Food Insecurity Among Sub Saharan African Migrants Living in Istanbul: A Mixed Method Study

by

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For my mother and father.

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ABSTRACT

In the past decade, an increasing number of Sub-Saharan Africans have arrived in Türkiye as migrants or asylum seekers. Though most of these migrants live in Istanbul, there are no official figures on the number of Sub-Saharan African migrants in the city. The problem of food insecurity is an important and persistent problem for migrants, refugees, and asylum seekers worldwide. This study aims to investigate food insecurity (FI), associated factors and lived experiences regarding nutritional challenges for Sub-Saharan African migrants living in Istanbul. Using an exploratory sequential mixed methods design, we first collected data through face-to-face interviews with 108 Sub-Saharan immigrants in Istanbul and then conducted in-depth interviews with four immigrants (two women, two men) who agreed to participate. In the quantitative part of the research, data collection was carried out face to face in two locations. The survey consisted of three sections: sociodemographic characteristics, migration experiences, and food insecurity status. Food insecurity was measured with the Food and Agriculture Organization's Food Insecurity Experience Scale (FIES). In-depth interviews were conducted online. A combination of deductive and inductive coding was used, and thematic analysis was applied. We used four main dimensions of FI as the analytical construct: availability, access, use, and stability.

Fifty-four percent of the participants were women, the mean age was 31.7 (18-95) and 53.7% were single. Participants were from 21 different countries and the mean duration of stay in Istanbul was 34.1 months. Seventy percent of the participants stated that they had a source of income and 21.4% stated that their income was insufficient. Based on FIES, %65.7 of participants experienced food insecurity. The proportion of people experiencing food insecurity was higher among those with low income, those who reported income inadequacy, and those who had been hospitalized in the last 12 months. Age and gender were not associated with FI. The relationship between food insecurity and income has also emerged prominently in the qualitative part of our study. In the qualitative analysis, working conditions emerged as an important factor, especially in terms of healthy nutrition. Unlike the quantitative analysis, duration of stay emerged as an important theme in terms of food security, both through access to social networks and having sufficient income. Regarding access to traditional foods, almost all the interviewees stated that the economic situation was the determining factor, otherwise they could find the traditional foods they were looking for.

The results of our study show that economic access to food, rather than physical access, emerges as a barrier. It also shows that factors such as health status, length of stay and working conditions are interrelated. Studies with larger sample sizes will provide more in-depth information about the experience of food insecurity and related factors.

Keywords: Food Insecurity, Migration, Sub-Saharan African, Refugees, Economic Access, Mixed Methods, Türkiye

İstanbul'da Yaşayan Sahra Altı Afrikalı Göçmenlerin Gıda Güvencesizliği: Karma Yöntemli Bir Çalışma

ÖZETÇE

Son on yılda, giderek artan sayıda Sahra Altı Afrikalı, göçmen veya sığınmacı olarak Türkiye'ye gelmiştir. Bu göçmenlerin büyük çoğunluğu İstanbul'da yaşasa da kentteki Sahra Altı Afrikalı göçmenlerin sayısına ilişkin resmi bir rakam bulunmamaktadır. Gıda güvencesizliği sorunu dünya çapında göçmenler, mülteciler ve sığınmacılar için önemli ve kalıcı bir sorundur. Bu çalışma, İstanbul'da yaşayan Sahra Altı Afrikalı göçmenler için gıda güvencesizliğini, ilişkili faktörleri ve beslenme zorluklarına ilişkin yaşanmış deneyimleri araştırmayı amaçlamaktadır. Keşfedici sıralı karma yöntem tasarımı kullanarak, önce İstanbul'daki 108 Sahra Altı göçmenle yüz yüze görüşmeler yoluyla veri toplanmış ve ardından katılmayı kabul eden dört göçmenle (iki kadın, iki erkek) derinlemesine görüşmeler gerçekleştirilmiştir. Araştırmanın niceliksel kısmında veri toplama iki lokasyonda yüz yüze gerçekleştirilmiştir. Çalışmanın nicel kısmında kullanılan anket üç bölümden oluşmaktadır: sosyodemografik özellikler, göç deneyimleri ve gıda güvencesizliği durumu. Gıda güvencesizliği, Gıda ve Tarım Örgütü'nün Gıda Güvensizliği Deneyim Ölçeği (FIES) ile ölçülmüştür. Derinlemesine görüşmelerin tamamı çevrimiçi olarak gerçekleştirilmiştir. Tümevarımsal ve tümdengelimsel kodlamanın bir kombinasyonu kullanılmış ve tematik analiz uygulanmıştır. Analitik yapı olarak gıda güvencesizliğinin dört ana boyutu olan mevcudiyet, erişim, faydalanma ve istikrar temaları kullanılmıştır.

Katılımcıların yüzde 54'ü kadın ve yaş ortalaması 31,7 (18-95) olup, yüzde 53,7'si bekardır. Katılımcılar 21 farklı ülkeden olup İstanbul'da ortalama kalış sürleri 34,1 aydır. Katılımcıların yüzde 70'i bir gelir kaynağının olduğunu, yüzde 21,4'ü ise gelirinin yetersiz olduğunu belirtmiştir. FIES'e göre katılımcıların %65,7'si gıda güvencesizliği yaşamıştır. Gıda güvencesizliği yaşayanların oranı düşük gelirlilerde, gelir yetersizliği bildirenlerde ve son 12 ayda hastaneye yatanlarda daha yüksek olarak bulunmuştur. Yaş ve cinsiyet gıda güvencesizliği ile ilişkili bulunamamıştır. Gıda güvencesizliği ile gelir arasındaki ilişki de çalışmamızın niteliksel kısmında belirgin bir şekilde ortaya çıkmıştır. Niteliksel analizde çalışma koşullarının özellikle sağlıklı beslenme açısından önemli bir faktör olduğu ortaya çıkmıştır. Niceliksel analizden farklı olarak kalış süresinin hem sosyal ağlara erişim hem de yeterli gelire sahip olma yoluyla gıda güvenliği açısından önemli bir tema olduğu ortaya çıkmıştır. Geleneksel ve kültürel gıdalara erişim konusunda görüşmecilerin neredeyse tamamı ekonomik durumun belirleyici olduğunu, aksi takdirde aradıkları geleneksel gıdaları bulabileceklerini ifade etmiştir.

Çalışmamızın sonuçları gıdaya erişimde fiziksel erişimden ziyade ekonomik erişimin bir engel olarak ortaya çıktığını göstermektedir. Ayrıca sağlık durumu, kalış süresi ve çalışma koşulları gibi faktörlerin de birbiriyle ilişkili olduğu görülmektedir. Daha büyük örneklem büyüklüğüne sahip çalışmalar, gıda güvencesizliği deneyimi ve buna bağlı faktörler hakkında daha derinlemesine bilgi sağlayacaktır.

Anahtar Kelimeler: Gıda Güvencesizliği, Göç, Sahra Altı Afrikalı, Mülteciler, Ekonomik Erişim, Karma Yöntem, Türkiye

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ABBREVIATIONS

ASEM	Göçmen Yardımlaşma ve Dayanışma Derneği
FAO	Food and Agriculture Organization
FIES	Food Insecurity Experience Scale
HFIAS	Household Food Insecurity Access Scale
IFAD	International Fund for Agricultural Development
IOM	International Organization for Migration
NGO	Non-Governmental Organization
SOFI	The State of Food Security and Nutrition in the World
SSA	Sub-Saharan African
TNHR	Türkiye Beslenme ve Sağlık Araştırması
TUIK	Türkiye İstatistik Kurumu
UN	United Nations
UNDP	United Nations Development Programme
UNHCR	United Nations High Commissioner for Refugees
UNICEF	The United Nations Children's Fund
VoH	Voices of the Hungry Project
WFP	World Food Programme
WHO	World Health Organization

CHAPTER 1:
INTRODUCTION

In recent years, the term ‘immigration’ has become something of a buzzword on the tongues of many specialists and non-specialists alike. A perfect storm of events as disparate as climate change, regional instability, conflicts arising from the Arab Spring, and economic uncertainty has led to the term’s increased use (and often, *misuse*, if not outright *abuse*) by politicians and non-state actors alike in migrant-receiving countries. The Turkish elections of 2023 demonstrated the magnetism of such a term, with political parties from all ends of the spectrum promising radical changes in policy towards migrants. As a great deal of such discourse has been directed at the likes of Syrian migrants, the academic literature has in the most part likewise focused on such a group. The same can be said for migrants from Afghanistan and, to a lesser degree, Iran. Sub Saharan African migrants, despite being more clearly distinguishable as ‘Others’ in relation to their Middle Eastern migrant counterparts in Turkish society, have thus far received very little academic treatment. As academic research forms the substance of policy, it follows that informed policy should also encompass the experiences of such a group who, as we shall later find out, constitute one of the most mobile migrant populations on the planet.

The global public health problem of food insecurity constitutes one of the most pressing challenges facing human society today. The fight against this situation, in its major expression as the result of serious hunger, has been the focus of international interest and research in recent years (Melgar-Quiñonez, 2023).

As the concept of food security has evolved over time, so too have the various definitions thereof in academic literature. The most widely used definition of food security is that of the United Nations developed at the 1996 World Food Summit: "Food security exists when all people, at all times, 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" (Food and Agriculture Organization, 1996). There are four major dimensions of food security that are widely used and accepted in programs, policies, and research: food availability, food access, food use, and stability (Ivers, 2015).

According to the latest statistics, 2.4 billion people-roughly 30% of the world population-experienced food insecurity in 2022 (FAO, IFAD, UNICEF, WFP, WHO, 2023). More recently, a 2023 report from The State of Food Security and Nutrition in the World (SOFI) demonstrated how food insecurity is on the increase globally. Migrants constitute a critical number of those suffering the effects of food insecurity (FAO, IFAD, UNICEF, WFP, WHO, 2023).

As food insecurity increases, so too do migrant populations in pursuit of life, stability, and greater opportunities. According to the International Organization for Migration's latest World Migration Report, the number of migrants in 2019 globally increased from 272 million to 281 million in 2020 (McAuliffe and Triandafyllidou, 2022).

In recent years, there has been a significant increase in the number of migrants and refugees settled in Türkiye. Amongst the increasing number of immigrants and refugees, the presence of Sub-Saharan African immigrants in Türkiye especially stands out in Istanbul, where they constitute a significant part of the immigrant population in the city.

This thesis explores the relationship between food security and migration based on the present academic literature and my own research, providing an overview of the food insecurity of Sub-Saharan African immigrants in Türkiye. A mixed-method descriptive design was used to collect and analyse data on Sub-Saharan African migrants living in Istanbul through a face-to-face survey, wherein individuals' experiences with food insecurity were probed. This quantitative part of the study aims to explore the socio-demographic and economic variables conditioning migrant food insecurity. The qualitative aspect seeks to go beyond the numbers and offer an insight into the lived experiences of those participating in the study, perhaps even extracting shared themes and patterns therefrom.

Few studies have employed mixed method approaches to investigate the individual-level food security status of migrants. What makes this study even more unique is that it is, to my knowledge, the first of its kind investigating the food insecurity and its associations with Istanbul's Sub-Saharan African migrant population. It is my intention that such work researching and synthesizing the experiences of this particular population group will contribute to a fuller understanding of the phenomenon of food insecurity amongst migrants in general.

CHAPTER 2:
BACKGROUND

The following section will expand further on the realities faced by Sub-Saharan African migrants resettled in Türkiye, focusing on migration and the general concept of food insecurity.

2.1. Sub-Saharan African Migrants in Türkiye

According to the 2022 World Migration Report, by 2020, 3.6% of the world population–a staggering 281 million people–were living in a different country in which they were born (McAuliffe and Triandafyllidou, 2022; IOM, 2022). Migration is not the mere sum of statistics; however, it is an action and process that affects and determines health and well-being of individuals and communities (IOM, 2016). This includes moving individuals and groups across international borders or away from their usual place of residence within a state. 'Migrant' is an umbrella term reflecting the general understanding of a person who, for various reasons, leaves his or her habitual place of residence, temporarily or permanently, and establishes a new semi-permanent, permanent place of residence elsewhere. At the international level, there is no universally accepted definition of such a term (Urquia and Gagnon, 2011; IOM, 2019).

As a result of the migration act, individuals or communities can experience better health outcomes by escaping persecution and violence, improving socioeconomic status, and providing better educational opportunities. The migration process, however, is fraught with danger and can equally expose migrants to health risks such as dangerous journeys, psychosocial stress, nutritional deficiencies, extreme lifestyle changes, exposure to communicable diseases, limited access to preventive and quality health care or interrupted care, all of which result in the worsening health status of migrants (IOM, 2017).

According to the United Nations and World Bank data, the world's poorest region is Sub-Saharan Africa, contributing to more than half of the world's extremely poor population (Beggle et al., 2016; UNDP, 2021). According to the United Nations Development Programme (2022), Sub-Saharan Africa consists of 46 countries (UNDP, 2022). The number of African immigrants living outside their habitual region has more than doubled since 1990 (IOM, 2022).

According to 2013 data, approximately 20 million Sub-Saharan Africans live in different regions and outside their respective countries of birth. Nearly half of Sub-Saharan Africa's overall population lives in conditions of extreme poverty, contributing to more than half of the world's extreme poor (World Bank, 2022). Seeking an escape from such conditions and better opportunities creates a natural driving factor for migration (UNDP, 2012). Gonzalez-Garcia et al. (2016) states that 90% of Sub-Saharan African migrants move for financial reasons. Besides economic instability, poverty, and individuals' search for economic recovery (Adepoju, 2000) in many countries in the region, the survival instinct also creates an important driving factor for international migration from Sub-Saharan Africa as a result of the forced flows of refugees and migrants due to ethnic conflict and state failure (Jamal, 2003).

As reported by De Clerk (2013), the belief that all Sub-Saharan African migrants in Türkiye are transit migrants who come to Türkiye with the aspiration to migrate further to Europe is misleading. The migration of Sub-Saharan Africans to non-European countries, including Türkiye, stems from a series of causes including political instability, economic decline, worsening ecological conditions, poverty, conflicts, and human deprivation experienced since the 1980s (Adepoju, 2000).

Contemporary Sub-Saharan African presence in Türkiye began in the 1980s at the behest of African university students coming to Istanbul and Ankara for higher education. In the past 30 years, the push and pull factors affecting Sub-Saharan African migration to Türkiye have changed. The number of Africans coming to Türkiye as irregular migrants and asylum seekers has been steadily increasing since the 1990s (Brewer and Yükseker, 2006). African immigrants living in Istanbul can vary depending on their types of migration and modes of stay. These immigrants can be classified as asylum seekers, refugees, short-term visitors with valid visas, illegal migrants who entered the country unlawfully, migrants who immigrate to the city legally but take the risk of not returning after their legal stay has ended, thus entering an acuter precarious situation, individuals who have legally completed their visa durations and students who have come to the country for educational purposes (Saul, 2013; Mavric, 2016). In addition to those who intend to immigrate to Istanbul, there are also many people who come to the city with a view to using it as a transit route to Europe. Transit migrants in Istanbul face their own idiosyncratic adversities, ranging from financial shortcomings to deception from middlemen and traffickers. According to Mavric (2016), the difficulties faced in Istanbul often result in such migrants' European dreams coming to an end (Mavric, 2016). Moreover, undocumented

African migrants do not have a free access to basic healthcare and community services (Şaul, 2015).

