Through their eyes and mouths: Inequality in access to food in urban poor settings, Nairobi, Kenya

Contributors

Elizabeth Kimani-Murage^{1,2,3,4}, Teresia Macharia^{1,5}, David Osogo¹, Hilda Akinyi¹, Melanie Warwick⁶, Claudia Mitchelle⁷, Nyovani Madise⁸, Paula Griffiths⁶

- 1. African Population and Health Research Center
- 2. Brown University
- 3. University of Glasgow
- 4. Stellenbosch Institute for Advanced Study (STIAS), Wallenberg Research Centre at Stellenbosch University, Mostertsdrift, Stellenbosch, South Africa
- 5. Global Programs for Research & Training, Affiliate of UC San Francisco
- 6. Loughbrough University
- 7. Mc Gill University, Canada
- 8. African İnstitute for Development Policy

Abstract

Ending hunger and achieving food security for all by 20130 is a core target under the Sustainable Development Goals. Globally, food and nutrition insecurity remains a major challenge. In Kenya, the 2010 Constitution provides for the right to food for all citizens, although this right is not actualized for many, particularly those living in poverty. The urban poor are particularly negatively affected, with over 80% of households in these settings being food insecure. We used participatory methodologies to explore the lived experiences with food insecurity among the urban poor living in slums in Nairobi, Kenya. Data revealed inequality in access to food, characterized across social, economic, physical and cultural factors- with poverty emerging as a major challenge in access to quality food. While it was reported that there was food available in the market, this food was generally said to be inaccessible to many, and also to be of poor quality. Young people and older people were said to be particularly affected; the young people due to unemployment and limited attention on them by interventions and the older people due to the double burden of diminished livelihood options and aging-related health conditions that compounded their ability to access food. Under these circumstances, many resorted to coping strategies that on the one hand impacted negatively on health and wellbeing, and on the other enabled innovative means of ensuring food security. We call on implementing organizations and decision makers to identify and implement viable context specific solutions to food insecurity fir the urban poor, taking into consideration the perspectives of the community with regards to their lived experiences.

Key words: Food security, hunger, urban poor, urban informal settlements, slums, inequality, participatory methodologies, public engagement

Introduction

Food security is a situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life [1]. this definition introduces four main dimensions of food security: physical availability of food; economic and physical access to food; food utilization; and stability of the other three dimensions over time. Food availability addresses the "supply side" of food security and is determined by the level of food production, stock levels and net trade. However, an adequate supply of food at the national or international level does not in itself guarantee household level food security. Access to food is influenced by market factors and the price of food as well as an individual's purchasing power, which is related to employment and livelihood opportunities. In addition, general hygiene and sanitation, water quality, health care practices and food safety and quality are determinants of good food utilization by the body. The significance of food utilization means that food security is not just about quantity of food consumed, but also about quality, and that your body must be healthy to enable the nutrients to be absorbed. Finally, these three dimensions should be stable over time and not be affected negatively by natural, social, economic or political factors.

To end hunger and achieve food security for all is a prominent target under the Sustainable Development Goals (Target 2.1) [1]. Globally, food and nutrition insecurity remains a major challenge with the number of undernourished people estimated to have reached 821 million in 2017. This translates to around one person out of every nine in the world with Africa reporting increasing undernourishment and severe food insecurity[2]. In 2017, the Food and Agricultural Organization (FAO) also reported that nearly 151 million children under five had stunted growth whilst the lives of over 50 million children in the world continued to be threatened by wasting. In East Africa, under-nutrition is a major problem with close to 50% of young children being stunted [3]. In Kenya, 26% of children under five years have stunted growth, 11% are underweight and 4% are wasted according to the 2014 Kenya Demographic and Health Survey (KDHS). This is an improvement from 2008 when stunting was at 35%, underweight at 16% and wasting at 7% [4]. In the urban informal settlements levels of stunting have remained persistently high, higher than national levels according to studies carried out from 2008 to 2015, with a prevalence of close to 50% for children under five years [5], [6].

According to the Global Hunger Index 2018 [7], Kenya is among the 45 countries out of the 119 countries ranked in the world that are still grappling with food insecurity. The report indicates that for every three Kenyans, one is grappling with severe food insecurity and poor nutrition. The report further claims that about 20 per cent do not meet the required dietary needs that can sustain a healthy and productive life. Drought, extreme poverty and poor governance are identified in the report as contributing factors subjecting people to hunger. In Kenya's urban poor, only one household in five is food secure [8], [9]; which means that only a small percentage of the population have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life. In the urban informal settlements negative coping strategies are widely used to address food insecurity, including reducing the number of meals, reducing food variety and quality, scavenging, and eating street foods [9]. The burden of food insecurity in Kenya has previously been associated with rural

