand products that have more taste and better quality, although they are more expensive. Moreover, they consider health more in their food choice and give their children fruit and more products with fibre.

When talking about nutrition and health, only a few of the caregivers check the ingredients on food packages. Some explain they know what is healthy based on their traditions from back home; while growing up in the rural areas where they were farming (Interviews caregivers, Alexandra & Diepsloot). Others are merely guided by past food experiences. If caregivers have experienced that their children get ill from certain (quantities of) foods, like sweets and cheese snacks, they will not give that anymore. Furthermore, caregivers get nutrition information at Afrika Tikkun and at clinics. Based on the information received from Afrika Tikkun, they associate healthy eating with balancing their meals, and cooking instead of eating takeaway food: "*That means you must cook it, and it's healthier." […] "It's healthy to change the diet."* (Interview caregiver, Alexandra, March). "*That's how she know how to balance the food (from the workshops at AT)."* (Interview caregiver, Orange Farm, March).

Other caregivers refer to clinics:

"So she was saying, she sometimes, the clinic would then come and tell her, this is healthy, this is not healthy. […] They will then educate them on what's healthy, what's not healthy.

And that's how she would learn to... they eat too much sweet, it's not good, let me try to give them apples. That's how she got to learn about that lifestyle." (Interview caregiver, Alexandra, April).

Some caregivers refer to food safety when talking about healthy eating. For example, bread is consumed on a daily basis by most families, sometimes even twice a day. Caregivers find it important to consume fresh bread, so they buy it almost every day at the spaza shop, because these are located closeby. However, spaza shops have a bad reputation of selling bad and expired food, so they do need to check the products carefully. The same goes for fruits and vegetables; many vendors sell bad ones, so caregivers need to carefully search and select for good ones (Interviews caregivers).

Interpreting this further, the low quality of fresh food may contribute to the fact that many people do not like certain vegetables: "*You buy cabbage, you think it's nice, it takes a long time on the pot there, because is not fresh."* (Interview caregiver, Alexandra, April). Furthermore, this could be a reason for people to use a lot of oil and salt, to make it taste better: *"Like this, I don't like this mixed portions (of frozen chicken)." [...] And it doesn't cook nicely... Even the taste is not nice. It tastes only if you can braai it."* (Interview caregiver, Diepsloot, April). These food safety concerns, and a lack of cold storage ability, may also be a reason to prefer certain cooking methods, although these are less healthy:

"*They bought braai pack, mixed portions, 2kg. And then she braaied it, so that it lasts long. Because when you fry it, it's unlike you cook it. When you cook it it's going to get rotten fast. But if you fry, it's nice and also it lasts long."* (Interview caregiver, Diepsloot, April).

As a result, many caregivers understand healthy eating as balancing and changing their meals. They indicate that mrogo, beetroot, fruit, milk, fish and meat are healthy and too much sugar and fat is unhealthy. The caregivers that seem to have more nutrition knowledge indicate they received it from Afrika Tikkun, a clinic (only caregivers who are pregnant or have an illness) or saw it on television (1 caregiver). Furthermore, knowledge also seems to be related to the upbringing of the caregivers themselves. Being raised in a rural area contributes to their knowledge and whether they actually use it. This implies that caregivers that stick to traditions and/or have more interest in nutrition and health, either because of intrinsic motivation or because of pregnancy or an illness/disability, have more knowledge. Whether

they actually use this knowledge is related to income, as many caregivers indicate they cannot afford healthy food.

Psychological factors form some of the strongest influences on food choices. They entail the perceived control over health and food choices (Lawrence & Barker, 2009). Some caregivers feel like they can manage the food within the household and seem to find it easy to make food choices. However, others feel stressed and bad when the food they want to cook is not there. Some feel like they have to balance the preferences of the different household members, especially when there is a father (Interviews caregiver, Alexandra & Diepsloot).