Within the last decade, there has been a significant increase in the number of migrants and refugees resettled in Türkiye. According to the latest data provided by the Ministry of Interior in Türkiye, the number of foreign migrants in Türkiye amounted to 1.183.710 in 2023. When Türkiye's migrant population was analysed by individual provinces, it was revealed that Istanbul had the largest foreign migrant population with a proportion of 50.4%, amounting to 597.136 people (Göç İdaresi Başkanlığı, 2023). These numbers do not include Syrian migrants, the inclusion of which would make the total number of migrants in the country closer to five million (UNHCR, 2022).

Sub-Saharan African immigrants in Türkiye are mostly concentrated in Istanbul and for this reason Sub-Saharan Africans constitute a significant part of Istanbul's migrant population. Most African migrants residing in Istanbul live in neighborhoods of high migrant concentration such as Kumkapı, Tarlabaşı, Aksaray, Dolapdere Kurtuluş, Beylikdüzü and Esenyurt (Saul, 2014; Brewer and Yükseker, 2006; Kalmos 2021; Bodur 2020). Official figures on the presence of such migrants (including African refugees and asylum seekers) in Türkiye are not available, but according to the 2012 field study by Mahir Saul, the number of West and Central African immigrants in Istanbul was approximately 35,000 (Saul, 2014). There are also no complete and reliable figures on the volume of sub-Saharan African migrant flows to Türkiye, just as there is a lack of understanding of the migration processes, experiences, goals, aspirations, and concrete livelihoods of migrants (De Clerck, 2015; De Clerk, 2013).

The notion that African migrants constitute a homogeneous group is reductionist and, for the sake of our study, unhelpful. African immigrants are a highly heterogeneous group, not only in terms of ethnicity, religion, gender, and nationality, but also in terms of their educational levels and economic status. The type of occupations that African migrants in various districts of Istanbul have varies such as garment workshops, construction industry, international cargo supervision and restaurant management. Our fieldwork likewise revealed that African migrants, especially female migrants, were mostly employed in several sectors such as peddling, hairdressing, and household chores (Saul, 2014).

Despite the fact that Türkiye is hosting the largest number of refugees in the world, the academic and political dimensions concerning the immigration and presence of Sub-Saharan African migrants in Türkiye has been woefully ignored. There are several reasons for this, but one of the most important one is the civil war in Syria and Türkiye's subsequent open-door policy for Syrian refugees. As a result of the exponential growth in Syrian refugees in Türkiye, migration studies are mostly focused on Syrian refugee influx neglecting other immigrant groups in the country.

Currently, the presence of Syrians in Türkiye is regulated as 'temporary protection status' under the 1994 Turkish Asylum Regulations (Ozcurumez and Yıldırım, 2017). Under these conditions, Syrian refugees have the right to access education, health, and social services in shelters. As Saul (2015) stated earlier, African migrants have virtually none of the rights that Syrian refugees have for their access to education, healthcare and social services.

The literature on sub-Saharan African migrants in Türkiye has recently been growing. Several studies have investigated the living conditions of Sub-Saharan African migrants, asylum seekers and refugees living in Istanbul. However, the data on food insecurity and affecting factors among Sub-Saharan African migrants (asylum seekers, refugees) who have been settled in Istanbul is limited. We found no studies in the literature focusing on Sub-Saharan African migrants' food insecurity in Türkiye. In order to fill this gap in the literature, this study aims to assess food insecurity, associated factors and lived experiences regarding nutritional challenges for Sub-Saharan African migrants living in Istanbul.

2.2. Food Insecurity

According to the 1948 Universal Declaration of Human Rights, one of the most basic human rights is access to food (United Nations, 1948). The term 'food security', which is used to denote the difficulty with which food can be accessed, entered academic literature during various worldwide food crises in the 1970s. Due to the severe famine in Bangladesh in 1974, for example, the world's first Food Summit was organized under the leadership of UN-FAO. During the meeting, food security was conceptualized as the "availability at all times of adequate world food supplies of basic foodstuffs to sustain a steady expansion of food consumption and to offset fluctuations in production and prices" (UN General Assembly, 1974).

Since the 1996 World Food Summit, organized 22 years after the first World Food Summit by the FAO, food security has been defined as "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". Conceptually, food security covers four pillars (see Figure 1). The first one is the availability of sufficient food in a consistent manner. The availability component of food security refers to an appropriate and sufficient level of quantity and quality of food supplied through domestic food production, commercial food imports and exports, food aid and domestic food stocks (FAO, 2006; Melgar-Quiñonez, 2023). The second domain of food security is accessibility, which is ensured when all individuals are subject to enough resources to have food in sufficient quantity, quality and diversity for a healthy diet. This depends mainly on the presence of sufficient economic resources to make access to nutritious food accessible. The third one is food utilization which defines the socioeconomic characteristics of food security identified by individuals' knowledge and habits. Accordingly, individuals have to make their own decisions about what type of food to buy, how to consume and make good use of foods (Aborisade and Bach, 2014). The final pillar is stability that describes the time dimension of food security where the availability, accessibility and utilization of food on household level remain constant during the year and in the long term (FAO, 2008) (see Figure 1).

Food insecurity is a significant public health and global health problem affecting millions of people worldwide. The phenomenon is associated with a wide range of adverse outcomes such as health-related outcomes, including poor physical and mental health, chronic illness, and a decreased high-quality food intake (Gundersen and Ziliak, 2015).

Food insecurity has several effects on migrants with respect to their demographic characteristics such as gender. For instance, according to the State of Food Security and Nutrition in the World Report (FAO et al. 2022), women experience approximately 4% more food insecurity than men. According to the UNICEF and FAO 2020 data, citizens who cannot afford a healthy diet constitute nearly one-tenth of the total population in Türkiye. The same data show that the two third of the Sub-Saharan African residing population is unable to afford a healthy diet. On a state level, inequalities and the consequences should be considered when implementing food insecurity and nutrition policies (FAO et al., 2022). Practically, increasing food insecurity among women will likely cause an increase in nutritional problems in the short,

medium, and long term, including an increase in anemia, more babies born with low birth weight and, consequently, an increase in malnourished children.

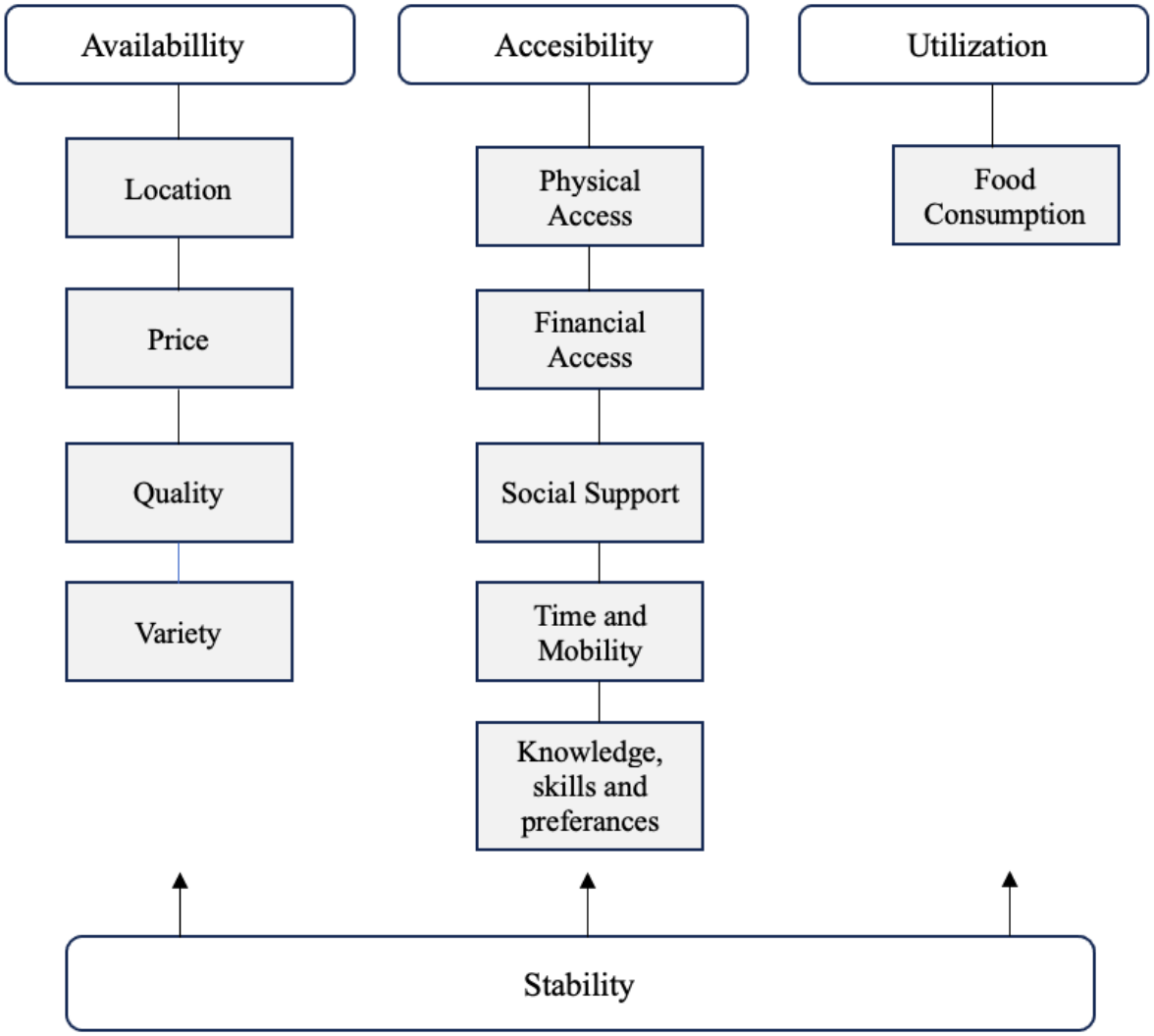

Figure 1. Dimensions of food security adapted and revised based on the literature (FAO, 2008; Barrett, 2010; Aborisade and Bach, 2014; Melgar-Quiñonez, 2023)

The aforementioned conditions that engender migration from Sub-Saharan Africa, including unstable economic situations, misguided policies, weak institutions, failing markets and conflict, likewise engender food insecurity (UNDP, 2012). The difficulty of eliminating hunger and ensuring food security for all people is due to several complex factors and identifying food insecurity quickly and accurately is one of the most important steps in achieving such a goal. Moreover, given the growing importance of migration around the world and the ever-increasing

number of immigrants over the past decade, states and international bodies are compelled to cultivate appropriate coping strategies and implement regional policies to reduce the incidence of food insecurity (Misselhorn and Hendriks, 2017), and to integrate health and food needs of immigrants into national plans, policies, and strategies.

Appropriate policies aimed towards the aforementioned targets cannot be developed without a thorough understanding of the causes of food insecurity. Different levels of food insecurity can be measured using various indicators, such as FAO Indicators and Calculation Methods for Food Security, Food Insecurity Experience Scale (FIES), US Household Food Security Questionnaire Module (USDA ERS), and the Household Food Insecurity Access Scale (HFIAS).

The kernel of the global food insecurity problem is South Asia and Sub-Saharan Africa; and roughly 860 million of the 1.7 billion people living in these regions are considered 'food insecure' (Chen and Ravallion, 2007). More than a third of the total number of people facing severe food insecurity in 2021 live in Africa. Food insecurity in Sub-Saharan Africa is almost twice as high as in North Africa (FAO et al., 2022). Due to the vast difference between Sub-Saharan Africa and North Africa in their respective contributions to the global prevalence of food insecurity, North African immigrants have not been included in our sample study population. Between 2019 and 2021, the latest data on food insecurity has shown that more than 270 million people–about 25% of the entire population of Sub-Saharan Africa–have a prevalence of severe food insecurity. When the same data is combined with moderate or severe food insecurity, the numbers indicate the highest percentage of food insecurity a region can have globally. More than 600 million people–or roughly 60%–living in Sub-Saharan Africa thus experience moderate or severe food insecurity. Although food insecurity is one of the biggest accessibility-related problems in Sub-Saharan Africa, nearly 40% of the population in the region is likewise without access to safe and clean water (UNICEF and WHO, 2012). The first study (Ghazal and Bozoglu, 2021), exclusively dedicated to examining the food insecurity of refugees in Türkiye, found the prevalence thereof to be more than 60%.

CHAPTER 3:
LITERATURE REVIEW

This literature review section discusses prevalence of food insecurity, the extent to which it affects various communities in general and migrants, and the determinants of food insecurity to provide the appropriate context for the study. The links between health, socio-economic status, and food insecurity are then elaborated upon. Finally, previous studies examining the experiences of migrants and refugees with food insecurity are appraised. The relationship between immigrants' culture and various food-purchasing habits is specifically explored to shed light on the understudied food-related issues for immigrants in a new country.

Upon review, a handful of studies pertaining to the food insecurity of migrants were found in the related literature. Employing the Household Food Insecurity Access Scale in a cross-sectional study consisting of a sample of 310 Afghan immigrant females in Iran in February 2010, Omidvar et al. (2013) found that the prevalence of food insecurity was higher among immigrants compared to the native population. In a similar manner, Howard et al. (2017) employed the Household Food Security Survey Module, consisting of a semi-structured interview with close-ended questions, and used OLS (ordinary least squares) and LR (logistic regression) methods to assess how food security resources might be most efficiently allocated to immigrants in California. Their results demonstrated low income and household size to be the largest predictors of food insecurity.

In 2017, the World Food Programme, using both quantitative and qualitative methods in ten countries including Türkiye, found that food insecurity is both an essential driving factor for international migration and subsequent problem for migrants (World Food Programme, 2017). Food insecurity, therefore, has two opposing albeit interconnecting dimensions; it is both a cause and drive for migration and, subsequently, a major problem for migrants (Sadiddin et al., 2019).

Chilton et al. (2009) investigated food insecurity by using 18-item Household Food Security Scale Module (HFSSM). They examined the risk of poor health status among US-born children of immigrants by using data obtained from the Children's Sentinel Nutrition Assessment Program (C-SNAP) collected from June 1998 to June 2005. Mirroring the conclusions of

Omidvar et al., their results showed that food insecurity is more prevalent among migrant populations and that newly arrived immigrants to a host country are most vulnerable and at risk of experiencing food insecurity.

Such findings, again, support Nam and Jung's (2008) contentions that non-immigrant populations experience more food security than their immigrant analogues. Nam and Jung employed individual data from the 1999 CPS (Current Population Survey), ASEC (Annual Social Economic) Supplement, and the FS (Food Security) Supplement in conjunction with the 18-item Household Food Security Scale Module (HFSSM) to assess food insecurity. By employing probit and tobit regressions on a sample of 3,175 low-income older adults, they also observed that longer durations of residence in the USA is associated with lower levels of food insecurity.

Other studies, such as those conducted by Vatanparast et al. (2020), build on previous scholarship by offering reasons as to why food insecurity of migrants differs so vastly from their respective host populations. Chief amongst these can be stated as low education, low income, language barriers, gender-related issues, and problems induced by the experience of migration (Vatanparast et al. 2020; Vahabi and Damba 2013; Dharod et al., 2013; Omidvar et al., 2013). Nevertheless, a study by Alarcão et al. (2020) found no significant differences (10-11%) in the prevalence of food insecurity among immigrants and the non-immigrant population in Portugal. The results of Vatanparast et al. (2020), employing descriptive and qualitative approaches and conducting 54 semi-structured interviews between December 2016 and February 2017 with recently resettled Syrian refugees in Canada, are likewise consistent with the literature. Amongst such communities, they found that low-income and financial constraints are the main barrier factors to food security.