living. Today, the burden is shifting towards urban centers as the populations in informal settlements in and outside of the capital city Nairobi continue to rise [10]. Rapid urbanization has not been met with sufficient urban planning or economic growth, and rates of urban poverty have increased dramatically. The 2009 census revealed that between 2 million and 2.36 million Nairobi residents reside in slums, and of these, 73% are living in poverty [11]. The high levels of poverty coincide with reliance on purchased food for the urban poor- often at exorbitant prices. As a result, many urban residents spend over half of their daily income on food. In addition, due to inadequate strategic reserves in major food commodities, and lack of proper distribution systems that can facilitate the efficient movement of food commodities from surplus to deficit areas, many urban poor families face food insecurity and lack access to adequate quantities of food. Even when they have access to food, it has poor nutritional value[12] and its handling raises food safety concerns.

Despite the high level of food insecurity in urban poor settings in Kenya, and its consequences, Article 43 (1) (c) of the Constitution of Kenya, 2010 states that "every person has a right to be free from hunger, and to have adequate food of acceptable quality". The objective of this study was therefore to stimulate dialogue to deepen the understanding on the nexus between the lived experiences with food insecurity among the urban poor in the context of constitutional provision for the right to food. In this paper, we explore community illustration of their experiences with food insecurity using participatory visual methodologies. The aim is to inform policy and practice to optimize food security for the urban poor.

Study setting

The project, dubbed the "Right to Food Project" was conducted in ten (10) slum settings:: Dandora, Kayole, Kibera, Korogocho, Viwandani, Majengo, Mathare, Mukuru Kwa Reuben, Mukuru Kwa Njenga, and Soweto. These slums are characterized by similar demographic, socio-economic and political contexts. These include the location of the slums in close proximity to better economically developed formal residential areas, high levels of poverty and unemployment, high population density, poor water and environmental sanitation, high levels of insecurity, poor housing and living conditions, lack of basic infrastructure, high levels of food insecurity, poor health conditions including malnutrition among others [11], [13], [14].

Engagement Approaches

We engaged the various communities with the help of eight (8) Community Organized Groups (COGs) working in these slums, comprised of youths. We used innovative participatory methods to stimulate dialogue on the concept of food insecurity in urban poor settings in Nairobi, Kenya. In this regard, the project invited, recognized, and represented the voices of the urban poor slum residents on their lived experiences of food insecurity. Participatory approaches have been applied to improving food and nutrition security in developing countries and have been effective in revealing the complexity of issues that affect food security at community level [15]. However, these approaches have rarely moved beyond information gathering. The Right to Food Project employed various visual and non-visual participatory methodologies including photovoice, digital stories, participatory mapping, graffiti, magnet theatres,

participatory theatres, radio shows, community dialogues, focus group discussions (FGDs) and key informant interviews (KIIs) among others.

Data Collection Approaches

In this study, we include data collected data through focus group discussions, key informant interviews, and photovoice. Data collected through FGDs and KIIs was collected by the project team with the assistance of research assistants who were graduates in public health, nutrition, social sciences with experience in qualitative data collection. Data collected through photovoice was collected by various categories of community members, supported by the project team. The data collectors underwent training covering project objectives, research ethics, procedures for seeking informed consent, and a comprehensive review of the data collection tools. Training on photovoice emphasized collecting 'faceless' photos as part of ethical considerations in photovoice. Data collection procedures for each approach are described below.

i. Focus group discussions

We conducted five (5) focused group discussions (FGDS), each involving six (6) to eight (8) participants drawn from Mathare, Kayole, Dandora and Korogocho slums. FGD participants were purposively selected to reflect age and gender representation and comprised youth (aged 19-35years), adults (aged 36-59 years), and older people (aged 60 years and above). The FGDs sought to elicit community members' awareness and understanding of their Right to Food, their lived experience of food insecurity including fluctuations on the basic food basket, and the coping mechanisms they used in such situations.

ii. Key informant interviews

In addition, we conducted eleven (11) Key Informant Interviews (KIIs) with community leaders (chiefs and ward administrators) from Mathare, Kayole, Dandora and Korogocho slums. The KIIs aimed to draw on participants understanding of the perspectives on behavior and motivations of community members with regard to food insecurity and the Right to Food, and to elicit recommendations for improving the food security/Right to Food situation in the various communities.

iii. Photovoice

Photovoice is an innovative participatory engagement method of facilitating community participation. The community generates photographic work that captures their lived experiences through their eyes. Since the community is actively involved in the process, there is more ownership and commitment. The Right to Food project engaged five specific groups: (i) mixed-gender youth (19-30 years) (ii) women (aged 31-59 years) (iii) adult groups comprising men and women (aged 31-59 years); male and female older people (aged 60 years and above), and (v) mothers of special needs children. Each group comprised about 8-10 participants and were drawn from 4 communities. All participants were trained on the use of cameras and visual ethics in photography. Using digital cameras, participants captured photos to document scenarios that reflected their day to day experiences in attaining the food basket for themselves, their children and their families, and; their lived experiences regarding food security and nutrition in the community. Following the photo shoots, participants were facilitated by the APHRC

team and respective COGs to discuss the issues represented in the photos taken. The SHOWeD^{iv} technique was used to guide the discussions which involved participants' identifying what they can see, how it relates to their lives and what can be done to improve the situation in the photos by various stakeholders including themselves.