Self-efficacy relates to the perceived ability to achieve a desired outcome. Believing in your own competence to change and regulate behaviour was found to be an important factor for change (Lawrence & Barker, 2009). Based on the stoplight survey, 16 caregivers (out of 23[16]) assessed their families as level 3 (good) on confidence and self-esteem, and 7 as level 2 (medium). In general, the latter group assessed themselves as worse off then the first group, on average (51% and 26% of the questions, respectively, were answered with level 3) (Afrika Tikkun, second half 2018). This indicates that the level of confidence and self-esteem is related to other poverty indicators. Looking at the broader group of beneficiaries that took part in the survey, table 9 shows significant correlations with the question on confidence and self-esteem. There appears to be a weak to medium relationship between confidence and self-esteem and indicators related to education (including social networks), health (including parenting), organization and participation and self-awareness.

[16] Missing data for 3 caregivers out of the sample.

Table 9.

Correlation table: significant correlations with level of confidence and self-esteem

Correlation	*We are confident and trust in ourselves*
We know how to read and write in English	0,216**
We have entrepeneurial spirit, not afraid to try again	0,226**
We don't have violence in our family	0,236**
Our children are getting quality education	0,237**
We are vaccinated	0,243**
We get treated for illness	0,244**
We have social networks and friends	0,268**
We respect human rights	0,270**
We are active parents	0,273**
We have good hygiene	0,297**
We like our appearance and appreciate beauty	0,348**
We have influence and know how to petition	0,356**
We solve our own problems	0,380**
We control our emotions and respect others	0,392**
We have goals and a family plan	0,446**

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Note. Based on data from poverty stoplight survey, participating OVC families, Afrika Tikkun, second half 2018.

Furthermore, personal food-choice values regarding health, costs, taste, convenience and maintaining relationships influence the decision, which are often conflicting and therefore need to be traded-off (Lawrence & Barker, 2009). Caregivers all have their own food-choice values that are continuously being considered. Their first priority is costs, but if they have their basic needs and there is some money left, other factors come into play. For some, taste and likings of themselves as well as the children is an important factor, so being able to enjoy the food. Also, health is an important consideration for many caregivers, especially when they know the risks of unhealthy eating and illness. The wellbeing of their children is very important, both in terms of health as well as being able to treat them and let them be "like other kids". Convenience only plays a role when there is no electricity or paraffin at home or when caregivers have a busy day, otherwise they do not mind taking time to cook. Caregivers struggle sometimes between what they can afford, what resources they have, what the children like and see others eating, convenience and what they know is healthy:

"*Lot of people do change their tradition when they came here to Joburg […]. But myself, I do eat them myself. Because they are healthy."* (Interview caregiver, Diepsloot, April).

"I always know that when I said, "I want to buy milk" I know that I am going to buy full cream milk. Because I like the full cream, I can't go to low fat milk."(Interview caregiver, Alexandra, March).

"[…] sometimes we want those the healthy ones, but the money for them is too.. we can't afford. Just buy the cheapest." (Interview, Uthando, March).

"*I ask them, what are you liking, apple or simba? She will tell me, I give."* (Interview caregiver, Diepsloot, April).

Trying to deal with their food insecurity, caregivers also employ strategies to acquire food through their social ties. In the next paragraph, I will elaborate further on these coping strategies.

6.3 Coping strategies

If there are no options left with regard to purchasing food, how do caregivers cope – how do they extent their options? At this point, it is not so much about choosing what to eat; it is rather a survivalist measure to eat *anything.* Besides receiving support from Afrika Tikkun, it depends on the area how caregivers deal with a lack of food and money. In Berea, caregivers living in the same building sometimes share food with each other. Some of them also get food parcels at the church and can buy on credit at the local spaza shop. NGO representatives explain that they try to earn money by recycling garbage and by trading sex for money or goods (Focus group discussion, NGO representatives). In Orange Farm, caregivers can grow their own food, which provides an extra option of acquiring food. One of the caregivers works in a local community garden, where she can take vegetables home. The caregivers in this area do not usually share food or eat together with others. NGO representatives explain that people do not share much information with them about food practices, because they are afraid they will be discharged from services from Afrika Tikkun (Focus group discussion, NGO representatives). In Alexandra, caregivers indicate that there is not much borrowing or sharing of food with others either, only within families: "*The culture in the neighbourhood is that everyone looks after their family, so it's hard to be cooking for others, cause people don't have money." "You just face your problem with your children. We don't go and eat with the people, we sit together with my family and eat it."* (Interviews caregiver, Alexandra, March). However, two caregivers are involved in a stokvel, to buy food collectively in December and