In 2011, Crush and Tawodzera, using both survey and in-depth interview methods investigated the food security status of Zimbabwean migrant households in South Africa. They found that more than 80% of the 500 households interviewed were food insecure and that those with lower income rates were consistently more food insecure than their higher income analogues. Crush and Tawodzera (2011) also demonstrated that household size is an essential determinant of the matter, and larger households used to have a higher likelihood of experiencing food insecurity.

Some studies have also investigated cultural and social factors affecting food insecurity among migrants and demonstrated the importance of access to cultural foods in managing food insecurity (Vahabi and Damba, 2013; Mansour et al., 2021; World Food Programme, 2017). One of the non-economic barriers is limited access to culturally appropriate foods, a barrier that is proportionately, albeit indirectly related to the economic status of migrants due to the high cost of available cultural food. In 2021, Mansour et al. conducted a qualitative study with 27 Libyan migrants living in Australia to explore understanding of the lived food insecurity experiences. Such work was facilitated by their employment of a qualitative approach, phenomenological framework in the data collection, and in-depth interviews. Most importantly, the authors by using thematic analysis discovered that the cultural background of migrants is fundamental in shaping their food insecurity experience. Similarly, Vahabi and Damba (2013) showed the prevalence of food insecurity amongst recent Latin American migrants in Canada.

Other studies have examined the impact of income and education levels on food insecurity among immigrant and migrant populations (Kendall et al., 1996; Hadley et al., 2006; Hadley et al., 2007a; Alarcão et al., 2020). For instance, Hadley et al. (2006 and 2007a) and Alarcão et al. (2020) stated that the main social determinants of food insecurity in immigrant populations were low level of education and low household income. Offering a specific case study of African refugees in the USA, Hadley et al. (2006 and 2007a) concluded that food insecurity is more prevalent among families with lower incomes and less educated caregivers. Moreover, the issue of immigrants' household food insecurity was examined by Kalil and Chen in 2018. They found that low maternal education was positively associated with hunger and food insecurity, again, not contradicting previous conclusions in the literature.

Consistent with the results of studies on migrant experiences, a 2018 study on older adults by Fernandes and colleagues demonstrated the importance of the food insecurity experience faced by the most vulnerable populations, namely those without jobs or with unstable work, in addition to those with low education levels or low household incomes. According to their results, 23% of households with adults aged 65 and older were reported as being food insecure (Fernandes et al., 2018). Older adults, aged 70–74, are likewise more likely to be food insecure. Similarly, the findings of Alarcão et al. (2020), Greenwald and Zajfen (2017), Vahabi and Damba (2013), Vahabi et al. (2011), Crush and Tawodzera (2017) reveal that being a woman,

having less education, and living in low-income households substantially increase food insecurity amongst migrants.

While studies by Vahabi et al. (2011), Chilton et al. (2009), Dharod et al. (2013), Omidvar et al. (2013), and Tarraf et al. (2018) indicate a link between food insecurity and the length of stay in the host country, other studies in the literature dispute such findings. For instance, Hadley et al. (2007a) and Greenwald and Zajfen (2015) conclude that the length of time since migration does not affect the level of food insecurity.

Ghazal and Bozoglu (2021) used FAO's FIES questionnaires to conduct the first study evaluating food insecurity for refugees in Türkiye. With the participation of 252 Syrian and Iraqi refugees living in the northern city of Samsun, they demonstrated significant relationships between socio-demographic factors (including district, nationality, age, education level, and length of residence in Türkiye) and food insecurity status. Their results suggest that 60% of refugee populations studied experienced food insecurity. Consistent with international studies on food insecurity, they also found that economic variables such as income level and employment status have a big impact on food insecurity.

In conclusion, the available literature reveals that the problem of food insecurity is an important and persistent problem for migrants, refugees, and asylum seekers worldwide. Although there are studies with similar results, the existing literature contains contradicting conclusions. In the context of Türkiye, most of the migration-related studies have focused on the more than 3 million Syrian refugees under temporary protection status and residing in the country (İçduygu, 2015). On the other hand, studies conducted on the conditions and experiences of Sub-Saharan African migrants in Türkiye are minimal. Such studies have been limited by the lack of accurate statistics on Sub-Saharan migrants within the country and have primarily been ethnographical and sociological in nature, prioritizing lived experience in the place of health experiences. No previous study as of yet has reviewed the food insecurity of Sub-Saharan African migrants living in Türkiye. Similarly, no research to date has investigated food insecurity among Sub-Saharan African migrants, refugees, or asylum seekers who have migrated to Istanbul. To fill this gap in the literature, our study assesses food insecurity for migrant adults from Sub-Saharan Africa as well as the interplay and associations between food insecurity and migration. Despite there being a large body of the literature on food insecurity, future research must engender a holistic approach that combines qualitative and quantitative methods to offer more

insights into the experiences of various migrant populations experiencing the phenomenon. Due to its inability to uncover the underlying causes, requirements and barriers related to food insecurity, relying only on quantitative methods is inadequate in grasping the complexity of what is indeed a significant public and global health issue.

CHAPTER 4:
MATERIAL AND METHODS

4.1. Study Design

This thesis examines the frequency and experiences of food insecurity among Sub-Saharan African migrants residing in Istanbul by using a mixed-method approach (Figure 3). We first collected and analyzed quantitative data and then followed the results up with a qualitative analysis in our research by using explanatory mixed method design.

The study was approved by The Institutional Review Board of Koç University with protocol number 2022 279.IRB3.118.

This study is funded by Koç University and conducted over a period of one year. Koç University provided a number of voucher cards that are prepaid incentives that pay for participants to purchase 50 TL valued goods in Migros, supermarket chain in Türkiye.

My research addresses the following questions: What is the extent of food insecurity amongst Sub-Saharan African migrants, what are the associated factors? How does migration experience affect access to food and dietary habits?

4.1.1. Participants

Inclusion criteria for survey participation are as listed below:
1- Sub-Saharan African[1] Migrants in Istanbul who are 18 years or older
2- Sub-Saharan African Migrants who can read and write in English or French

[1] Migrants here are defined as documented and undocumented persons (without Turkish citizenship) born in one of the following African countries and living in Istanbul, Turkiye. According to the United Nations Development Programme (2022), Sub-Saharan Africa consists of the following 46 countries: Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Cabo Verde, Central African Republic, Chad, Comoros, Congo, Democratic Republic of the Congo, Côte d'Ivoire, Equatorial Guinea, Eritrea, Kingdom of Eswatini, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mozambique, Namibia, Niger, Nigeria, Rwanda, Sao Tomé and Príncipe, Senegal, Seychelles, Sierra Leone, South Africa, South Sudan, United Republic of Tanzania, Togo, Uganda, Zambia, Zimbabwe (UNDP, 2022)

3- [For the qualitative part of the study] Sub-Saharan African Migrants who can speak in English

Exclusion criteria are as listed below:

1- Sub-Saharan African Migrants younger than 18 years old

2- Sub-Saharan African Migrants with no/limited literacy in English or French

3- Migrants from countries outside of Sub-Saharan Africa

4- [For the qualitative part of the study] Sub-Saharan African migrants who cannot speak in English

The final survey participants for the quantitative portion amounted to 111 people, though two Haitians and a third applicant of Sub-Saharan origin, albeit with French citizenship and visiting Türkiye for the sake of tourism, were excluded. In the quantitative part of the study a total of 108 individuals were included in the analysis. For the qualitative part, initially there were 10 people interested in participating; however, a total of 4 people were interviewed for reasons such as not being able to set a suitable time for the interview or giving up.

4.1.2. Quantitative Data Collection

This first stage of data collection was held face-to-face data collection with hard copies of the surveys. The survey consisted of three chapters with totally 30 number of questions: questions on sociodemographic characteristics, migration experiences and Food Insecurity Experience Scale. The survey took about 15 minutes to complete.

4.1.2.1. Demographics and Questions Related to Migration Background

Information regarding age, gender, the highest education level achieved, marital status, country of origin, language skills, and duration of stay in Türkiye were asked to the survey participants. Additionally, participants were asked about the main reasons that led them to move or leave their home country and the underlying motivations for their migration. These questions were informed by the blueprints provided by questionnaires from the International Organization for Migration (IOM).

Further, other questions included participants' current living arrangements, including whether they live alone, with family, or with roommates. Employment-related questions focused on their current job status and the main source of income in Türkiye. We divided the eleven job categories into three further groups to facilitate our analysis: formally employed, informally

employed, and subsisting on support from family, an NGO or the government. We included those who mentioned that they were employed in a business/service, were business owners of a legally registered business, self-employed, engaged in factory work, forestry, agriculture, fisheries, mining and construction to the 'formally employed' group. We likewise included those who indicated their work in an 'informal economy', be it domestic work or sex work in the 'informally employed' group. In the 'support from family, NGO, or government' group, we also included those who subsisted on subsidies from aid organizations and cash transfers from the government. In addition, the questionnaire included questions evaluating their access to health and education services in Türkiye.

4.1.2.2. Food Insecurity Experience Scale (FIES)

The Food Insecurity Experience Scale, established by the FAO's Voices of the Hungry Project, is a crucial instrument and gauge of hunger aimed at guiding policy to achieve food security (FAO, 2017). The scale is focused on peoples' self-reported experiences and, unlike other measures, is markedly psychological, measuring unobservable traits including but not limited to "aptitude/intelligence, personality, and a broad range of social, psychological, and health-related conditions" (FAO, 2017). It is widely used internationally and is available in 200 languages on the Voices of the Hungry website including Turkish (Nord et al., 2016). When used domestically, it is mostly employed for the purpose of measuring food insecurity amongst immigrant populations. The severity of food insecurity is empirically gauged from participants' answers to eight questions regarding their economic access to adequate and nutritious food.

Such a measurement tool is not specific to a particular sector such as nutrition, agriculture, or economics; FIES therefore is part and parcel of a multidisciplinary understanding of the phenomenon of food insecurity. FIES is the first tool employed when gauging food insecurity at the individual level (Smith et al., 2017) and, with the use of data from the 2014 Gallup World Poll, has been validated in 151 countries by FAO-VoH, including Türkiye.

Scales with a high raw score (the sum of affirmative responses given to the eight questions present) are associated with high food insecurity. Raw scores for the food secure category range from 0 to 3, whereas those for the moderate food insecurity (MFI) category range from 4 to 6. Scores in the severe food insecurity (SFI) category range from 7 to 8 (Wambogo et al., 2018). Questions answered either "don't know" or "refused" have a missing value coded as "N/A" in

accordance with the procedures outlined by FAO and Ballard et al. (2013) in The Food Insecurity Experience Scale Development of a Global Standard for Monitoring Hunger Worldwide.

FIES scales can be used at either the household or individual levels for reference periods of 30 days of 12 months. The present research employed the individual scale of 12 months. This questionnaire consists of eight questions as shown in Table 1, separable into three domains: the first of such (see question one) pertains to anxiety and uncertainty about one's household food supply; the second and third, substandard quality of food; and the final four questions, insufficiency of food. For a detailed scale of food insecurity severity, see Figure 2.

Table 1. English version of the food insecurity experience scale

Number	Standard label	Question wording
1	WORRIED	During the last 12 MONTHS, was there a time when you were worried you would not have enough food to eat because of a lack of money or other resources?
2	HEALTHY	Still thinking about the last 12 MONTHS, was there a time when you were unable to eat healthy and nutritious food because of a lack of money or other resources?
3	FEWFOODS	Was there a time when you ate only a few kinds of foods because of a lack of money or other resources?
4	SKIPPED	Was there a time when you had to skip a meal because there was not enough money or other resources to get food?
5	ATELESS	Still thinking about the last 12 MONTHS, was there a time when you ate less than you thought you should because of a lack of money or other resources?
6	RANOUT	Was there a time when your household ran out of food because of a lack of money or other resources?
7	HUNGRY	Was there a time when you were hungry but did not eat because there was not enough money or other resources for food?
8	WHOLEDAY	During the last 12 MONTHS, was there a time when you went without eating for a whole day because of a lack of money or other resources?

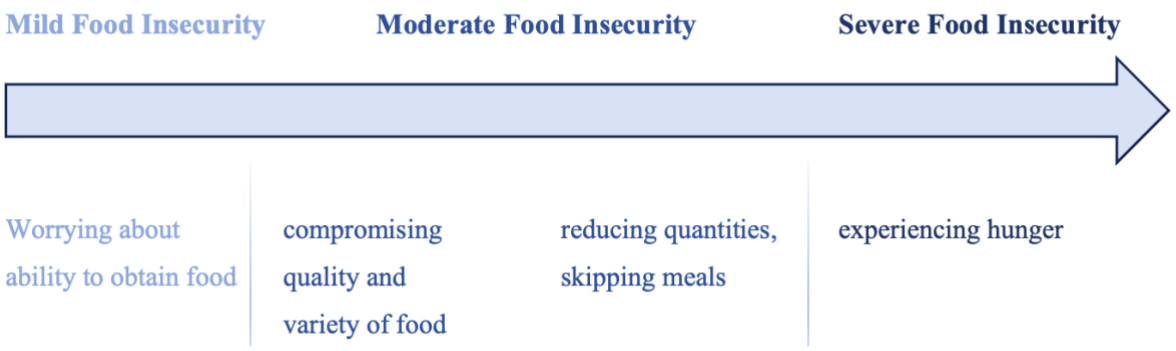

Figure 2. Food insecurity severity along a continuous scale of severity (FAO)

4.1.2.3. Pilot Study

Before beginning the main study, a pilot study was conducted with three migrant participants during the researcher's visit to ASEM in September 2022.

Two English-speaking and one French-speaking migrants voluntarily filled out the printed surveys under the supervision of the researcher. Based on the feedback, the researcher re-developed the survey design, increasing the font size and re-wording survey questions that caused misunderstandings amongst the participants of the pilot study.

4.1.2.4. Data Collection Sites

The participants were reached through two locations. The first location was with an NGO named ASEM (Göçmen Yardımlaşma ve Dayanışma Derneği or Association for Mutual Aid and Assistance to Migrants). The NGO operates from a small clinic in Beylikdüzü and works with migrants from various countries, primarily those of African origin, offering access to healthcare services. Additionally, the NGO provides consultations and assistance with bureaucratic and migration-related paperwork for migrants. Notably, ASEM collaborates with hospitals and other primarily private institutions to refer migrants in need of extensive healthcare services at reduced costs. From November 2022 until March 2023, we conducted a face-to-face data collection process at the ASEM and gathered data from 89 participants. During face-to-face data collection in ASEM, the researcher was able to conduct English version of survey for English speaking migrants but for French speaking migrants we used French version of survey (see Appendix) with the help of one of the ASEM members named

Jean Lamah who was always there to help researcher with French-English translation for French speaking migrants.

The second data collection location was in St. Mary's Armenian Church (Meryem Ana Ermeni Kilisesi) in Fatih. Istanbul's African migrants can predominantly be found in the Kumkapı and Aksaray areas. St. Mary's Armenian Church is a unique place such that in addition to accommodating the local Armenian faithful, it has likewise become a meeting point for the Ethiopian Orthodox community in the area, especially through worship services held every Sunday. The researcher attended the church every Sunday morning for ten weeks, observing the ceremonies from beginning to end and through this approach, a total of 19 participants from the church community were reached and included in the study. During the Sunday ceremonies, communication was established with Mr. F___, who is trusted by the Ethiopian congregation and proficient in Turkish. With Mr. F__ 's assistance, the researcher was able to establish healthy lines of communication with potential participants, in addition to seeking their support and involvement in the study.