Data Management

The data collection guides were developed in English and translated to Swahili. Back translation was done to ensure that meaning was not lost in translation. Debriefing sessions with the interviewers were regularly held with the aim of sharing field experiences and to address emerging issues. Qualitative interviews were held in private spaces that were free of attentive eyes, eavesdroppers and pressure from non-participants. The interviews were tape-recorded and transcribed verbatim to ensure accuracy. Transcribed files were saved in Word format. Photovoice photos were captioned

Data analysis

Transcribed data from FGDs, KIIs and photovoice was analysed to identify primary and meta-codes, and major themes. Data review workshop was convened where the research team read the transcripts to identify themes with attention to contradiction and diversity of experiences, perception and attitudes across the different stakeholders. We report key findings from the public engagement in alignment with the four pillars of food security: food availability, accessibility, utilisation and stability, illustrated by images captured by the community members as well as FGD and KII captions. Photovoice photos were stored as image files in password protected laptops. Study staff collected process data throughout the photovoice experience, field notes from training sessions, and input on important themes that emerged from the SHOWeD photo analyses. After all photos and SHOWeD narratives were completed by each site, they were examined by the study academic staff to identify common themes.

Ethical considerations

The authors assert that all procedures contributing to this work comply with the ethical standards of the relevant national guidelines and with the Helsinki Declaration of 1975, as revised in 2008, and has been approved by the AMREF Ethics Review Committee. Informed consent was sought from the respondents following full disclosure regarding the study before qualitative interviews and photovoice sessions were conducted.

Results

Food security status

Data shows a high level of vulnerability to food insecurity among different categories of the urban poor, driven by environmental, social-cultural and political factors. While the data shows that there was food

iv Photovoice uses a method called SHOWED which helps to describe your photographs, below are five questions related to SHOWED. 1. What do I/you See here? 2. What is really Happening here? 3. How does this relate to Our lives? 4. Why does this condition Exist? 5. What can we Do about it?

available in the market in the urban poor settings, this food was generally said to be inaccessible to many at the household and individual levels. Despite plenty of food being available in the small markets within the slums, most households were reportedly not having enough food, lacking food completely or having small food portions that could not feed the whole family. The youth and older people were said to be particularly affected with regards to food access; the youth due to unemployment and limited attention on them by interventions e.g. school feeding programs and the older people due to the double burden of diminished livelihood options and aging-related health conditions that compounded their physical ability to access food. Another factor was lack of storage facilities, leading to food wastage, and instability of availability and access to food. Additionally, the food was reported to be of poor quality and unsafe especially due to poor environmental conditions and little options for better quality due to poverty. The food, often purchased from the streets is generally handled unhygienically due to inadequate water and poor environmental sanitation in these settings. Under the prevailing circumstances of food insecurity, many resorted to coping strategies that on the one hand impacted negatively on health and wellbeing, and on the other enabled innovative means of ensuring food security. In this paper, we focus on two pillars of food security: food access and food utilization as these seemed to be the main concerns from the narratives, and copying strategies.

A. Food accessibility

A key finding under the accessibility pillar was that despite the availability of food in the markets with plenty of quantity and variety, market availability of food is not directly proportional to household availability of food as most households could not afford to buy. Many could only afford poor quality foods, while some went hungry owing to physical, financial, social and cultural challenges.

Financial challenges to food accessibility

i. Weak purchasing power

Markets in urban informal settlements avail food at a relatively low cost compared to other neighborhoods in Nairobi. However, most slum residents earn low incomes, lack jobs and/or regular income, and are faced with other competing needs at family level. These reduce their purchasing power and ability to afford the food available in local markets.



"... There is plenty of food in our markets. **The problem** is the money to buy it. But in the markets, there is a lot of food and a wide variety. We cannot complain..."

(Photovoice, adults aged 31-59 years, Korogocho)

Photo: There's food in the market; purchasing power is the challenge.

Photo credit: Photovoice participant/2018

Interestingly, those who benefit from the cheap food in the slum markets are outsiders mainly residing in neighboring middle income estates.