share among the members. Another caregiver gets support from her sister and her daughter; they help her with buying food and clothes (Interviews caregivers, Alexandra). In Diepsloot, on the other hand, caregivers have more options when it comes to coping. There seems to be a higher level of trust, so it is not just the family that is supporting the household, but also neighbours and friends. Also, it is common to buy on credit at known spaza shops and street vendors.

Amahle lives in a shack with her two young children and she has a small business selling food right outside her home. There is another lady there who is selling food and they have become friends. So the lady helps her sometimes; she buys snacks for her like nutridays (danone) and biscuits, and when she went to the market in Pretoria last week, she bought her a bag of potatoes against stock price, to cook for Easter. Today, she brought her 20 Rand, so that Amahle can buy something for sides to cook with pap, and they can all share a meal. Other times, friendly people pass by and give her 20 Rand to "go and buy some soft drink". Instead of buying a soft drink, she would save it to buy sides, so that she can share it with the family. She also has a boyfriend, who lives on the other side of the township. She does not want to move there, out of safety considerations for her children, because she does not trust him. However, she can ask him for mealie meal if she has run out, and he will give her. Also, she regularly goes to a farm where she works in the gardens, and she gets vegetables to take home in return. The farm is far away, but she walks when she goes there, so she feels tired after. Furthermore, her mother does not live far away, so when she cannot cope she goes to her and asks for something. As a result, she has created for herself a social network on which she can rely at different moments in time, using her social leverage and exchanging favours (Interview caregiver).

7 Policy implications

In the last chapter, we have seen which factors determine the food options caregivers actually have, and how they subsequently decide which option to choose. Going back to the aim of this research, which is to assess the assumption that one of the key factors that will improve child nutrition is nutrition promotion and education, the following question is raised: How do the factors found differ from the factors assumed by government's nutrition policies?

Many of the national food security policies are focused on availability, by improving production in rural areas with inputs, training and land reform (Boatemaa et al., 2018) and by focusing on urban agriculture in urban areas. Johannesburg is no exception in this; urban agriculture is framed as an important solution (Battersby et al., 2014). In the recent National Policy on Food and Nutrition Security (NPFNS) (2014) investment in agriculture is, again, one of the five main strategies (Department of Social Development & Department of Agriculture, Forestry & Fishery (DSD & DAFF), 2013). In these production-focused policies, it is assumed that food and nutrition security will improve when more is produced, implying an issue of availability. However, the same policy document of the NPFNS notes that: "*Despite adequate food supply and distribution on a national level, the determinant of food security is accessibility and affordability of food by individual households."* (DSD & DAFF, 2013, p. 14). Therefore, these policies are not tackling the actual issue of accessibility. The same counts for urban agriculture; it only fights the symptoms and not the cause of the problem, apart from whether contextual factors of living in an urban area allow for such a solution. Caregivers in the urban areas of Diepsloot, Alexandra and Berea indicate that they sure would want to grow their own vegetables, and some have tried in the past, but there are constraints based on space, pests, and pollution. However, in Orange Farm, where these constraints are less present, all of the caregivers but one do have a small vegetable garden. However, the quantities produced should not be overestimated, as they still need to buy vegetables as well.