I would like to thank Mr. F____ for his help during data collection in church and Mr. Jean Lamah in ASEM for helping researcher with French translation during data collection in ASEM.

The recruitment and evaluation of participants' eligibility to participate took place face-to-face in both data collection locations. While ASEM provided a room for the researcher to collect data, the situation at St. Mary's Armenian Church was of a more impromptu nature. Data collected in the church was carried out in the garden of the church in the open area between December 2022 and March 2023.

An information document (in English and French) explaining the purpose and content of the study was given to volunteering and chosen participants. French questionnaires were only used in ASEM. One French speaking migrant working for ASEM was always there to provide French-English translation when needed between participants and the researcher.

When needed, an additional explanation was provided to participants by an interpreter. Every participant signed an informed consent form for the survey, interview, audio recording and scientific use of his or her information. Each participant was offered a 50TL Migros market card, both at ASEM and the church, as an incentive to partake in and expression of gratitude for his or her time and efforts throughout the quantitative data collection process.

The researcher was able to reach around 300 Sub-Saharan African migrants through the channels of ASEM organization and St. Mary Armenian Church and was able to conduct the survey with 108 volunteer and eligible participants.

4.1.2.5. Analysis of Quantitative Data

We employed IBM SPSS Statistics (Version 28) for quantitative analyses. For descriptives, we used frequencies, mean, SDs. For comparative analysis, we used chi square for the categorical variables. Since data was not normally distributed, we used Mann Whitney U or Kruskal Wallis tests for the continues data such as Food Insecurity Scale.

At the end of the survey, participants were asked whether they were willing to participate in an in-depth interview about food insecurity and post-migration experiences. If they consented, they were thereby asked to provide their contact information for the qualitative part of the study (see Figure 3).

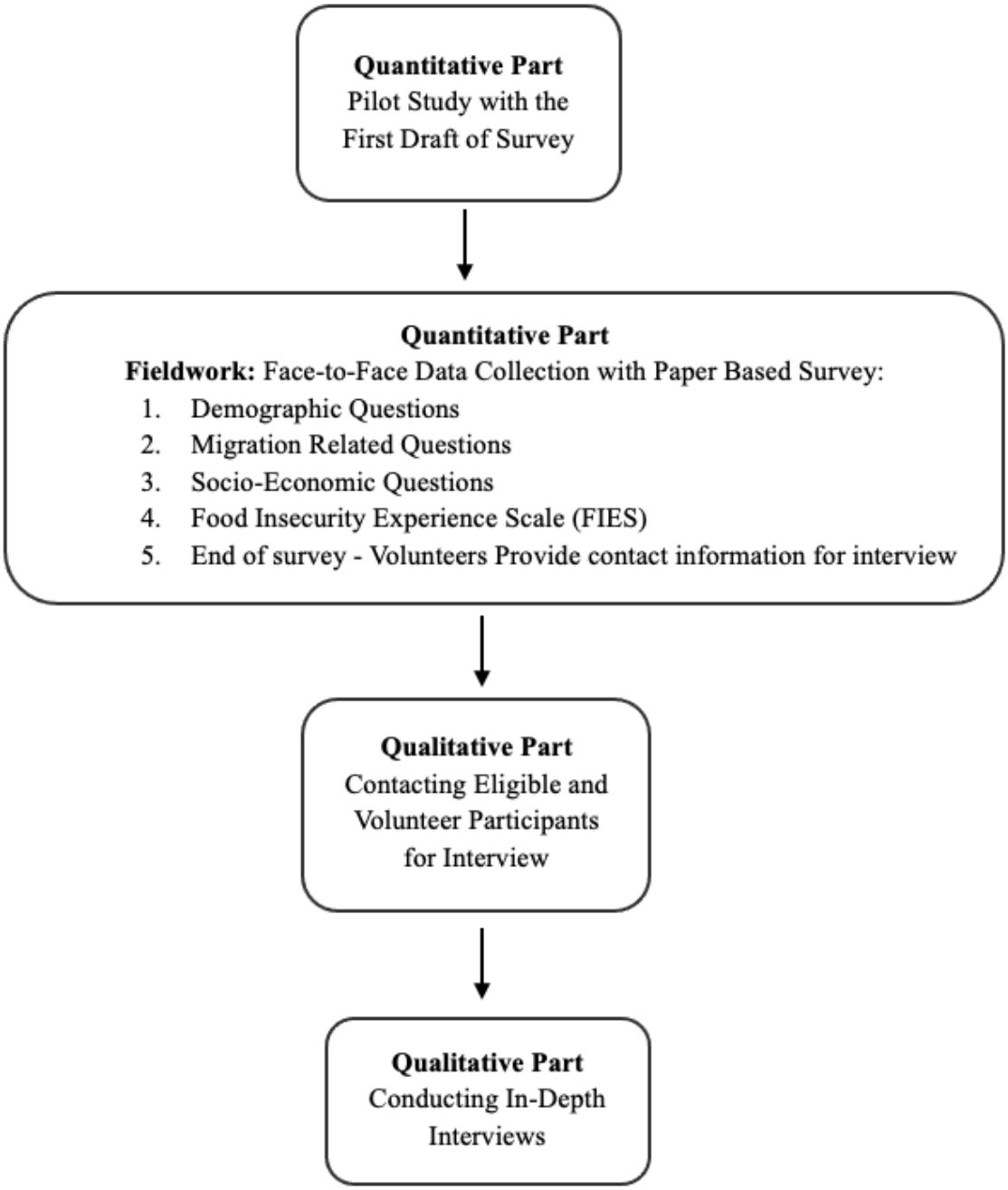

Figure 3. Flow chart of the study

4.1.3. Qualitative Data Collection

The second data collection part of this study used qualitative methodology (in-depth interviews) through a semi-structured interview guide with an aim to better understand the food access experiences, eating habits, and facilitating nutritional factors in the daily lives of the target population.

At the request of the participants, all interviews were conducted online. Participants were assured that the interview is completely confidential, with no name recorded or linked to the answers provided. With the participant's approval, all the interviews were recorded using a portable electronic recording device and saved as a secure, password-protected file on the first author's computer.

Of the 108 participants who previously filled out the questionnaire, 10 provided their contact information at the end of the survey section. Participants who previously filled surveys and gave consent to take place in the second stage of the study were contacted via phone to ascertain whether they were still interested in taking part in detailed interviews. Out of 10 participants, the researcher was unable to reach four participants via the means of contact provided. Out of 6 potential interview participants, two participants later reported that they were no longer willing to take part in the interview. Total interviews thus included four participants (see Table 9).

The interview guide, which included semi-structured open-ended questions, was prepared to be used as a base in the interviews. The language of the guide was English, in line with the interviews' being conducted with participants with a level of English proficiency. Although semi-structured open-ended interview questions were used as the fundamental guide, when the need arose, the participants were interviewed by opening up and expanding upon the topics beyond the purview of the questions in the guide.

Qualitative interviews took part individually online via Zoom with the participants per their request. When the researcher contacted the participants, she stated that she wanted to conduct a face-to-face interview and that she wanted the participants to partake in a manner and location wherein they would be most comfortable. All participants preferred to meet online due to circumstances such as working late nights or not having enough spare time to meet. Two interviewees (P1 and P4) were from St. Mary's Armenian Church congregation in Kumkapı, the latter two (P2 and P3) being ASEM visitors. After obtaining consent from participants verbally, the in-depth interview session started and was recorded by the researcher. The audio recordings and video recordings taken after the interviews were thereafter analyzed and converted into text using Zoom and Microsoft Word.

4.1.3.1. Semi-Structured Interview Guide

The interview guide consisted of 3 parts; in the first part of the interview guide, questions mostly included migrants' life before migrating to Türkiye, motivations to migrate, changes after migrating to Türkiye. In the second part of the interview guide, questions mostly focused on nutrition, healthy eating, changing eating habits after moving to Türkiye. At the end, interview questions were focusing on food access, food insecurity and coping mechanisms. To conclude, we searched and used relevant literature on food insecurity, the nutritional behaviour of migrants to enumerate our interview questions (Tiedje et al., 2014; Vahabi and Damba, 2013). The duration of the interviews changed between 40 to 60 minutes.

4.1.3.2. Analysis of Qualitative Data

We used a combination of deductive and inductive coding and applied thematic analysis. Deductively, we used four main dimensions of food insecurity as an analytic structure: availability, access, utilization and stability (see Figure 1). We evaluated the statements of the participants within the scope of the conceptual definition of these four dimensions. Inductively, we combined these dimensions with newly emerged codes. As the identities of the participants were kept confidential, they shall be addressed in the following quotations and tables with 'P', followed by their number and gender.

The coding, categorization and the primary analysis was done by the researcher and the remarkable quotes were selected to present original statements.

CHAPTER 5:
RESULTS

5.1. Descriptive Results

The quantitative part of the study consisted of 108 participants. Most of the participants (74.10%) were between the ages of 25-44. The mean age of the participants was 31.78 years with a range of 18 to 95 years of age. 54% of the sample population was female with a mean age of 31.9 (SD = 10.8). Men constituted 45% of the sample with a mean age of 31.7 (SD = 8.2). Demographic characteristics of the participants are presented in Table 2. Moreover, the mean duration of stay of the participants was 34.12 months (SD = 33.6).

Accordingly, 20.40% of the participants were from Congo, 17.60% were from Ethiopia, 13.90% from Guinea, 12.00% from Angola, and 7.40% from Cameroon. People from other nations made up a sizable component of the sample (26.70%), including those originating in Nigeria, Burkina Faso, Ghana, Somalia, Sierra Leone, Côte d'Ivoire, Gabon, Liberia, Senegal, Mali, Chad, Mauritania, Madagascar, Djibouti, The Gambia, and Togo.

Almost thirty percent of the participants (28.7%) were married; 42% of them had child, 13.3% of individuals was identified as single parents, and 4.6% of participants said that they were divorced.

Most of the participants had a university degree (56.50 %). If one combines high school and university graduates (86.4%), it becomes clear that the sample consists of an overall educated group.

In our survey, we divided the job categories into three groups: Formally Employed, Informally Employed, and Support from family, NGO, or government. 69.40% of the participants form the category of formally employed in Türkiye.

Table 2. Sociodemographic characteristics of participants by variables, Istanbul, 2023

Sociodemographics	n	%
Age (in years)		
18-24	20	18.5
25-44	80	74.1
45+	8	7.4
Gender		
Woman	59	54.6
Man	49	45.4
Education		
Primary school or less	4	3.7
High school level	29	26.9
University level	61	56.5
Post-graduate level	14	13
Marital Status		
Single never married	58	53.7
Married	31	28.7
Divorced	5	4.6
Single Parent	14	13
Having Children		
Yes	46	42.6
No	62	57.4
Occupation		
Formally Employed	75	69.4
Informally Employed	24	22.2
Support from family, NGO, or government	21	19.4
Country of Origin		
Congo (DRC)	22	20.4
Ethiopia	19	17.6
Guinea	15	13.9
Angola	13	12
Cameroon	8	7.4
Others	31	28.7

Next, we wanted to analyze the migration patterns of participants by asking questions regarding their motivations to migrate, the reasons why and for how long they have been living in Istanbul (see Table 3). Regarding the duration of stay in the city, 34.30% of the participants were newcomers who stated that they have been in Türkiye for less than one year. When we examine

the participants' motivations to migrate, we observe that economic challenges and the motivation to find a job constitute the largest group with 63.0%, followed by education-related motivation with 43% of the sample population. Moreover, 46.3% of the participants in our study stated that they have been living with their family members, and 42.6% of people in the sample population have been living in a shared accommodation or in a shelter.

Table 3. Migration experiences of participants, Istanbul, 2023

Migration Experiences	n	%
Duration of Stay in Türkiye		
Less than a year	37	34.30
1-3 years	40	37.04
More than 3 years	31	28.70
Motivation for Migration (multiple motivations are allowed)		
Work	68	63.0
Education	47	43.5
Healthcare	5	4.6
Family Related	12	11.1
Others	18	16.7
Live with		
Alone	12	11.1
Family member(s)	50	46.3
Shared accommodation or shelter	46	42.6

To obtain a more detailed perspective on migrants' economic conditions, we have collected income-related information in our study. As can be seen in Table 4, 70.4% of the participants stated that they had a source of income.

When asked whether they are the sole or primary provider for their household/family, 55.6% of participants responded in the affirmative, while 44.4% of the respondents were secondary or inconsequential contributors to their respective households. Participants were then asked whether their income was enough to provide sufficient food, clean water as well as accommodation for their families. More than half of the participants (55.6%) responded that their earnings were partially sufficient, 20.4% fully sufficient, and 24.1% insufficient (Table 4).

Finally, taking all the monthly earnings of the households within a month, we asked the participants to choose one of the three options that best described their situation. 19% of the respondents answered that they can comfortably spend a month with their earnings, followed by 30.6% who can spend a month without serious problems with their earnings. 15 people (13.9%) responded that they are unable to make it to the end of the month with their earnings.

Table 4. Income Status of Participants, Istanbul, 2023

Income Status	n	%
Having Income		
Yes	76	70.4
No	32	29.6
Main Provider of Household		
Yes	60	55.6
No	48	44.4
Income Sufficiency		
Partially Sufficient	60	55.6
Fully Sufficient	22	20.4
Not Sufficient	26	24.1
Income Adequacy		
Fully Comfortable	21	19.4
Comfortable without serious problems	33	30.6
Only make it to the end of the month	30	27.8
Can't make it to the end of the month	15	13.9

We also asked several health-related questions about participants' access to healthcare and their self-reported physical health. As shown in Table 5, 52.80% of the participants stated their physical health as good or fair, while 42.60% of the participants declared it as excellent or very good. Those stating that they have poor health make up only 4.60% of the total group. In addition, 11.10% of the participants (12 individuals) reported having a chronic health condition. The participants were thereafter asked “Do you have access to health services in Türkiye?” and whether they had been hospitalized within the past year. More than 60% of the participants stated that they have partial access to health services, with 20% reporting that they do not have any access. Those who answered in the affirmative to the question "have you been hospitalized last year" constituted 11.10% of our population.

Table 5. Health Status of the Participants and Access to Health, Istanbul, 2023

Health Related Questions	n	%
Physical Health		
Excellent or Very Good	46	42.60
Good and Fair	57	52.80
Poor	5	4.60
Chronic Disease		
Yes	12	11.10
No	95	88.00
Access to Health Services		
Partial Access	69	63.90
Full Access	11	10.20
No Access	23	21.30
Don't Know	5	4.60
Hospitalization during the last year		
Yes	12	11.10
No	96	88.9

Table 6. Food Insecurity Status of Participants, Istanbul 2023

Food Insecurity	n	%
Food secure	37	41.5
Moderate	7	7.9
Severe	45	50.6

As 19 out of 108 participants left out at least one question of the 8-item FIES unanswered, they were not included; the analyses were therefore conducted on 89 people. Out of 89 participants, 52 were found to be moderately or severely food insecure. Table 6 shows food insecurity (the combination of severe and moderate food insecurity) to be at 65.70%. The food secure population was only 34.30%.