"...the greatest problem [in this slum] is the income of the citizens. Even if the food is cheap, those who benefit most are those who come to buy and take to the middle income estates..." (KII, Chief)

ii. Limited economic opportunities for young and old

Views from FGD participants highlighted unemployment as a key driver of poor accessibility to food security particularly among the youth and older people. For the youth the risk of food insecurity arose due to high unemployment rates and among older people, due to a diminished ability to engage in income earning activities or to secure employment owing largely to ill health.

"Most youths are jobless and broke. Despite plenty of food around here in the markets they still stay hungry most often and resort to hard drug indulgence to draw their attention away from the hunger pangs." (FGD with Youth aged 19-30 years, Mathare)

Physical challenges to food accessibility

i. 'Un-friendly' location of food points

Despite the location of most markets and food sources in relatively reachable areas of the slums, there exist physical access limitations for vulnerable groups such as, the sick, older adults with health and mobility problems, and people living with disabilities.

ii. Insecurity

FGD respondents in particular reported that the security situation in the areas also greatly affect physical accessibility of food. For instance, some food suppliers are unable to access certain parts of the areas at particular hours due to insecurity. The same applies to consumers who want to buy particular food products. Older adults, particularly women are worst hit by the insecurity challenges as their physical limitations hinder their ability to escape or defend themselves when exposed to risks such as theft, rape and violence in the quest to access food from insecure locations

"...the people who go to the vegetable market go when it's still dark in order to get very fresh vegetables. So the challenge is, at that time you will come across rapists and thieves who will rob you of the money you were going to use for purchases... When you come across a young man, they say they want your phone and money. So you say 'here's the money, you can have it" to protect your life because you don't want him to stab you. Since he has taken the money, I go back to the house to sleep and the result is that I sleep hungry and spend the day like that..." (FGD, older women aged 60 years and above, Korogocho)

"...where food comes from, if there is insecurity, or in our area sometimes it is insecure, food does not reach, vehicles don't come. So we don't get food...." (FGD Youth aged 19-30 years, Korogocho)

Social challenges to food accessibility

i. Old-age related health conditions

Owing to ill-health and chronic health conditions, older people faced problems with mobility and often could not access food on their own. Many such older people relied on monetary or food donations from well-wishers' or resorted to begging



"...I starve a lot because as you can see my legs,

I cannot walk around. It's easier to ask for help when you can walk. Currently I sit and wait for good Samaritans to come through for me... I sleep hungry and without drinking water not due to lack of money but because of my limited movement. (Photovoice, older women, Korogocho)

Photo 5: Disability and health complications limit physical access of food. Photo credit: Photovoice participant/2018



"I started off as a street urchin and I would go and scavenge from the dumpsite to get food but due to old age and my swollen legs I can no longer do it. I resorted to begging on the streets where I get mistreated at times, I lack enough to provide for myself and most of the times I sleep hungry." —

(Photovoice, Older Women, Korogocho)

Photo 6: Disability and health complications limit physical access of food. Photo credit: Photovoice participant/2018

In addition, during food security interventions such as, relief food distributions, older adults with poor physical health as well as other vulnerable groups such as, people living with disability mostly miss out, due to the intense scramble and physical aggression that often characterize these exercises. Special consideration is often not given to them. This complicates their plight further and underlines the inequality in physical access of food.

"....food can be brought here to the chief's office and since we don't have the strength to scramble on the queue, you are dismissed because they call out even those who are energetic, they don't even consider our age..." (FGD older adults, aged 60 years and above Korogocho)

ii. Cultural norms

Food accessibility was reported to be influenced by socio-cultural factors. In the view of FGD participants, some types of food are culturally and/or religiously unacceptable among certain groups, and despite the availability of such food, these people would rather stay hungry.

"...I can say culture and belief. Let me give an example with purple cabbage. There is no way you will bring Mathare residents purple cabbage in the market and have them bought. Children are brought up knowing this one is food, the other is not. Through that mindset, they just know the food that they are familiar with, the one that their mothers used to buy them as children. That's what they eat. Even when they grow up there is no way that will change..."-(FGD Youth, 19-30 years, Mathare)

Gender roles also play a key part in food accessibility. Some men in particular, are adversely affected by the social stigma associated with particular activities in the process of accessing food that are viewed as feminine, and would rather starve than execute the activities themselves, regardless of the availability of food.

"...I think for many men it's hard to get them going to stand in the market, maybe to wait for vegetables to be chopped, something like that. You see. So maybe where you live from that market, you imagine, yes you want to cook but... (Laughing), you do calculations ..." (FGD Youth. Aged 19-30 years, Mathare)

"...By the way and nowadays there are no paper bags. So you have to go to 'mama mboga, (vegetable vendor) with a basin. Imagine you are a man and you are going with a basin to 'mama mboga' going to buy vegetables..." (FGD Youth, aged 19-30 years, Mathare)

iii. Juggling between work and food

Timelines around which people work or engage in other activities was seen to sometimes serve as a constraint to their accessing food. For example, leaving work during late hours when they cannot purchase desired foods through local sources or when they have to leave very early for work at a time when local vendors have not opened shop.