Food and nutrition policies that do focus on accessibility include the VAT exemption on staple foods, a sugar-tax on sweetened beverages, safety nets such as the national school nutrition programme and the social relief of distress, which entails the provision of food parcels and coupons to families in distress. Furthermore, there are various programmes focused on job creation. Ledger (2016) criticizes this focus on increasing income instead of

lowering food prices, except for the VAT exempted foods, as unemployment is a massive issue in South Africa that cannot be tackled in the near future, while people need nutritious food now (p.90). The assumptions underlying these policies are that the creation of jobs will increase income and improve food and nutrition security on the short term. Although this would be a structural solution in the long term, in the short run, people need access to ensure a healthy life. Although the safety nets and the social grant system support many people and relieve them from the worst suffering, they are merely emergency solutions, which are not tackling the root cause of food and nutrition insecurity. Caregivers indicate that the food parcels they receive from Afrika Tikkun help them, but they remain food and nutrition insecure and many do not like to be relying on this support. Moreover, the access to safety nets might be a problem as asking for help is stigmatized: "*Most of the people, they are scared to talk, or to say, here am I, I don't have food, I don't have this or that. Because there is a stigma."* (Focus group discussion, NGO representatives).

The price of (nutritious) food has been identified as a major factor influencing the options and food choices caregivers have. Notwithstanding this attempt to make food prices more affordable by excluding staple foods from VAT, caregivers indicate that food prices of especially fresh produce are volatile and high for them. Due to their limited options and cost constraints, they can only buy fresh produce locally and per piece, while buying elsewhere and in larger quantities might be cheaper.

Nutrition policies regarding utilisation of food focus on nutrition counselling targeting specific diseases, breastfeeding campaigns, micronutrient supplementation and fortification of food. This focus on promotion and education assumes that people do not know what a nutritious diet entails and that they need to be educated so that they can make healthy food choices. This is portrayed in the "challenges" identified by the NPFNS: "*Citizens have inadequate access to knowledge and resources to make optimal choices for nutritious and safe diets"* (DSD & DAFF, 2013, p. 4). Therefore, they conclude, nutrition education needs to be improved. The underlying assumption is that it is a matter of choice; people *have* the choice to choose for nutritious food, so they need to have access to nutrition information to actually make that choice. In this way, it becomes a personal problem based on poor food choices (Battersby & McLachlan, 2013). An example is the promotion of light-products, with reduced fat or sugar levels, which seems a questionable measure to advertise for to the poor. Light dairy products are less filling and therefore provide less energy, for the same price or even more. Sugar is often consumed because it provides the cheapest energy (Ledger, 2018,

p.102). Instead of making high fat and high sugar products light or more expensive, government should make nutritious products cheaper, so that they *become* an option for the poor. However, this would mean less profit for the business sector, which would probably be a less appealing measure.

As a result, food and nutrition security policies consider food choice to be based mainly on household and individual factors, like income, preferences, knowledge, time and convenience. Although these factors indeed play a role, as we have seen in the previous chapter, this choice can become very limited or even absent for poor people. This is because the options they actually have are constrained by factors in the nutrition environments, socio-demographic and socio-economic factors. Only after taking into account these factors, decision-making comes into play. Therefore, the factors found in this research are much broader than the factors assumed by government policies and show that food and nutrition insecurity cannot be solely solved on the individual or household level.

8 Discussion

By looking into the food provisioning strategies of caregivers in food insecure households, the results of this research demonstrate that there are different contextual, household and individual factors that limit their food options. As a consequence, their final food choice is a result of careful considerations within these limited options. Policies that assume that more availability of food as well as nutrition information will lead to improved food and nutrition security, without sufficiently looking at factors that determine *access* to nutritious food, will therefore have a limited effect.

Regarding the nutrition environment, formal and informal food outlets provide a combination of different varieties and qualities of foods. On the one hand, supermarkets are positively perceived as providing the best prices and the best quality, although not in affordable quantities, but on the other hand, supermarkets may have undermined informal outlets, because the food in the latter group has often "been there for too long", indicating that food gets old because less people buy there. The possible undermining of informal outlets due to low prices by supermarkets is in accordance with literature (Termeer et al., 2018), as well as differences between supermarkets as they adapt to the neighbourhood (Battersby & Peyton, 2014). However, this research also finds food quality and safety to be perceived as better at supermarkets than at informal outlets. The only advantages informal outlets have is that they are close by, sell smaller quantities and sometimes allow buying on credit. This may cause further undermining in the future. Supporting this sector could therefore be beneficial for the poor.