While conducting our analysis, we identified two groups as food secure and food insecure. As seen in Table 6, we combined moderate and severe food insecurity, creating a single food insecure group (65.70%).

According to the survey results, 32.10% (WORRIED) of the individuals expressed apprehensions about their ability to access sufficient food, citing the primary reason to be the

inadequacy of financial resources. 31.40% (HEALTHY) reported facing challenges in maintaining a diet that adequately meets their nutritional requirements. Moreover, a considerable proportion of the respondents, 37.10% (FEWFOODS), indicated a reduction in the diversity of food items available to them, while 43.60% (SKIPPED) reported having to skip meals due to lack of money or other resources. Furthermore, a substantial segment of the population, 45.60% (ATELESS), revealed the experience of consuming less food than they perceived to be necessary for their well-being. Notably, a significant proportion of respondents of the sample, amounting to 25.70% (RANOUT), reported instances of being unable to eat meals even when experiencing hunger. Further exploration of the data revealed that 38.70% (HUNGRY) of the participants experienced hunger despite the availability of food due to economic constraints, albeit selectively reporting for certain months through the course of the past year. The findings also expose distressing instances of acute food deprivation, as evidenced by 33.00% (WHOLEDAY) of respondents who reported going an entire day without any food during the past year due to insufficient financial means or access to resources.

Table 7. FIES Question Responses by Items, Istanbul, 2023

Standard Label	n	Percent
WORRIED	106	32.10%
HEALTHY	105	31.40%
FEWFOODS	105	37.10%
SKIPPED	101	43.60%
ATELESS	103	45.60%
RANOUT	101	25.70%
HUNGRY	106	38.70%
WHOLEDAY	100	33.00%

5.2. Analytical Results

Table 8 below shows the differences in food security status based on various economic, health, migration, and socio-demographic variables.

Table 8 likewise shows that women (72.3%) are more food insecure than men (54.8%), however the difference is not statistically significant (p = 0.084). When we look at the relationship between age and food insecurity, we see that the 25-44 age group has the highest percentages for both food secure and insecure groups. Moreover, the entire group over the age

of 45 is food insecure. No statistically significant associations were found between food security status and age (p = 0.225). Regarding the association between duration of stay and food insecurity, we found that the ratios of both secure and insecure groups of all three groups are very close to each other (p = 0.940).

Regarding the association of the participants' food security with their employment status, we found that the most insecure group constitutes the highest percentage (80%) of the support from family, NGO or government group. Although food insecurity was reported higher for married (75.00%) and divorced (80.00%) individuals, compared to other groups, this was not statistically significant. Similarly, no statistically significant relationship was found between food insecurity and marital and educational status. Finally, the difference tests reveal that having children is statistically insignificant in affecting the level of food insecurity.

The only factors that showed statistically significant associations with food insecurity were income status, income adequacy and hospitalization status. Regarding income, people who report their incomes to be sufficient also reported being more food secure than those reporting their incomes to be insufficient ($p < 0.001$). Also, those who have reported regular income have better food security levels compared to those without income (p = 0.028). Moreover, individuals who were hospitalized in the past year have experienced higher levels of food insecurity (p = 0.012).

Table 8. Food Insecurity According to Selected Sociodemographic Characteristics, Istanbul, 2023

Variables		Food Secure n (%)	Food Insecure n (%)	*P*-value
Gender	Woman	13 (27.7)	34 (72.3)	0.084
	Man	19 (45.2)	23 (54.8)	
Age	15-24	7 (38.9)	11 (61.1)	0.225
	25-44	25 (37.9)	41 (62.1)	
	45+	0 (0.00)	5 (100.0)	
Duration of Stay	Less than a year	10 (34.5)	19 (65.5)	0.940
	1-3 years	13 (38.2)	21 (61.8)	
	More than 3 years	9 (34.6)	17 (65.4)	
Occupation	Formally employed	20 (42.6)	27 (57.4)	0.203
	Informally employed	8 (40.0)	12 (60.0)	

	Support from family, NGO, or government	4 (20.0)	16 (80.0)	
Education	Primary education	1 (50.0)	1 (50.0)	0.110
	High school	8 (32.0)	17 (68.0)	
	University	15 (30.0)	35 (70.0)	
	Post-graduate	8 (66.7)	4 (33.3)	
Marital Status	Single	18 (38.3)	29 (61.7)	0.293
	Married	6 (25.00)	18 (75.00)	
	Divorced	1 (20.00)	4 (80.00)	
	Single parent	7 (53.8)	6 (48.6)	
Having Children	Yes	11 (28.2)	28 (71.8)	0.178
	No	21 (42.0)	29 (58.0)	
Having Income	Yes	26 (41.3)	37 (58.7)	**0.028**
	No	6 (23.1)	20 (76.9)	
Income Adequacy	Yes, partially	19 (39.6)	29 (60.4)	**<0.001**
	Yes, fully	12 (63.2)	7 (36.8)	
	No	1 (4.5)	21 (95.5)	
Hospitalization During the Last Year	Yes	32 (34.3)	47 (54.6)	**0.012**
	No	0 (0.00)	10 (100.0)	

5.3. Qualitative Results

A total of four individuals participated in the semi-structured in-depth interviews. We recruited two participants from St. Mary's Church and two participants from the NGO. The characteristics of the participants are presented in Table 9.

As presented in Table 9, of the four participants, two were male and the latter two female from the ages of 22 to 34. Half were university educated whereas the other half achieved nothing higher than a high school education. All save one male participant were in employment, be it formal or informal. The unemployed participant was a student receiving support from his family. The minimum duration of stay was under a year, with one participant having stayed in Türkiye for over three years. Two participants, both male and female, were married, whereas the other two were single.

As a general observation, food availability has emerged as a less problematic area as a domain of food security. In particular, it was noted that there were problems with the availability of country-specific or cultural foods and, in particular, barriers to accessing them. On the other

hand, it was seen that barriers related to access to food and instability in access were mentioned as a more important and widespread problem.

Table 9. Characteristics of in-depth Participants, Istanbul, 2023

Participants	Country of Origin	Gender	Marital Status	Age	Education Level	Occupation	Duration of Stay	Having Kids	Food Security Status
P1W	Ethiopia	Woman	Single	27	Highschool	Informally Employed	Less than a year	No	Food Insecure
P2M	Guinea	Man	Single	29	Highschool	Formally Employed	More than 3 years	Yes	Food Insecure
P3W	Ghana	Woman	Married	34	University	Formally Employed	1-3 years	No	Food Insecure
P4M	Ethiopia	Man	Single	22	University	Support from family, NGO, or government	1-3 years	No	Food Secure

5.3.1. THEME 1: Access to Food

5.3.1.1. Economic Access to Food

The majority of participants in this study reported economic barriers regarding access to food. All four interview participants expressed that a combination of low income and high food prices constituted a significant barrier to their access to food.

When they explain the economic barriers, participants indicated high inflation in Türkiye, the high cost of food, transportation fees, rent prices, low income combined with a lack of work opportunities, and the high cost of foods originating from one's culture.

P3W: *My only problem right now is the prices and I wonder why they don't come down, because the prices go up, and it never comes down. So, I think if food is less expensive and affordable, we can all eat what we want. Yes, but it's so sad when you are craving for something, and you don't have the money, or you don't. Yes, you don't have the ability to eat*

what you want. Because food is getting expensive every day, and you cannot eat what you want. Yes, so I think if things are affordable, everyone can enjoy life.

Means of public transportation, access to and the prices thereof were highlighted as hindrances to food access, as expressed by the followed emphatic statement:

P1W: *If I want to eat what I want I have to work. If I work I can get anything. But, in this time where there [are] problem[s] in Istanbul, there is not much work. People come to work, some people come to pass only. 20 TL is for bus transportation [to] go and back. If they want to eat they need more than 25 TL. It is not enough, so they have to work more. Now here [is] like [the] same in Ethiopia. In Ethiopia you work, you eat, and you sleep. There is nothing you like. You cannot change life there. Here [is] like [the] same. Before it was better; now nobody pays in dollar in these time[s]. They pay 7000 TL; in 7000 TL you have to pay 2500 for rent, [then] there is transport, there is food... nothing is enough. You work, you eat, and you sleep. In Istanbul life [is] like this in these times. Everyone has this problem.*

5.3.1.2. Language as a Barrier to Employment

Participants also highlighted the significant challenges posed by language barriers in the pursuit of stable employment. These barriers not only hindered job opportunities, but also engendered a sense of exclusion and competition over a limited access to resources.

P1W: *Language is a big problem. Most of the people I approach don't speak English. I know the racism. I know the language barrier. It is a huge problem. I know. Finding a proper job that pays good for a migrant is also an issue.*

Participants stated that a combination of the language barrier with the general lack of work opportunities made for a particularly precarious predicament. In this vein, P2M states: *Language problems do not help with job opportunities. More opportunities [are also] needed in Türkiye… There is suffering here too but not much like in my country.*

5.3.1.3. Lack of Time (for Cooking) due to Working Conditions

The lack of time due to working conditions under the theme of access to food was also expressed by the participants. During the interviews, individuals also talked about the

difficulties posed by poor working conditions, such as low wages and long working hours, and how this affects the extent of access to food in their lives in Türkiye. In addition to affecting their earning potential, participants consistently noted that such conditions leave them with limited time and energy to focus on improving their food security situation.

P1W: *When I come from work, if I have time, I cook. I finish around 11.30[pm] when I come home.*

Participants also highlighted the significant challenges posed by racism and language barriers in the pursuit of stable employment. These barriers not only hindered job opportunities, but also engendered a sense of exclusion and competition over a limited access to resources.

P1W: *Now, they take 10 TL. So [in the] morning I go by bus, [but at] night when I come, I go by walking to spend less money on transportation, and then I will be home by 11.30. So, if I have time, I cook. If not, I take some bread with it and I eat the bread and sleep.*

5.3.1.4. Discrimination as a Barrier to Access to Food

The perseverance of certain kinds of traumas in inhibiting access to food is also worth noting, as is highlighted in the testimony of a particular Ethiopian domestic worker. P1W spoke of her time working in Lebanon, prior to coming to Türkiye, wherein the family in whose home she worked serially prepared supper with meat but purposefully kept her from sharing it. These incidences were motivated by prejudice based on her migrant status, in addition to other considerations such as ethnicity or socioeconomic standing. Such degrading behavior stayed with her and influenced her dietary choices, such that she committed herself to never eating meat again. Even in Türkiye, such a stigma persisted in that the consumption of meat continued to be associated with her hosts withholding good food from her. This lived experience of discrimination faced by this participant led to a significant change in her dietary preferences. Feeling excluded and disrespected due to her status as a migrant, she decided to adopt a vegetarian diet as a form of personal agency.

5.3.2. THEME 2: Instability to Access to Food and Issue of the Quality of Food (Utilization)

Increasing inflation and economic crises in Türkiye were consistently cited as the biggest barriers to access to food and especially to the healthy food options. Participants reported that they consumed cheap and often unhealthy food because of their limited economic access to

food, and they were aware that this was also not good for their health. All of them emphasized how rising prices have made basic foodstuffs unaffordable and forced them to compromise on food quality and variety. One participant **P2M** stated that such factors have forced him to maintain a diet of cheap and unhealthy foods such as indomie noodles. In a similar vein, **P4M** shared his experiences of the drastic changes in food prices that he observed since first coming to Türkiye to pursue higher education. He talked about the difficulties of adapting to such constant price fluctuations and mentioned that the changing value of money significantly affected his ability to access food and basic necessities.

P4M: *When I came here first [to] Türkiye for university, I came with my dad and he saw the economy back then. And now, when I tell him [the] price of one [loaf of] bread it is hard for him to believe, like he cannot even believe. It is hard for us [to] compare food prices with the first time we came. It is harder to access food because food prices are constantly changing and increasing day by day; it is hard to adapt [to] this change as a student migrant who came to study here. With $1 like we used to buy a lot of things, now in $1we don't buy anything.*

Participant **P1W** talked about his struggle with rising living costs and how this is affecting his ability to afford essentials, including food. He talked about increased spending on housing and other expenses and mentioned that he has limited money left to buy food. He mentioned that rising prices make it difficult to afford even the most basic foodstuffs.

P1W: *In this time, everything [is] expensive. So, I cannot still buy what I want. They give money, I have to pay for home, I have to pay for telephone, I have to pay for internet. So if I want to buy food, if I go [to the] market, I have to pay much money. Then if I go to buy, if I go to buy eggs, tomatoes, potatoes and oil… But If I want to buy another one, they will take more money now. In this time, in Istanbul, everything is expensive. Not like before. Before was good. Not bad like this. But now, in this time, everything [has changed]. If you take 200 TL, still, it doesn't buy anything.*

5.3.3. THEME 3: Availability

5.3.3.1. Availability of Cultural Foods

Three participants likewise talked about how important it is to continue to cook and eat the traditional foods of their native countries, though such a luxury is rare given the difficulty of procuring such foods in Türkiye. A lack of traditional and cultural foods play an important role

in immigrants' perceptions of their general well-being and feelings of food security, increasing the feeling of being a "stranger in a foreign country". Such feelings are exacerbated by being unfamiliar with local foods.

P4M: *[I]'ve stayed with two families, and the first family was very nice. They understand that I'm new and [that] I'm not familiar with the food. They always allowed me to eat what I wanted, and it was very nice. But the second family, we all eat together and we have to eat the same food; they don't understand that I am not familiar with the food. I had no choice. I had to eat, whether I like it or hate it.*

All migrant participants expressed the desire that the recognizable foodstuffs and ingredients from their home countries become more present and affordable in Türkiye.

P3W: *You know, in Africa our food is very, very different from what's here. Especially now that I am pregnant, I really crave African food, but I cannot get it. So I decided that I don't have to think about it at all, because even if I think about it, there's no way I'm going to get it. There's some of the food and the ingredients [that] we can get, but they are very expensive. Various people, they bring [them] from Africa, and the price is too much. It is the same as the restaurants. If you go to an African restaurant in Istanbul, one plate of food is very expensive. I've never eaten in an African restaurant since I came, because I know it is expensive.*

P1W: *For food, [for a] long time I was in Beirut. When they came, I came here. Istanbul food [is] like Arab people's food. So I eat this, but I don't like it much, but I [am] used to them. Sometimes I miss food like Ethiopian food; they cook [a dish,] its name [is] "doro". I like and miss this food a lot.*

Participant **P3W**, elucidating on availability and affordability of cultural food ingredients, stated: *Sometimes what we do is, if there is someone we know coming from our country, we ask the person to bring us some food that we can't get here. And then we store them and, once in a while, when we feel like eating something from our country, we cook and eat. Sometimes we just ask if someone is coming. Also, there are some other people selling African foodstuff[s] in Türkiye, even though it is expensive, sometimes we can buy [it] once in a while.*

The strong connection between food, culture and identity was evident throughout the interviews. Participants emphasized the importance of familiar foods from their homeland in

maintaining a sense of cultural identity. Many emphasized their efforts in sourcing ingredients for traditional meals, highlighting the role of these foods in providing comfort and a living link to home and heritage.

P4M: *In our country, we used to have "injera" [a type of bread]. It is a traditional food and our day-to-day food. We eat injera with everything. I miss injera here a lot. If you ask me, can I cook Ethiopian food? No, there is no supply over here. You have to bring from it to your supply to cook. It is impossible to find the ingredients*.