"...I think also time sometimes is a challenge in getting food. Maybe you have gone looking for work and delayed there, when you come there is no food, you are late, the kiosk has been closed. Or you want to wake up early, the vendors haven't opened shop..." (FGD, Youth, aged 19-30 years, Kayole

Also, most of the time, during the day, the parents are too busy at work that they can't make food for themselves and the children, affecting the kind of lunch the children and the parents themselves take, if any.



"Due to busy schedule & inadequate time during the day, parents give their children some little money to buy street food and take mostly as their lunch. This is despite the obvious health implications."

(Photovoice, Older Women, Korogocho)

B. Food Utilization

i. Hygiene

Participants indicated that food handling processes commonly applied right from the supply markets to the retail environments are often unhygienic, resulting to frequent contamination of food within slums. Food rejects and expired food are also believed to find their way into

these markets. There is also a major concern on food adulteration, especially for the common foods sold along the streets. Soda ash, for example is commonly added to certain foods to make it soften faster while cooking, saving on fuel.

"...there's nothing we can do because you can find someone cooking [beans and maize] with soda ash and you cannot talk because s/he will say you'll spoil their work. Now it forces us to keep quiet..." (FGD youth, aged 19-30 years, Kayole)

"...what was supposed to be a sewer line we have people with houses on top of the sewer line. What was supposed to be a road reserve, there are people there. What was supposed to be a water pipe way line, it's built on top. The effect, the sewages will burst. We have more sewer bursts in informal settlements than in formal settlements..." (KII Ward Administrator, Mukuru Kwa Njenga)

Project participants also highlighted hygiene as a major concern as most food vendors display food products on dusty ground, or near or on top of open sewers. Contaminated food causes illnesses such as diarrheal diseases leading to adverse health effects or even fatalities particularly, among young children.

"...there is a cholera case that was taken to the hospital but died. Again another one recently died too. But you know what, he used to eat food sold by the roadside..." (FGD, youth 19-30 years, Kayole)

"...I would like to say that when we eat this food, it affects our health. And truly people become sick" (FGD, adults aged 31-59 years Mathare)

ii. Food quality

An apparent indicator for slum residents on what is good nutritious food, is by how the food looks. This greatly influences their food choices. According to some community members, the food planted along sewer lines, for example, looks better and healthier than that which comes from rural areas. Many slum residents are attracted by the sewer foods and prefer to consume them at the expense of the one grown in hygienic environment which may not be so visually appealing.

"...generally the low quality things go to slum areas. That is where you will find meat for 20shillings or 10shillings. So you will find some are not of good quality. You will find some of the tomatoes are rotten or they cannot be sold in a place like Buruburu. You cannot take tomatoes from there and take to Buruburu for them to sell or oranges from there, you will find that it cannot get customers. So, generally the quality is not good, which is very normal for a slum area..." (KII, Chief, Dandora)

"...these vegetables that you see grown in sewages have very beautiful leaves while those that come from the rural areas you will see that they have been poked by insects. You feel that you cannot accept the ones bitten by insects and you buy those others..." (PhotoVoice, older adults aged 60 years and above, Korogocho)

iii. Food safety

Urban slums are characterized by poor sanitation and unhygienic environment. Often there exists poor drainage systems, open or leaking sewer lines, poor waste management systems and human congestion. Open sewers were a major concern with regard to access to clean and safe water for drinking and food preparation. Food quality and safety is a component of food security and cannot be achieved without safe water. In most slums however, food is prepared and sold in this kind of environment, increasing chances of frequent contaminations. The sewage wastes sometimes contaminates water which is consumed by unsuspecting community members.



"Due to the proximity of residents and the river, there is always a likelihood of contamination. The river is always overflowing with sewer water and garbage and it is the same water that is used to irrigate the plants."

(Photovoice, Adults, Nairobi Slums)

Vegetable planted adjacent to river heavily polluted with sewage. Photo credit: Photovoice participants/2018



"Most vendors do not take care of the area where they sell food from to make sure that it is clean. If you look at the surrounding area and only buy from clean vendors, you will sleep hungry (FGD, Adults, Nairobi Slums)

*Unhygienic food selling environment.*Photo credit: Photovoice participants/2018

"...Food here in *** is not safe. Because you find kales for example, chopped without washing, put in a paper bag, you come, take and go cook. You cook all the dirt uncleaned. If it's potatoes, they are sliced into pieces uncleaned...(FGD adults, Mathare)

Coping with challenges to food accessibility

(i) Adverse coping strategies Purchasing sub-optimal food

Characterized by an inability to produce or purchase food due to the aforementioned socioeconomic factors, majority of old and young people opted to buy street foods (rather than preparing food at home) as a coping strategy. Street foods were seen to be a cheaper and more convenient means of accessing food for example, purchasing remnants of fish after fillet has been removed as they could not afford whole fish.