Proximity is considered important as transport costs are a constraint to especially unemployed and immobile people, which is in accordance with the findings of Battersby & Peyton (2014) and fits Bauman's (1998) categorization of the poor as constrained by place. With regard to economic access, prices of food have grown fast over the years, especially for more nutritious food (Interviews caregivers; Smith et al., 2017). Moreover, income is low and volatile due to the high dependence on social grants and informal jobs. The implications are that people get less and less options when it comes to nutritious food and rely for their energy for the largest part on basic foods, such as starch and sugar, that are cheap, high in calories, but lower in nutritional value.

Although the literature mentions (cold) storage ability as an important factor for limited ability to buy at supermarkets for the poor (Rudolph et al., 2012), the cost of cooking fuel, when there is no electricity, is less studied. Only Lakhani (2014) reports in this respect

that women in the township of Tembisa take these costs into account. As a consequence, an unexpected result of this research is that nutritious food becomes *even more* expensive, as they often take longer to cook than less nutritious food, and are, for that reason, often avoided. Furthermore, pests form an *extra* constraint on storage ability and as a result, fresh food needs to be bought when consumed, which takes additional time and effort.

Moreover, these factors in the home structure may also have implications for food utilization. Besides the fact that oil is the cheapest cooking fat, the high use of it may not just be because of price and energy needs. Certain cooking methods, like (deep) frying, may be preferred as it preserves the food longer than with other methods, and this may hide the inferior taste of low-quality food. Also, (over) ripe vegetables may have lost the largest part of their nutrients already due to exposure to light and heat and long cooking time.

As a result, different factors limit the food options caregivers have in various ways, and may pose multiple simultaneous restrictions on acquiring, preparing and consuming nutritious and fresh food.

With regard to food and nutrition insecurity, the main issues appear to be the quality of food consumed, as well as the vulnerability of the families. The first relates to the fact that caregivers have a lack of economic and spatial access to quality food, and often have restricted resources to prepare and store fresh food. As a result, people (usually) do get to eat, but they do not get their required nutrients, because of the low quality and quantity of nutritious food they consume. The latter relates to the survivalist way of life many families live; they do not know yet what they will eat tomorrow, let alone next week. Their only (relative) certainties are the support from Afrika Tikkun and government programmes, if they are involved. This makes them vulnerable to shocks. In this respect, the results show that social relations can form an important safety net for caregivers to survive, although these ties are vulnerable as well and subject to unspoken rules.

Although only a few caregivers have a husband, which makes a proper comparison difficult, two of them indicate that besides being (traditionally) responsible for household chores such as food provisioning, they also work outside the house, which doubles their work burden. While men seem to find it increasingly difficult to economically provide for the families, they do not engage in domestic tasks either. Cross-referencing these findings with other sources, this seems to be a wider issue. Moreover, some caregivers indicate that they feel like they need to protect their children from men, who may create unsafe situations. The

implications of these issues on children's food and nutrition security are, however, not clear-cut.

Initially, some of the NGO representatives and caregivers gave the impression that food and nutrition security was not perceived as an issue in the research areas, or at least not a priority, because of the many other problems. People are ashamed of their food insecurity and do not easily ask for help. Some caregivers indicate that you have to deal with it yourself, within your family, or close community. In this way, the issue becomes a household problem, instead of looking at the wider food system and demanding the government to enforce your food rights, which are enshrined in the Constitution. In such a way, food and nutrition security is almost normalized: to eat to fill the stomach and see what is at your disposal on a day-by-day basis. Ledger (2016) notes in this respect that during Apartheid, it became accepted that poor, black Africans lived in hunger. Hunger was used as a tool to control people and maintain the system. It seems like this remained normal to this day (Ledger, 2016).

Regarding decision-making, the results of this study show that, if there is limited income, there is no other choice than to mainly look at costs. After that, other aspects come into play, such as nutrition information. Caregivers generally know what is considered healthy or unhealthy and what they should feed their children, especially the ones that grew up in rural areas and stick to traditions. Although nutrition knowledge differs per person and can in many cases be improved, the results of this study do *not* confirm that one of the main challenges of food security, as outlined by the NPFNS (DSD & DAFF, 2013) is: *"Citizens have inadequate access to knowledge and resources to make optimal choices for nutritious and safe diets"* (p.4), as it is only one of the factors influencing food choice. Considering timing, nutrition knowledge could become a more important factor once constraints to access food are solved.