In addition to the accessibility of healthy food, the accessibility (or, more precisely, lack thereof) of quality food was mentioned time and time again by the participants. **P2M** stated that "*[the] quality of food is different from my country, Guinea. Food [here] is not the same and food tastes better quality in my country, especially the fruits"*.

5.3.4. THEME:4 Coping Mechanisms and Strategies for Food Insecurity

Migrants facing food insecurity mentioned in depth of the various strategies that they developed to cope with such challenges. Such coping strategies included consistently eating a single type of food, decreasing portion sizes, skipping meals (such as adjusting to only two-meal plans), and bulk shopping to ensure that they have food throughout the month.

P3W: *We make sure that we don't waste food; we don't waste food at all. Especially me now that I am pregnant, I can eat, like, five times in a day, and you know I always have to make sure there is food. I keep food, and then the next day I can [eat it]. We buy oil. Five liters will take us for a long time. When there is money, we try to buy large quantities in bits which can last for a long time, so even if there is no money, there is food [and] I know we are good. We shop in abundance, so that you don't have to be going to the supermarket every day. It takes more money away if we are going to enter the supermarket every day. You're going to buy one liter of oil; in one week's time you have to buy another liter. But when you buy things you try to buy things in abundance. I think [this] is the best because, when there's no money and you have food always, I think, [this] is good, because food is the only thing taking away a lot of money.*

Similarly, another participant talked about how he strategized to ensure that he had enough money for food at the end of every month, often involving consuming cheap foods:

P1W: *When you get your money, you can go and purchase what you want. Other days you will have time to cook but what you want to eat you have to buy. Maybe it is not enough for your money. So, I cook easy things, not take much money [in] buying it, because all the time what I want to buy, [the] money is not enough.*

CHAPTER 6:
DISCUSSION AND CONCLUSIONS

6.1. Discussion

The present study focused on a specific group of migrants in Istanbul, Türkiye, using both qualitative and quantitative methods to assess the dimension of food insecurity and the underlying causes of this phenomenon. This section discusses the implications of the findings in the context of the existing literature, highlights the importance of the results, addresses limitations, and offers recommendations for future research and policy implications.

The main findings of our study shed light on several socio-demographic and economic factors related to food insecurity among migrants from Sub-Saharan Africa. In Türkiye, to our best knowledge, there is no consistent monitoring of food security at either the national or regional levels. To evaluate and compare food security status at the national level for Turkish citizens, reliable data representative of the populace is required. This is one of the major barriers to the comparison of our migrant-specific results with native population results.

That said, we can discuss and compare the findings of our study (see Table 7) regarding food insecurity among Sub-Saharan African migrants in Türkiye and the results reported within the Ministry of Health's Türkiye Nutritional and Health Research (TNHR) 2019 report for the native population (T.C Sağlık Bakanlığı, 2019). Similarly, the TNHR also used FIES; respondents were asked questions that would correspond to the four dimensions of food insecurity. As anticipated, our findings demonstrate significant differences and disparities in food insecurity experiences among Sub-Saharan African migrants compared to the native population. According to the TNHR 2019 report, 23.4% of Türkiye's population expressed anxiety about accessing sufficient food due to financial constraints during the last 12 months. In contrast, our study's results revealed that 32.10% of migrants reported worrying about food due to financial constraints during the same time period. Furthermore, our study highlighted that 31.40% of migrants faced challenges in maintaining a healthy and nutritious diet, while the national percentage stood at 22.7%. This discrepancy showcases the heightened vulnerability of migrant populations to food insecurity.

The diversity of food items available and meal skipping likewise indicate considerable differences. While 37.10% of migrants reported reduced food diversity, only 22.8% of the national population experienced this issue. Similarly, 43.60% of migrants reported skipping meals due to lack of resources, compared to 13.1% of the broader population. More concerning than this, our study found that 45.60% of migrants consumed less food than they thought they should, a rate significantly higher than the 16.5% reported in the national population. 25.70% of migrants ran out of food due to a lack of money or other financial issues whereas the national level for this was 16.2%.

It's noteworthy that our findings indicated migrants who reported going an entire day without any food during the past year due to insufficient financial means or access to resources were at 33.00%, sharply contrasted with the national average of 2.6%. These differences between the food insecurity experiences of Sub-Saharan African migrants in Türkiye and the native population are consistent with previous food security and migration literature studies, all of which declare that migrants are both more vulnerable to and experience higher levels of food insecurity than their respective host populations (Dharod et al., 2013; Vatanparast et al., 2020; Hadley et al., 2006; Nam and Jung, 2008; Chilton et al., 2009).

The body of literature should not, of course, be considered a monolith and itself contains disparate conclusions, such as those of Greenwald and Zajfen (2017), suggesting that the prevalence of food insecurity does not differ between immigrant and non-immigrant households. There can be many explanations for these conflicting results such as used measurement scale, characteristics of the participants and study context. Consistent with the body of existing literature and research emphasizing the critical role of income in shaping the food security status of individuals (Thornton et al., 2014; Radimer et al., 1997; Dharod et al., 2013; Vatanparast et al., 2020), our study's findings likewise revealed a statistically significant relationship between income and food security in the population studied. The important relationship between income and food security has been consistently demonstrated in different contexts, confirming the importance of economic resources in maintaining access to an adequate and stable food supply. (Crush and Tawodzera, 2017; Dharod et al., 2013). Our results also mirror those of studies focused on specific populations, such as refugees, where low income has been linked to a higher prevalence of food insecurity (Hadley and Sellen, 2006; Omidvar et al., 2013). The consistent patterns observed across diverse migrant and refugee populations emphasize the universal impact of income on individuals' food security status. The

results of our study of the Income Adequacy variable, in particular, found a significant relationship with food security status. These results are in accordance to the findings of Thornton et al. (2014), who found that higher income levels were related to decreased food insecurity among participants. Such findings are consistent with those of Dharod et al. (2013), who found that food-insecure households had lower monthly incomes than food-secure households.

The relationship between food insecurity and income has also emerged prominently in the qualitative part of our study, and economic access to food has been the most frequently mentioned theme by the participants.

To conclude this particular point, the statistically significant relationship between income and food security highlights the importance of addressing income inequalities and financial constraints in efforts aimed at improving food security among migrants. The FIES questions we use are based on areas of the three food insecurity constructs: uncertainty and worry about food, inadequate food quality and insufficient food quantity. Our most significant finding about income, which has the most significant impact on all food insecurity constructs our main results. These findings have implications for policy interventions aimed at alleviating food insecurity by targeting economic empowerment and addressing income inequalities.

Another remarkable result from our study relates to the correlation between individuals hospitalized in the past year and increased levels of food insecurity. In a statistically significant manner, we found that individuals who reported being hospitalized in the last year were more food insecure. This result may indicate a bidirectional relationship due to the cross-sectional design of the study.

Similar to our findings, the existing literature revealed that there is an association between food insecurity and an elevated risk of experiencing adverse health outcomes, particularly within migrant populations (Chávez et al., 2007; Hadley et al., 2007b; Seivwright et al., 2020; Weinstein et al., 2022). Moreover, Seivwright et al. (2020) argue that being unable to meet nutritional needs due to food insecurity can lead to nutritional deficiencies and metabolic changes, some of which may contribute to the long-term impact of food insecurity and the prevalence of chronic diseases. In a similar vein, Ramsey et al. (2012) suggests that poor general health may decrease individuals' economic involvement due to variables such as unemployment. This in turn leads to a lower income and, ultimately, an increase in food

insecurity. Food insecurity is thus both a cause and a consequence of poor health. As poverty increases the likelihood of food insecurity, it too can have negative health consequences (Ramsey et al., 2012). The study conducted by El Zein et al. (2019) is likewise consistent with our results, having found a significant correlation between food insecurity and poorer general health. According to their findings, people who are food insecure have higher levels of stress and perceive their health to be in a worse condition than those who are food secure. Although we could not find a statistically significant difference, possibly due to insufficient sample size, a trending relationship was found between perceived physical health and food insecurity in our study. Since the research population consists of young people, there are only 5 people who reported their physical health as poor, and all of them were identified as food insecure.

Seligman et al. (2010) found that vulnerable populations are more susceptible to food insecurity. Ariya et al. (2021), Berkowitz et al. (2018), and Seligman et al. (2010) are equally consistent with our findings, declaring food-insecurity to be significantly associated with a greater number of days hospitalized. The consistency between our findings and the established literature highlight the need to address food insecurity as a multilayered and multifaceted phenomenon.

Although the frequency of food insecurity was higher in women in our study (72.9% vs 57.1%), we could not find a significant relationship, possibly due to the insufficient sample size. There are other studies that could not find an association between gender and food insecurity (Smith et al., 2017; Dodson and Chiweza, 2016; Jung et al., 2017; Radimer et al., 1997). This would appear to contravene the global pattern of women being more susceptible to food insecurity (Broussard, 2019; Nord, 2011; Omidvar et al., 2013; Grimaccia and Naccarato, 2022). Such findings highlight the need for nuanced analyses that take into consideration the unique contexts in which immigrants live. Studies conducted in Türkiye show that women are more vulnerable in terms of food insecurity (Eştürk, 2013). The findings of the food insecurity study conducted on a specific refugee group in Türkiye were consistent with our study with an insignificant association of gender variables (Ghazal and Bozoglu, 2021).

In our in-depth interviews, we could not find any significant findings regarding food insecurity and gender. This may be due to the fact that the interviewees were similar in terms of age, education and marital status.

In our study, we likewise found that marital status is not associated with food security status. While these results were consistent with the study by Oberholser et al. (2004), they were inconsistent with a few other previous studies (Smith et al., 2017; Thornton et al., 2014), which argued that married people experienced greater food security than their single analogues. Inconsistent results in the academic literature regarding the impact of marital status on food insecurity are not a novelty; several other studies also indicated that people in the single, separated, divorced or widowed category have a higher prevalence of food insecurity, as opposed to married people (Radimer et al., 1997; Amrullah et al., 2019).

According to the available literature, there are conflicting findings regarding age and food insecurity. In our study, due to the young average age of the research group and the small sample size we could not find a statistically significant relationship between age and food security experience, although food insecurity over the age of 45 was 100%. Whereas Radimer et al. (1997) observed a higher prevalence of food insecurity among younger individuals, Nord (2003) and Amrullah et al. (2019) reported increased levels of food insecurity among older age groups. As mentioned above, the lack of a statistically significant association between age and food security in our study might be accredited to mainly two factors such as the young average age of the research group and the small sample size. Therefore, more context detailed research in multiple settings with different compositions of populations will be needed in order to better understand the complex relation between age and food insecurity.

Our study revealed an insignificant association between education level and food security status. This is despite the various conclusions put forward on the matter in the existing literature. Notably, Thornton et al. (2014) and Amrullah et al. (2019) found that individuals with higher education tend to be more food secure. In general, the literature suggests that higher education can correlate with increased food security. These findings align with the prevailing perception that individuals with higher education are more likely to secure higher-paying jobs, making human capital development a critical factor in alleviating food insecurity (Thornton et al., 2014). In line with other studies in literature, Hadley and Sellen (2006) and Omidvar et al. (2013) have indicated a higher prevalence of food insecurity among those with lower levels of education.

Our research for migrants did not reveal a statistically significant association between the duration of stay in the host country and the level of food insecurity. Greenwald and Zajfen

(2017) found a similar result in their study and concluded that the number of years spent in their new country had no discernible effect on his or her experience of food insecurity. There are several conflicting conclusions on the matter within the existing literature. Several studies have suggested an inverse relationship between duration of stay and food insecurity among migrant populations. Chilton et al. (2019) and Omidvar et al. (2013) contributed to this discussion by demonstrating that an increased length of time in the host country correlated to decreased levels of food insecurity. A Canadian study focused on refugees, Tarraf et al. (2018), found similar results and revealed that recently arrived migrants exhibited notably higher rates of food insecurity compared to those who had been established in the country for a longer period. On the other hand, we observed our findings of food insecurity to be decreasing with the length of stay in the country of immigration, in the qualitative interviews of our study. Food insecurity was experienced in the early stages of migration, especially due to the lack of employment and lack of income.

Acculturation is an important construct linked to food insecurity among immigrants and refugees worldwide, generally referring to the process by which individuals and groups experience changes and adjustments (e.g., in language, cultural practices, and identities) as they come into contact with new cultures and contexts (Berry, 1997). Building on from this, dietary acculturation is a concept in which the eating habits of migrants change as part of the process of adapting to a new culture. This process often entails migrants switching from traditional and familiar foods to the local cuisine or, at the very least, trying to find a balance between these two cultures. It is likely that the reason why we could not find a statistically significant relationship between dietary acculturation and length of stay and food insecurity was that our study population consisted of young and newly settled migrants.

In the quantitative analysis, the migrant population was found to be more food insecure than the native population. Our qualitative analysis confirms the reasons for this, as evidenced by the participants' repeated mentions of the vulnerability of being a migrant and the disadvantages and difficulties of being an African in Türkiye.

We identified the individuals' food security status as a result of quantitative analysis, and the qualitative FI allowed us to understand the situation better through an understanding of how individuals deal with this situation or 'coping mechanism'.

The cost of healthy eating has been rising since 2019, and in 2021 the cost of a healthy diet rose by 6.7% globally (FAO, IFAD, UNICEF, WFP, and WHO, 2023). According to the SOFI 2023 report, the cost of a healthy diet in Türkiye increased from 2,873 PPP dollars per person per day in 2017 to 3,109 PPP dollars per person per day in 2021. Moreover, according to World Bank projections, the poverty rate will worsen by 0.4 percentage points in 2023 in Türkiye (World Bank, 2023b). The increase in the cost of a healthy diet also reflects the overall increase in food inflation that has hit every region since the outbreak of the pandemic. The Turkish lira (TRY) lost 30% of its value in 2022 and due to the increase in food prices (in turn, due to inflation), migrants and citizens in the country experienced a considerable decrease in their purchasing power (World Bank, 2023a).

Migrants are particularly vulnerable to economic disruptions and fluctuations. This vulnerability is compounded by the widening inequalities observed across the world, wherein a nexus of inequalities is affecting migrants disproportionately compared to host populations. During our interviews with participants, we found that migrants rely on a variety of coping strategies to deal with the food insecurity experience. Consistent with our qualitative results, the literature explains how migrants most often rely on cheaper types of food, consume lower quality foods, in addition to cheaper albeit less-preferred foods, reduce the number of meals eaten per day, and limit consumption and waste as coping mechanisms in the face of food insecurity (Crush and Tawodzera, 2017; Hadley et al., 2007a).

It was observed in our qualitative findings and in the study settings visited during quantitative data collection that social networks play an important role in indirectly or directly accessing food resources, especially. Migrants seeking to start a new life in a new country can more easily access information and resources such as job opportunities and food aid through their respective networks. Social networks can additionally have positive effects on immigrants' psychological well-being by providing emotional support and solidarity (Schoenmakers et al., 2017). These networks are not without their limits and vulnerabilities however, and some immigrants may have limited networks which can in turn increase the risk of food insecurity. While we employed quantitative and qualitative methods during our study, our findings on the direct effect of the social network factor on immigrant food insecurity are quite limited. As social networks constitute an important factor in the complex and multifaceted problem of migrant food insecurity, further research and policies need to be developed to further enhance the potential of such networks in supporting migrants.

The strength of this study is both in its being a mixed-method study and its focus on the relatively neglected/understudied population of Sub-Saharan African migrants. The findings of this study should be evaluated with consideration of the limitations faced during the conduction of its research, despite the valuable data and insight it has offered into a hard-to-reach population. The findings of this study should thus be evaluated with consideration of such limitations.