"Vendors go to the market and bring these part of the fish, after the fillet has been removed, the bones is what he brings. They are dried in the open air on an old metallic bed. If you want to flavor your food and you cannot afford fish, this is what you buy and make soup to flavor your food. It is unhygienic and full of flies."

(Photovoice, Adults aged 31-59 years, Kibera)

Photo: Common type of fish sold in slums. Fliers all over it.

Photo credit: Photovoice participant/2018



Photo 9: Burst sewer lines.
Photo credit: Photovoice participant/2018

"...In this photo of mine I wanted to show how that sewer line has burst and if you look closely you can see that not too far there's a woman selling food. If you look at this, this is sewage. You can imagine what is there; maybe there are flies that are going onto that food then at the end of the day someone will buy that orange or a mango and maybe they haven't washed it they'll just eat it leading to cholera."

(Photovoice, youth, aged 18-30 years, Korogocho)

Scavenging

Other community members resorted to scavenging for food from local dumpsites.

"...This environment I am referring to is the Dandora dumpsite. This is an area where all waste food from the whole Nairobi County is taken and deposited there. So, you can imagine all food waste from hotels, supermarkets, expired ones, waste bread from the bakeries waste chicken from the hotels is brought to the dumpsite. Surprisingly and unfortunately these waste food ends up being used by people in Korogocho. We have 'anyona' which is bread waste that is consumed and sold in Korogocho. We have waste rice being consumed in Korogocho. We have chombo (food wastes from the airport) being consumed in Korogocho and we have waste chicken (head and the legs) being used in Korogocho..." (KII chief, Korogocho)

"...I leave there and go to Mukuru (Dumpsite) and start collecting the bad ugali that has been thrown out, I come and cut it into small pieces after which I boil it. Then I peel potatoes that are rotting and after peeling these rotting potatoes I put them on the fire with cooking fat like the one that is thrown out by companies, I scrape off the cooking fat left on cooking fat container covers and I put it in the pot, not knowing whether it has worms or soil or sand..."

(FGD, older women aged 60 years and above, Korogocho)

Begging

Vulnerable groups within the communities whose physical access to food is greatly limited, particularly older adults, face disproportionate risks in their access to food. Most have to rely on well-wishers for food donations or resort to begging to survive. Importantly, older adults' face a double inequity in access to food owing to their diminished physical functioning and a resulting limitation land employment or engage in income generating activities that could assure food access.



Photo 5: Disability and health complications limit physical access of food.

Photo credit: Photovoice participant/2018

"...I starve a lot because as you can see my legs, I cannot walk around. It's easier to ask for help when you can walk. Currently I sit and wait for good Samaritans to come through for me...some come back and some run off. I ask young children to bring me water and I pay them. I sleep hungry and without drinking water not due to lack of money but because of my limited movement. Before my legs worsened I would go to the market and buy myself food stuff and cook. If someone can be providing the food stuffs for me I can cook for myself..."

Photovoice, older women, aged 60 years and above, Korogocho)

Engaging in social ills

Some people, as a coping strategy to food insecurity, indulge in alcohol and substance abuse. While under such influence, many engage in risky irresponsible sexual behavior that endanger their lives.

"... That is why you see many women involve themselves in prostitution because there is no food. You will find like now I do laundry work, I have children, their father also does not have a job, so you wonder, will this laundry work pay this house, will it feed those children? That is why you find we women start engaging in prostitution..." (FGD, adults aged 31-59 years, Mathare)

"...I have a neighbor who has a husband, the husband escorts her to the streets as her security, watching over her as she does street prostitution to get money so that they get food to give the children because the husband does not have a job and the wife does not have a job too. So they have to look for a way out for the children to get food..." (FGD, adults aged 31-59 years, Mathare)

Faced with frequent hunger situations and uncertainty over the next meal, it was reported that some people, especially the youth, resort to criminal activities as a source of income. Some get into mugging, stealing from houses, robbing shops while others advance beyond the petty theft to hard core armed robbery. This partly explains the high crime rates and insecurity situation in most urban informal settlements.

"...you can even arrest someone and he asks you 'did you want my children to sleep hungry? I also didn't have anything to eat in the house.' So, food insecurity can contribute to insecurity, and not that it can, it is usually like that..." (KII, Chief Dandora)

Involvement in crime endangers lives, and often results in fatalities, either via the police or mob justice.