As far as possible with their budget, caregivers carefully plan what they are going to buy, both in terms of food and non-food items and try to be as cost-efficient as possible. To this extent, caregivers' decision-making aligns with rational choice theory; caregivers are generally well aware of what options they do and do not have and they choose the option that maximizes benefits and minimizes costs. Taking a broad approach, this entails choosing the cheapest products, taking into account not just the price of food but also related costs, that quickly fill the stomach, give energy and that you can keep for long. When they do not have access to formal credit or insurance, they create their own self-organised groups. Specifically for caregivers, maximizing benefits also entails making your children happy with safe food they like, what they see their friends eating and, which is, to the extent possible, balanced and

healthy. In this way, utility can be interpreted as “happiness” and should be considered in the wider social and cultural context and in time (Chibnik, 2011).

9 Conclusion

This chapter will first discuss the limitations of the selected methods and make recommendations for future research. Subsequently, I will conclude with a short summary answering the research question and finalize with the social and theoretical implications.

9.1 Limitations

A number of limitations with regard to the methods have been identified. Firstly, I decided to design visualization exercises for the structured interviews. Although this made most participants more comfortable, this may have directed them in a certain way. I always asked whether certain foods or categories were missing, but only a few participants answered there was. Therefore, asking participants questions directly might have gained different data. Furthermore, I initially wanted to accompany caregivers when they would go for grocery shopping, to understand their decision-making. However, due to practical constraints, I decided to bring advertisement papers of the main supermarkets to the interviews and let them go through it instead. However, an actual shopping trip could have gained more (credible) data. Notwithstanding these limitations, I am confident about the reliability of the data used.

9.2 Future research

This research provides a context specific account of the food provisioning strategies of poor residents in four urban areas in Johannesburg. More qualitative, area specific research would contribute to the design and implementation of more effective, locally appropriate interventions. Furthermore, this research only focused on the food aspect of nutritional status, while health and hygiene also play a role (Theron et al., 2006). Future research could take into account health and hygiene related factors, including mental health, stress and (gender-based) violence and examine its influence on food provisioning strategies and nutritional status in particular local contexts.

The results also raise more specific questions that could be explored by future research. For example, how could alternative food outlets contribute to improved access to affordable nutritious food for the poor, linking farmers and urban residents more directly? Regarding the importance of access to services, future research could focus on access to alternative energy and how this could work in an informal settlement. Also, collaborations between women, like stokvels, could be further explored for the purpose of collectively acquiring, storing, cooking and selling food.

9.3 Conclusion

This research seeks to answer the following research question: *What are the key factors that influence the food choices that caregivers make for their children in food insecure households in Johannesburg?* By studying the food provisioning strategies of caregivers, the results show that there are a number of key factors that impede their access to (nutritious) food. Important contextual factors include the prices and availability of food, transport and fuel and distance to a food outlet. Important household factors include the level and stability of income and the food budget, as well as characteristics of the home structure, which are influenced by socio-demographic factors. Only after taking into account these multiple, simultaneous constraints, caregivers can make a food 'choice'. Additionally, the results show that some caregivers use their social relations to enhance their options when needed, to limit their food and nutrition insecurity.

Regarding social implications, the results show that the factors that influence caregivers' food choices are much broader than the factors assumed by food and nutrition security policies. It demonstrates that poverty is multidimensional and embedded in a system that excludes different groups from options at a certain time and space, and cannot be solved solely at the individual or household level. Therefore, food and nutrition security policies should take into account the wider context and living situation of the poor. Especially in such a segregated and unequal city as Johannesburg, poor residents would benefit from improved access to affordable public transport, basic services such as water, electricity and waste disposal. Moreover, women and children would benefit from more awareness about gender inequality and measures against (gender-based) violence.