Despite the questionnaire being anonymous, the food security questionnaire items tended to cause recall and social desirability biases due to the self-report and social stigma associated with food insecurity (Fisher and Katz, 2000). Despite all participants being expressly informed that their responses would not result in any possible disadvantages and that their identity would not be revealed to law enforcement or humanitarian organizations, the potential of response bias due to respondent expectations of receiving assistance/benefits cannot be ruled out entirely. It is likewise important to note that the findings presented in this study might not fully represent or be applicable in a generalized fashion to all Sub-Saharan African migrants residing in Istanbul. Since there are no current alternative data on the target population, this particular study offers a focused understanding of the challenges faced by an especially neglected group.

As per the existing body of literature, several barriers prevent the inclusion of hard-to-reach populations in research endeavours. These barriers include (but are not limited to) geographic isolation, socioeconomic disparities, a deep-seated mistrust of researchers and academics, and language and cultural differences. **(**Bonevski et al., 2014; Rasmussen et al., 2016; Shaghaghi and Sheikh, 2011). The engagement of a trusted community member or members as recruiters, interpreters, or trust-builders from the target population itself can serve as a catalyst for encouraging such hard-to-reach participants' active involvement in a research project (Blukacz et al., 2023).

Due to the hidden nature of this population and the limited reliable data about the size and demographics thereof, it is difficult to construct a sampling frame, and it is not possible to know how representative the advice session attendees were of the overall population of Sub-Saharan African migrants in the city.

In conclusion, the multifaceted analyses employing mixed methods in this study provide valuable information about the complex interplay of factors affecting food security among Sub-

Saharan African immigrants living in Istanbul. Qualitative findings in which the experiences of food insecurity were examined with in-depth interviews, contributed to our examination of various dimensions of food security by shedding light on socioeconomic, demographic, contextual factors, and where quantitative data would have been insufficient to explain, experiential variables. Moreover, the overarching conclusion our research has deduced resulting from our empirical findings is that addressing food insecurity requires an umbrella approach. Such an approach must encompass several economic, social and political dimensions.

6.2. Conclusions

The present study examined the dimension and correlations of food insecurity among a cohort of Sub-Saharan African migrants in Istanbul, Türkiye by using both FAO's Food Insecurity Experience Scale furnished with qualitative interview methods that gave the study a personal voice of lived and individual experiences. This is the first study to explore the prevalence and correlations of food insecurity amongst Sub-Saharan African migrants in Türkiye. The comprehensive nature of this study not only provides preliminary data collected directly from the target population through face-to-face interactions, in turn enabling the assessment of a critical global health issue affecting a vulnerable group, but likewise offers valuable insights for researchers and policymakers seeking to make recommendations and interventions to address challenges related to the barriers, coping strategies, and the impact that food insecurity has on Sub-Saharan African migrants living in Istanbul, Türkiye.

The participants' experiences and perspectives presented in this research will significantly aid in contributing to and fulfilling the primary objective of the study: gaining a deeper understanding of the food insecurity problem within this specific and vulnerable population. Future studies are recommended and must incorporate bigger sample size with random sampling for greater generalizability, in addition to the employment of mixed methodologies to explore all dimensions and complexities of food insecurity.

Moving forward, it is evident that governments and policymakers must consider how social isolation and limited social networks can prevent individuals from obtaining information about food assistance programs, assistance with services, and accessing other resources, thus increasing food insecurity among immigrants and refugees. Future studies should continue to investigate the various mechanisms that influence food insecurity, such as social isolation and social connectedness, and from a greater array of locations that were too extensive for the parameters of this study.

Sound policy must be informed by sound research, and such research has hitherto been limited to other migrant communities such as Syrians and Afghans. With a focus on a greater diversity of Sub-Saharan African communities in the region, and with the increase in academic studies in the light of data, important findings should be presented to policy makers for the creation of immigrant-specific policies. Outside of government policy, smaller endeavours such as establishing community markets or cooperatives where migrants can access affordable

ingredients from their home countries can help prevent major barriers to accessing cultural foods.

Food insecurity is a serious problem among migrants and, given the multitude of intertwined causal factors, it is imperative to develop program and policy interventions that recognize such interconnectedness. That we do not approach the issue with tunnel-vision and seeking a single-faceted, single-sectorial panacea becomes even more crucial with the escalating global migration rates, prompted by challenges such as climate change, economic uncertainty, and ever-increasing social disparities (UNHCR, 2016). In contrast, the complex nature of food insecurity for migrant populations requires a multi-faceted approach that includes multisectoral approaches and policies regarding immigrants, poverty reduction, and food security (Orjuela-Grimm et al., 2022; HLPE 2023; Neff et al., 2009).

APPENDIX A

ENGLISH VERSION OF SURVEY

Study Name: Food Insecurity Among Sub Saharan African Migrants Living In Istanbul: A Mixed Method Study

We kindly request that you participate in the study titled Food Insecurity and Nutritional behaviour among African migrants in Istanbul, conducted by *Sümeyye Karavaş,* MSc Student from the *Graduate School of Health Sciences* at Koç University, and permitted with the approval of the Ethics Committees of Koç University. This research aims to understand African migrants' experiences of food insecurity regarding food availability, access to and use of food, as well as their attitudes and dietary behaviours towards healthy eating, both before and after the migration process.

Your participation in this study is completely voluntary. There is no penalty for not participating. You may also refuse to answer any of the questions we ask you. The survey will take about 15 minutes to complete. This study has approval from the Koc University Ethics Committee. Protocol Number: **2022.279.IRB3.118**

Thank you for taking the time to complete this survey.

Participant Number	
How old are you? ***(Write your answer*** on ***the*** space given.)	_____
What is your country of origin? (please write on right)	_____
What is your gender identity? (Choose **one only**)	1. □Woman 2. □Man 3. □Non-binary 4. □Other (specify): _____ 5. □Don't know
Maritial Status (Choose **one only**)	1. □Single, never married 2. □Married or in a domestic partnership 3. □Divorced 4. □Single parent (single mother or father) 5. □Separated 6. □Other (specify): _____
How long have you been living in Turkey? ***(Write your answer*** on ***the*** space given.) (Please indicate as days, month, or year accordingly)	_____
Why did you move/leave home? (Check all that apply)	1. □Lack of work opportunities 2. □Look for education 3. □Promised a job 4. □Promised an education 5. □Conflict, insecurity 6. □Bad family situation 7. □Persecution 8. □Romantic relationship/marriage 9. □Look for health care

	10. □Family reunification 11. □Natural disaster 12. □Other [specify]:
Do you have any children aged from 0 to 17 living at home with you, or who you have regular responsibility for? (Choose **one only**)	1. □Yes 2. □No
How many people do you live with **-not counting yourself-?** ***(Write your answer*** on ***the*** space given.)	_____
Who do you live with? (choose **only one** option that best describes your situation.)	1. □Live alone 2. □Live with parents 3. □Live with parents and other family members 4. □Live with other family members (not parents) 5. □Live with spouse or partner 6. □Live with spouse or partner and children 7. □Live with children and no other adult 8. □Live in a shelter 9. □Live in a shared accommodation (rooming house, with roommates who are not members of your household/family) 10. □Other (specify): _____
What is the highest level of education you attended or completed? (Choose **one only**)	1. □Literacy class 2. □Primary: incomplete 3. □Primary: complete 4. □Preparatory: incomplete 5. □Preparatory: complete 6. □Vocational technical training (post primary/preparatory) 7. □Secondary: Incomplete 8. □Secondary: complete 9. □Vocational technical training (post-secondary) 10. □University: incomplete 11. □University: complete 12. □Post-graduate: Diploma 13. □Post-graduate: Master 14. □Post-graduate: Doctorate
Do you currently have a source of income? (Choose **one only**)	1. □Yes 2. □No
Are you the sole or primary/main provider for your household/family? (Choose **one only**)	1. □Yes 2. □No
What is your main source of income? (Check all that apply)	1. □Employment in a bussiness/service 2. □Bussiness owner of a legally registered bussiness 3. □Self-employed 4. □Informal Economy 5. □Factory Work 6. □Domestic Work 7. □Prostitution or sex related work 8. □Forestry, agriculture, and fisheries 9. □Mining and construction

	10. □Family Support 11. □Subsidy from aid organization 12. □Cash transfer from government 13. □Other(specify): _____
Is your income/resources enough to provide sufficient food or clean water as well as shelter for your household/family? (Choose **only one** option that best describes your situation.)	1. □Yes, partially 2. □Yes, fully 3. □No
In general, would you say your physical health is poor, fair, good, very good or excellent? (Choose **only one** option that best describes your situation.)	1. □Excellent 2. □Very Good 3. □Good 4. □Fair 5. □Poor
Do you understand Turkish? (Choose **only one** option that best describes your situation.)	1. □A little 2. □Quite well 3. □Very well 4. □No
Do you speak Turkish? (Choose **only one** option that best describes your situation.)	1. □A little 2. □Quite well 3. □Very well 4. □No
Do you read Turkish? (Choose **only one** option that best describes your situation.)	1. □A little 2. □Quite well 3. □Very well 4. □No
What *language* (s), you *can* speak well enough to conduct a conversation? (Check all that apply)	1. □Turkish 2. □English 3. □Arabic 4. □French 5. □Other (please specify: _____)
Do you have access to education services in Turkey? (Choose **only one** option that best describes your situation.)	1. □Yes, partially 2. □Yes, fully 3. □No 4. □Don't know
Do you have access to health services in Turkey? (Choose **only one** option that best describes your situation.)	1. □Yes, partially 2. □Yes, fully 3. □No 4. □Don't know
When you consider all the monthly earnings that come into your household in a month choose only one option that best describes your situation. (Choose **only one** option that best describes your situation.)	1. □We can comfortably spend a month with our earnings. 2. □We can spend a month without serious problems with our earnings. 3. □We can only make it to the end of the month with our earnings. 4. □We can't make it to the end of the month with our earnings. 5. □Don't know

GLOBAL FOOD INSECURITY EXPERIENCE SCALE

Now I would like to ask you some questions about food. During the last 12 MONTHS, was there a time when:	
Q1. You were worried you would not have enough food to eat because of a lack of money or other resources?	0 □ No 1 □ Yes 98 □ Don't Know 99 □ Refused
Q2. Still thinking about the last 12 MONTHS, was there a time when you were unable to eat healthy and nutritious food because of a lack of money or other resources?	0 □ No 1 □ Yes 98 □ Don't Know 99 □ Refused
Q3. You ate only a few kinds of foods because of a lack of money or other resources?	0 □ No 1 □ Yes 98 □ Don't Know 99 □ Refused
Q4. You had to skip a meal because there was not enough money or other resources to get food?	0 □ No 1 □ Yes 98 □ Don't Know 99 □ Refused
Q5. Still thinking about the last 12 MONTHS, was there a time when you ate less than you thought you should because of a lack of money or other resources?	0 □ No 1 □ Yes 98 □ Don't Know 99 □ Refused
Q6. Your household ran out of food because of a lack of money or other resources?	0 □ No 1 □ Yes 98 □ Don't Know 99 □ Refused
Q7. You were hungry but did not eat because there was not enough money or other resources for food?	0 □ No 1 □ Yes 98 □ Don't Know 99 □ Refused
Q8. You went without eating for a whole day because of a lack of money or other resources?	0 □ No 1 □ Yes 98 □ Don't Know 99 □ Refused

Thank you for participating in the study!
We would like to have an individual interview to get more detailed information about the access of migrants to healthy food. If you would like to participate in this interview, please write down the phone number and/or e-mail address where we can reach you. Thank you!

Name, Surname: ……

Phone number: …….....

Email address: …….

APPENDIX B

FRENCH VERSION OF SURVEY

Nom de l'étude : Insécurité alimentaire et comportement nutritionnel chez les migrants d'Afrique subsaharienne à Istanbul

Nous vous prions de bien vouloir participer à l'étude intitulée Insécurité Alimentaire et Comportement Nutritionnel chez les Migrants Africains à Istanbul, menée par *Sümeyye Karavaş*, étudiante en master de santé globale à *l'École supérieure des sciences de la santé* de Koç University, avec l'approbation de comité d'éthique de Koç University.Cette recherche vise à comprendre les expériences d'insécurité alimentaire des migrants africains en ce qui concerne la disponibilité, l'accès et l'utilisation de la nourriture, ainsi que leurs attitudes et comportements alimentaires envers une alimentation saine, avant et après le processus de migration. Votre participation dans cette étude est complètement volontaire. Il n'y a pas de pénalité en cas de non-participation. Vous pouvez également choisir de laisser vide les questions auxquelles vous ne voudriez pas répondre. L'enquête prendra environ 15 minutes. Merci pour vôtre temps. Cette étude a été approuvée par le comité d'éthique de l'Université de Koc. Le numéro de protocole: **2022.279.IRB3.118**

1. Quel âge avez-vous? (***Écrivez votre réponse*** dans l'espace donné.)	
2. Quel est votre pays d'origine? (Répondez à votre droite)	
3. Quel est votre identité de genre? (Cochez **un seul** choix)	1. □Femme 2. □Homme 3. □Non-binaire 4. □Autre (précisez): _____ 5. □Je ne sais pas
4. État civil (Cochez **un seul** choix)	1. □Célibataire jamais marié(e) 2. □Marié(e) ou en couple 3. □Divorcé(e) 4. □Parent Célibataire 5. □Séparé(e) 6. □Autre (précisez): _____
5. Depuis combien de temps vivez-vous en Turquie ? (***Écrivez votre réponse*** dans l'espace donné.) (Veuillez indiquer en jours, mois ou année selon le cas)	_____
6. Pour quelle(s) raison(s) avez-vous quitté votre pays? (Veuillez sélectionner toutes les réponses applicables)	1. □Manque d'opportunités de travail 2. □À la recherche d'éducation 3. □Promis un emploi 4. □Promis une éducation 5. □Conflit, insécurité 6. □Mauvaise situation familiale 7. □Persécution 8. □Relation amoureuse/mariage 9. □Accès aux meilleurs soins de santé 10. □Regroupement familial 11. □Catastrophe naturelle 12. □Autre (précisez): _____
7. Avez-vous dans votre foyer des enfants âgés de 0 à 17 ans ou être vous tuteur(tutrice) de quelques-uns ? (Choisissez **une seule** option)	1. □Oui 2. □Non