"...you don't want to see your smaller siblings suffering, you will have to fend for them to eat, and you will have to steal. When you steal you will be burnt alive or be shot..." (FGD, Youth aged 18-30 years, Kayole)

Early marriages and teenage pregnancies

It emerged that some girls get married at an early age with the hope that with a husband comes increased food security. Some are lured by the financial muscle of the man, with the promise of even extending financial aid to her family. Likewise, some girls are lured into irresponsible sexual behavior by money and material favors (such as food) at a tender age, some of which result into pregnancies. These pregnancies were also reported to sometimes push young girls into early marriages.

"... There are girls, not that they had planned to get married at that particular age but the situation lead to very early pregnancy...so there is a perception that if she gets a husband maybe there's going to be relief...the problem of food is going to be sorted out..." FGD, Adults

Child labor

Due to hard economic situation, and the need to have food on the table, some parents send their under age children are forced to work so as to increase household income. Some children resort to this on their own to supplement the little food available at home. This was reported as common in these settings.

"...you get a small child like one in class 7 pushing a cart with water to at least get something he can put in the stomach. You'll find that they do those hard tasks that they ought not to do just because of that hunger" FGD, adults

Precarious street living

Occurrence of street children was partly attributed to food insecurity in the households. It was reported that due to hunger, some children resort to picking up discarded food wastes to eat. While at this, along the streets, next to restaurants and dumpsites, they meet others doing the same and some who have been on the streets for a while, gang up and resort fully to street life. Drug abuse sets in and transforms them completely into street children. Also, as stated earlier, some get into drugs as a coping strategy to reduce the hunger pangs, and end up associating with street children abusing similar drugs, hence, joining them.

"...Mostly when a child lacks food, he/she will have to go for an extra mile to get the food. And that also causes the children to run away from homes and start street life, scavenging things in the area. When the child is not full, she/he will have to start hustling, we call it hustling in the area. They look for and sell scrap metals to get money. They get out there and start wandering looking for how to eat. So it has a big problem, it causes problems, apart from health, also the children start being in the streets..." (FGD adults, 31-59 years, Mathare)

(ii) Innovative use of available resources Urban farming Slum residents, often youth, have adapted urban farming as a cheaper alternative source of food. The urban farming consists of a series of sacks, old tins, bottles and wooden crates containers filled with manure, soil and small stones that enable water to drain. From the tops and sides of these sacks, slum residents kale, spinach, onions, and tomatoes. Kitchen gardens are also in place for those with slightly bigger spaces while others practice livestock rearing in small scale, such as rearing goats, pigs, rabbits, and chicken. These practices have contributed to food production, increasing the availability of food to the communities.



Photo 1: Urban farming.
Photo credit: Photovoice participants/2018

"...That picture has made me happy. If I look at it properly the vegetables are healthy and I can talk about it because I have seen many such projects that uses the methods of urban farming. If I look on the side I see something that looks like house for chickens and hares. And then below it there looks like a fish pond. So in that picture, little space has been used to farm many things..."

(Photovoice, adults, aged 31-59 years,

Urban farming however, was reportedly being practiced by a very small proportion of the population, due to a number of barriers. These include limited spaces within the areas, inadequate skills among the people, refusal by most landlords to allow such practices within their premises, inadequate resources (e.g. water, cash, soil, etc.) to initiate the projects, ignorance among the people, and negative attitude towards agriculture.

"... There are those who were trained but it didn't reach the whole community.so those few who were trained are the ones who have at least implemented but they also have challenges because sometimes you find that the landlord says they don't want vegetables in their plot so it becomes a challenge..." (FGD, youth 18-30 years, Mathare)

"...Space is the main challenge to this urban farming because you can find that in the plot people are squeezed so for you to find that space the landlord can't agree..." (FGD, youth 18-30 years, Kayole)

"...I don't know what opinion young people have of farming. It looks to them like a dirty job, things like that. They think it's work for rural people and the funny thing is that they eat daily, that's the thing that surprises me..." FGD, youth 18-30 years, Kayole)

Conclusion

Findings from the project reveal that in urban informal settings in Nairobi, despite food being available in the markets, it is of poor quality and generally inaccessible due to prevailing negative economic, physical, social and environmental context. These findings corroborate findings from other similar studies in urban informal settlements in Kenya and elsewhere that confirm the high food insecurity status in these settings [8], [9], [16], [17]. The risk is heightened particularly, for youth and older people due to high levels of unemployment and limited targeting with interventions among the former; and the double burden of diminished livelihoods and physical capacity among the latter. Lived experiences include staying hungry due to lack of means to access food, opting for subs-standard and unhygienic foods often purchased from the streets or eating food grown with sewage. These illuminate the fact that food availability does not necessarily influence food accessibility. Coping strategies included innovative use of available resources such as in urban farming but also less favorable options such as scavenging from dumpsites, engaging in social ills, child labor, or resorting to begging etc. other studies in similar settings have reported use of negative coping strategies [18]. In conclusion, these findings point to a direct linkage between a denial of the Right to Food, and larger societal problems such as economic inequality, and poor health, wellbeing and social outcomes.