The results contribute to the literature by providing a better understanding on what factors set limits to the choices the urban poor can actually make (Ledger, 2018; Frayne et al., 2014). It adds to a better context-specific insight into urban nutrition environments and what food provisioning strategies the poor employ theirin (FoodLab 2015), and the role it plays in influencing food choices (Glanz et al., 2005).

10 Recommendations for Afrika Tikkun

Based on this study, there are a number of opportunities for Afrika Tikkun. First of all, the results indicate that the poverty stoplight survey results not always represent the families' actual situation. Since representatives of Afrika Tikkun conduct the survey, it may be completed with certain interests in mind; beneficiaries do not want to come across as unthankful for services they are already receiving from the organisation, but they do not want to be discharged from any services either. Furthermore, they might be embarrassed of their situation and some of the possible answers are subject to interpretation.

Therefore, letting an independent auditor conduct the survey could limit this bias. Also, to make the results more accurate and useful for analysis, the possible answers could be reviewed to be shorter and clearer to leave less space for personal interpretation. For example, the question about nutrition states whether the family "eats enough" of every food group. However, if you do not know the requirements, it depends on your personal idea of "enough" what your answer will be. In this way, the families' resulting action plans could more accurately reflect their actual situation.

As this research found that the poverty indicators from the survey are interrelated, and there is a broad range of factors that influence food and nutrition security, the poverty stoplight survey could be a particularly useful tool to focus on the wider context and living situation of the poor. By looking at this broad range of poverty indicators and providing targeted support and resources so that families can improve on their priority indicators, quality of life, and food and nutrition security in particular, of the children and their families could be improved.

As a result, the food and nutrition support programme Afrika Tikkun offers does not necessarily need to focus solely on providing food, but could focus on broader factors that impede caregivers' access to (nutritious) food. For example, the results show that not having access to electricity forms a barrier to purchasing and cooking nutritious food. For this reason, supporting caregivers with paraffin, access to electricity and/or alternative energy could benefit them. Also, stokvels and other collaborations between caregivers could be explored for collectively acquiring, storing, cooking and perhaps even selling food. For example, they could benefit from lower prices if fresh produce is bought in bulk collectively and shared among members. Moreover, this would save transport costs because these would be shared as well. However, as a long-term, more sustainable solution, caregivers need access to entrepreneurial activities. Therefore, it is essential to involve caregivers in local decision-

making processes regarding the services and support they would need in their particular situation and area to improve their skills, living situation and become more independent. The results indicate that some caregivers do not like to be dependent on food parcels and others only attend workshops to get (food) aid. By involving caregivers in decision-making, they would feel more confident, responsible and motivated to work on really bettering their situation.

Regarding the meals that are provided at the centers, they are often not balanced in accordance with the food-based dietary guidelines. Although vegetables and fruits are on the planned weekly menus, this is often not followed. Moreover, no guidelines for quantities are indicated, resulting in small amounts of vegetables consumed. As the results demonstrate that the meals can really add to the children's Individual Dietary Diversity Score (IDDS), especially if they contain fruit, vegetables, nuts and dairy, it is important to keep the meals as diverse and nutritious as possible. Furthermore, for these meals, alternative sourcing channels could be considered. For example, purchasing fresh produce directly from local farmers or traders could support the local economy.

Perhaps most importantly, communicating about and advocating for food justice could change the attitudes and perceptions towards food and nutrition insecurity. The current stigma and shame around it impedes many people to openly ask for help, let alone raise their voice for food justice. Once it is perceived as a systematic, societal problem, instead of an individual or household problem, steps can be taken to change the system.

Finally, poverty and exclusion are related to gender inequalities embedded in society. Afrika Tikkun programmes benefit both boys and girls in their economic empowerment, which contributes to gender equality. However, the traditional gendered roles and responsibilities with regard to reproductive tasks are still present, even though women also work outside the home, which results in a high work burden. Although fathers are often not included in parenting interventions, they do have a role in the family functioning and child well being (Panter-Brick et al., 2014). Efforts to engage fathers or other male family members in workshops and programmes regarding children's development could therefore contribute to a better understanding of the role as a parent specifically, and the division of roles between men and women generally. Fathers who are already involved could serve as role models in the community.

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