8. Avec combien de gens vivez-vous - sans vous comptez vous même?	_____
9. Avec qui vis-tu? (Choisissez **une seule** option qui décrit le mieux votre situation.)	1. □Seul(e) 2. □Avec les parents 3. □Avec les parents et les autres membres de la famille 4. □Avec d'autres membres de la famille (pas les parents) 5. □Avec son conjoint ou partenaire 6. □Avec son conjoint ou partenaire et ses enfants 7. □Avec des enfants et aucun autre adulte 8. □Dans un logement 9. □En collocation (maison de chambres, avec des colocataires qui ne font pas partie de votre ménage/famille) 10. □Autre (précisez): _____
10. Quel est le plus haut niveau d'études que vous avez atteint ou terminé ? (Choisissez-en **un seul**)	1. □Cours d'alphabétisation 2. □Primaire : incomplet 3. □Primaire : terminé 4. □Préparatoire : incomplet 5. □Préparatoire : terminé 6. □Formation technique professionnelle (post primaire/préparatoire) 7. □Secondaire : Incomplet 8. □Secondaire : complet 9. □Formation technique professionnelle (post-secondaire) 10. □Université : incomplet 11. □Université : complète 12. □Post-universitaire : Diplôme 13. □Post-universitaire : Master 14. □Post-universitaire : Doctorat
11. Avez-vous actuellement une source de revenus ? (Choisissez-en **un seul**)	1. □Oui 2. □Non
12. Êtes-vous le fournisseur unique ou principal de votre ménage/famille ? (Cochez **un seul** choix)	1. □Oui 2. □Non
13. Quelle est votre principale source de revenus ? (Sélectionnez toutes les réponses qui s'appliquent.)	1. □Emploi dans une entreprise/un service 2. □Propriétaire d'une entreprise légalement enregistrée 3. □Travailleur indépendant 4. □Économie informelle 5. □Travail à l'usine 6. □Travail domestique 7. □Prostitution ou travail sexuel 8. □Restauration des forêts, agriculture et pêche 9. □Exploitation minière et construction 10. □Soutien familial 11. □Subvention d'un organisme d'aide 12. □Transfert en espèces du gouvernement 13. □Autre (précisez): _____
14. Est-ce vos revenus/ressources suffisantes pour fournir de nourriture ou d'eau potable ainsi qu'un abri à votre famille ?(Choisissez **une seule** option qui décrit le mieux votre situation.)	1. □Oui, partiellement 2. □Oui, entièrement 3. □Non
15. En général, que diriez-vous de votre santé physique?(Choisissez **une seule** option qui décrit le mieux votre situation.)	1. □Excellente 2. □Très bonne 3. □Bonne 4. □Équitable

	5. □Mauvaise
16. Comprenez-vous le turc? (Choisissez **une seule** option qui décrit le mieux votre situation.)	1. □Un peu 2. □Plutôt bien 3. □Très bien 4. □Non
17. Parlez-vous turc? (Choisissez **une seule** option qui décrit le mieux votre situation.)	1. □Un peu 2. □Plutôt bien 3. □Très bien 4. □Non
18. Lisez-vous le turc ? (Choisissez **une seule** option qui décrit le mieux votre situation.)	1. □Un peu 2. □Plutôt bien 3. □Très bien 4. □Non
19. Quelle(s) *langue(s)* parlez-vous suffisamment bien pour mener une conversation ? (Sélectionnez toutes les réponses qui s'appliquent)	1. □Turque 2. □Anglais 3. □Arabe 4. □Français 5. □Autre (veuillez préciser:_____)
20. Avez-vous accès aux services d'éducation en Turquie ? (Choisissez **une seule** option qui décrit le mieux votre situation.)	1. □Oui, partiellement 2. □Oui, entièrement 3. □Non 4. □Je ne sais pas
21. Avez-vous accès aux services de santé en Turquie ? (Choisissez **une seule** option qui décrit le mieux votre situation.)	1. □Oui, partiellement 2. □Oui, entièrement 3. □Non 4. □Je ne sais pas
22. Si vous tenez compte de tous les gains mensuels qui entrent dans votre ménage, comment décririez-vous votre situation? (Choisissez **une seule** option qui décrit le mieux votre situation.)	1. □Nous pouvons vivre confortablement avec nos gains pour le mois. 2. □Nous pouvons passer un mois sans problèmes sérieux avec nos revenus. 3. □Nous pouvons à peine nous en sortir pour le mois avec nos revenus. 4. □Nous ne pouvons pas tenir jusqu'à la fin du mois avec nos gains. 5. □Aucune idée.

L'Échelle de l'Insécurité Alimentaire basée sur les Expériences

Maintenant, je voudrais vous poser quelques questions sur vos habitudes alimentaires.
Y-a- t-il eu, au cours de 12 derniers MOIS, des moments lors desquels?

Q1. Vous avez été inquiet de ne pas avoir suffisamment de nourriture par manque d'argent ou d'autres ressources?	0 □ Non 1 □ Oui 98 □ NSP 99 □ Refus
Q2. Toujours en pensant aux derniers 12 MOIS, y-a-t-il eu des moments lors desquels vous n'avez pas pu manger une nourriture saine et nutritive par manque d'argent ou d'autres ressources?	0 □ Non 1 □ Oui 98 □ NSP 99 □ Refus
Q3. Vous avez mangé une nourriture peu variée par manque d'argent ou d'autres ressources?	0 □ Non 1 □ Oui 98 □ NSP 99 □ Refus

Q4. Vous avez dû sauter un repas parce que vous n'aviez pas assez d'argent ou d'autres ressources pour vous procurer à manger?	0 □ Non 1 □ Oui 98 □ NSP 99 □ Refus
Q5. Toujours en pensant au derniers 12 MOIS, y-a-t-il eu des moments lors desquels vous avez mangé moins que ce que vous pensiez que vous auriez dû manger à cause d'un manque d'argent ou d'autres ressources?	0 □ Non 1 □ Oui 98 □ NSP 99 □ Refus
Q6. Votre foyer n'avait plus de nourriture parce qu'il n'y avait pas assez d'argent ou d'autres ressources?	0 □ Non 1 □ Oui 98 □ NSP 99 □ Refus
Q7. Vous avez eu faim mais vous n'avez pas mangé parce qu'il n'y avait pas assez d'argent ou d'autres ressources pour vous procurer à manger?	0 □ Non 1 □ Oui 98 □ NSP 99 □ Refus
Q8. Vous avez passé toute une journée sans manger par manque d'argent ou d'autres ressources?	0 □ Non 1 □ Oui 98 □ NSP 99 □ Refus

APPENDIX C

INFORMED VOLUNTEER CONSENT FORM

We kindly request that you participate in the study titled Food Insecurity Among Sub Saharan African Migrants Living In Istanbul: A Mixed Method Study **C**onducted by *Sümeyye Karavaş,* MSc Student from the *Graduate School of Health Sciences* at Koç University, and permitted with the approval of the Ethics Committees of Koç University.

It is essential that you participate in this study voluntarily, without any pressure or obligation. Please read the details below and feel free to contact us if you have difficulty understanding them or have any questions before you decide to participate.

PURPOSE OF THE STUDY (Why is this study necessary?)
This research aims to understand African migrants' experiences of food insecurity regarding food availability, access to and use of food, as well as their attitudes and dietary behaviours towards healthy eating, both before and after the migration process.
The results of this study will guide policymakers in designing appropriate nutrition/food policies and interventions for migrants.
Your participation in this study is completely voluntary. There is no penalty for not participating. You may also refuse to answer any of the questions we ask you.

PROCEDURES
In the event that you wish to participate in this study voluntarily, the following activities will be carried out: In this study, we will first ask you to provide general information about yourself. Then we will request that you complete questionnaires that ask a variety of questions (a) about your migration history and (b) about your food insecurity experience. The survey will take about 15 minutes to complete. We assure you that the interview is completely confidential; your name will not be recorded or linked to the answers that you provide.

POTENTIAL RISKS AND DISCOMFORT
The risks you run by taking part in this study are minimal, and not higher than those faced in everyday life. The risk includes the possibility that you may be offended by some of the questions in the survey. You are free to skip any question that makes you uncomfortable or stop the survey at any time.

POTENTIAL BENEFITS TO THE SOCIETY AND/OR VOLUNTEERS
I do not expect the study to benefit you personally. This study will benefit me by helping me to finish my MSc. Depending on the results of the data obtained, results will help to provide training programs and educational tools and equipment to specific immigrant groups, to prepare nutrition education programs, and to prepare nutritional guides. Therefore, for this hard-to-reach migrant population in Istanbul, there will be a benefit at the community level rather than an individual benefit.

CONFIDENTIALITY
Any information that specifically identifies you and is collected in connection with this study shall be kept confidential and shall not be disclosed to third parties without your consent.
Your identity will be kept confidential to the extent provided by law. Your information will be assigned a code number, instead of any personally identifying information. The list connecting your name to this number will be kept in a locked file in Koç University Hospital When the study is completed and the data has been analyzed, the list will be destroyed. Your name will not be used in any report.

PARTICIPATION AND WITHDRAWAL
It is essential that you decide whether you want to participate in this study or not, of your own free will, without any influence.Once you decide to participate, you can withdraw from the study at any time without losing any of your rights or being subject to any sanctions.

IDENTITY OF THE RESEARCHERS
If you have any questions or concerns about this research, please contact:

Sümeyye KARAVAŞ
Global Health, MSc Student
Koç University, Graduate School of Health Sciences
E-mail: skaravas21@ku.edu.tr
Phone: +90 543 675 08 39

I have understood the explanations above. My questions have been answered satisfactorily. I agree to participate in this study, without prejudice to my right to withdraw at any time. I have received a copy of this form.

Participant's Name-Surname: _____

Participant's Signature: _____ Date:

Researcher's Signature: _____ Date:

APPENDIX D

Qualitative In-depth Interview Guide

1. **Can you tell me about your life before moving to Turkey?**
    a. How was life there for you?
    b. What were your living conditions like?
    c. Was it easy to make a living in your own country before coming to Turkey?
    d. Were you able to easily purchase the things you wanted?
    e. Were you able to eat and drink whatever you wanted while in your home country?

2. **What was your motivation for moving to Turkey?**
    a. How and why did you decide to come to Turkey?
    b. Did you have any concerns before immigrating to Turkey? What were they?
    c. Were you familiar with Turkey's food culture before coming to Turkey?

3. **Can you tell us a little about your life after moving to Turkey?**
    a. What changes have occurred in your life?
        i. What changes occurred in your eating habits after moving to Turkey?
    b. What changes have occurred in your family's life?
    c. What challenged you the most?
    d. What are the conveniences and difficulties you experienced in Turkey in terms of food?

4. **In your opinion what is a balanced meal?**
    a. What is a healthy diet for you?

5. **How important is it for you to eat healthily?**
    a. If so: What are you doing to eat healthily?
    b. If not: Why isn't it important to you?

6. **In what ways do you think nutrition can affect your health?**

7. **What factors impact your eating behaviour in Turkey?**
    a. What influence do family members and friends have?
    b. Do you have certain rituals or customs concerning your eating behaviour?
    c. Is your culture or religion affecting your eating behaviour?
    d. Do you know how to prepare the desired dishes?

8. **In which way have your eating habits changed since you moved to Turkey?**
    a. How satisfied are you with what you eat in Turkey?
    b. Do you eat differently now than in your home country? Why?
    c. Can you buy the desired food in your neighbourhood?
    d. Are there any"new food items" that you do not know from your home country?
        i. Do you integrate this product into your diet?
    e. What changes have occurred in your cooking practices since you came to Turkey?
9. **Is there a (country name) restaurant you go to in Istanbul?**

10. **Have there been times when you/your family did not enough food to eat in Turkey?**

a. Can you share your positive and negative experiences regarding food access?
b. When did it happen?
c. Why did not your family have enough food?
d. How did you feel when you or your family did not have enough food?
e. What did you end up doing?

11. Can you share your views on the food prices in Turkey? Do food prices have any effect on your family?

a. Can you share the strategies you adopt in relation to this?

12. Are there any other things and experiences you would like to share with us?

a. What would you recommend to strengthen or improve the services/food access for African migrants in Turkey?

APPENDIX E

QUALITATIVE INFORMED CONSENT

NAME OF INSTITUTION: Koç University, Graduate School of Health Sciences

INSTITUTION ADDRESS: Rumelifeneri Yolu 34450, Sarıyer, İstanbul, Türkiye

NAME OF IRB/EC: Koç University Ethics Committee

Introduction
This study is being conducted by researchers from the Koç University (KU). The purpose of this consent form is to give you the information you will need to help you decide whether to be in this study or not. You may ask questions about the purpose of the research, what happens if you participate in the research, the possible risks and benefits, your rights as a volunteer, and anything else about the research or this form that is not clear. When we have answered all your questions, you can decide if you want to be in the study or not. This process is called "informed consent." We will give you a copy of this form to take if you wish to keep one. If you do not wish to take a copy, we will keep your copy in a locked cabinet in the research office.

Why is this study being done?
We are investigating the experiences of African Migrants on food insecurity regarding food availability, access to and use of food, as well as their attitudes and dietary behaviors towards healthy eating, both before and after the migration process.
First, we will ask questions about your life before arriving in Turkey and the migration process. We will also ask about barriers to healthcare and healthy food. Your responses will be very helpful for improving health and social services for migrants and refugees.

Why are you being asked to take part?
You are being asked to take part in this study because you represent them in some form.

How many people will take part in the study?
A total of up to 12 people from diverse backgrounds will participate as interviewees.

What will happen if I take part in this study?
If you agree to take part in the study, the following things will happen:

- We will ask you to sign this form to show that you understand and agree to participate.
- We will ask you questions in an interview that takes about an hour.
- We will ask for your permission to audio record the interview, so that we do not lose the valuable information that you provide to us.
- We ask you to answer questions honestly and to the best of your ability.

How long will I be in the study?
This one-time interview will take around an hour to complete.

Can I stop being in the study?
Yes. You can decide to stop the interview at any time.

What side effects or risks can I expect from being in the study?
Some of the interview questions may make you uncomfortable or upset, but you are free to decline to answer any questions you do not wish to answer or to stop the interview at any time.

Are there benefits to taking part in this part of the study?
You will receive a gift card of the value of 50 Turkish Lira for your participation in this interview. The information that you provide will be very helpful for improving health and social services and Food and Nutrition Plans and Policies for African migrants in Turkey.

Will information about me be kept private?
During this study, some personal information about you will be collected.

Your privacy is very important. Safeguards will be put in place to protect your privacy, in accordance with applicable data privacy laws and laws related to the conduct of research studies. Your study data with will be labeled with a participant identification (ID) number that is unique to you and not related to or derived from information that identifies you (such as your name, your picture, or any other personally identifying information).

The link between your study ID and your personal identifiable information will be kept securely by the study investigator or designee. The information you provide in this interview will not be shared with your employer or any other person outside the research team.

Your records, which includes personal information that can identify you, may be reviewed by the following people and groups of people:

The Koç University Ethics committee responsible for protecting the rights and safety of the participants who take part in research studies.

The answers you share will be reviewed by the research team conducting this study and will be analyzed and published for scientific purposes without naming you or any other participant. If information from this study is published or presented at scientific meetings, your name and other personal information will not be used.

What are my rights if I take part in this study?
Taking part in this study is your choice. You may choose to take part or not to take part in this study. If you decide to take part in this interview, you may leave the interview at any time. No matter what decision you make, there will be no penalty to you in any way.

Who can answer my questions about the study?
You can talk to the Student Researcher if you have any questions or concerns about this study or if you would like to withdraw your consent to take part in this study, Sümeyye Karavaş, Koc University, Graduate School of Health Sciences, e-mail: skaravas21@ku.edu.tr .

Consent
You will be given a copy of this consent form to keep.

Participation in research is voluntary.
You have the right to decline to be in this part of the study, or to withdraw from it at any point without penalty or loss of benefits to which you are otherwise entitled. You are not waiving any of your legal rights by signing this informed consent document.

Participant's Statement
This study described above has been explained to me. I volunteer to take part in this part of the research. I have had a chance to ask questions. If I have future questions about the research, I can ask the Researcher(s) as indicated above. If I have questions about my rights as a research participant, I can contact Koç University Ethics Committee as indicated above.

- Do you provide consent to participate in this study?
- Do you provide consent for the audio recording of your interview?

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