We call on researchers, and other relevant actors to investigate the problem of food insecurity using a lens that accurately reflects the lived experiences of those experiencing it. To end hunger by 2030, further research needs to focus on working with communities experiencing food insecurity as partners whose voices guide advocacy and stimulate the dialogue on the ending hunger. We also call on implementing organizations and decision makers to identify and implement viable context specific solutions to food insecurity fir the urban poor, taking into consideration the perspectives of the community with regards to their lived experiences.

References

- [1] FAO, "An Introduction to the Basic Concepts of Food Security," 2008.
- [2] FAO, "Food Security and Nutrition in the World: The State of Building Climate Resilience for Food Security and Nutrition," 2018.
- [3] United Nations Standing Committee on Nutrition, "United Nations Standing Committee on Nutrition (SACN) (2010) Sixth report on the world nutrition situation: Progress in nutrition." 2010.
- [4] National Bureau of Statistics-Kenya and ICF International, "2014 KDHS Key Findings." KNBS and ICF International, Rockville, Maryland, USA, 2015.
- [5] E. Kimani-Murage, S. K. Muthuri, S. O. Oti, M. K. Mutua, S. van de Vijver, and C. Kyobutungi, "Evidence of a Double Burden of Malnutrition in Urban Poor Settings in Nairobi, Kenya," *PLoS One*, vol. 10, no. 6, 2015.
- [6] B. Olack *et al.*, "Nutritional status of under-five children living in an informal urban settlement in Nairobi, Kenya," *J. Health. Popul. Nutr.*, vol. 29, no. 4, p. 357, 2011.
- [7] Global Hunger Index, "2018 Global Hunger Index Results Global, Regional, and National Trends Global Hunger Index peer-reviewed annual publication designed to comprehensively measure and track hunger at the global, regional, and country levels," 2018. [Online]. Available: https://www.globalhungerindex.org/results/. [Accessed: 16-

- Jun-2019].
- [8] O. Faye, A. Baschieri, J. Falkingham, and K. Muindi, "Hunger and food insecurity in Nairobi's slums: an assessment using IRT models," *J. Urban Heal.*, vol. 88, no. 2, pp. 235–255, 2011.
- [9] E. Kimani-Murage *et al.*, "Vulnerability to food insecurity in urban slums: experiences from Nairobi, Kenya," *J. Urban Heal.*, vol. 91, no. 6, pp. 1098–1113, 2014.
- [10] M. Mutisya, N. Kandala, M. W. Ngware, and C. W. Kabiru, "Household food (in)security and nutritional status of urban poor children aged 6 to 23 months in Kenya," *BMC Public Health*, vol. 15, no. 1, p. 1052, Dec. 2015.
- [11] APHRC, "Population and Health Dynamics in Nairobi's Informal Settlements: Report of the Nairobi Cross-sectional Slums Survey (NCSS) 2012," 2012.
- [12] P. Alila and R. Atieno, "Agricultural policy in Kenya: Issues and processes," assets.publishing.service.gov.uk.
- [13] African Population and Health Research Center, "opulation and Health Dynamics in Nairobi's Informal Settlements: Report of the Nairobi Cross-sectional Slums Survey (NCSS) 2012." APHRC, 2014.
- [14] J. Emina *et al.*, "Monitoring of Health and Demographic Outcomes in Poor Urban Settlements: Evidence from the Nairobi Urban Health and Demographic Surveillance System," *J. Urban Health*, vol. 88, no. Suppl 2, pp. 200–218, Jun. 2011.
- [15] P. Kashyap and R. Young, Rapid assessment of community nutrition problems: a case study of Parbhani, India. 1989.
- [16] S. Agarwal, V. Sethi, P. Gupta, M. Jha, A. Agnihotri, and M. Nord, "Experiential household food insecurity in an urban underserved slum of North India," *Food Secur.*, vol. 1, no. 3, pp. 239–250, Sep. 2009.
- [17] C. Maitra and D. P. Rao, "Poverty–Food Security Nexus: Evidence from a Survey of Urban Slum Dwellers in Kolkata," *World Dev.*, vol. 72, pp. 308–325, 2015.
- [18] D. D. Amendah, S. Buigut, and S. Mohamed, "Coping Strategies among Urban Poor: Evidence from Nairobi, Kenya," *PLoS One*, vol. 9, no. 1, p. e83428, Jan. 2014.