BEYZA KÜBRA ÇITLAK

HACETTEPE UNIVERSITY
INSTITUTE OF POPULATION STUDIES

DEMOGRAPHIC CHARACTERISTICS OF SYRIAN REFUGEES WITH RESPECT TO HOUSING CONDITIONS IN TURKEY

Beyza Kübra ÇITLAK

Department of Demography
Master's Thesis

Ankara
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DEMOGRAPHIC CHARACTERISTICS OF SYRIAN REFUGEES WITH RESPECT TO HOUSING CONDITIONS IN TURKEY

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ABSTRACT

Housing is a crucial basic need, and adequate housing conditions are right for everybody, including vulnerable ones such as children, women, elders, migrants and refugees. This thesis aims to present the demographic characteristics of Syrian refugees in Türkiye by housing conditions adapted from the UN-Habitat's "adequate housing" criteria using 2018 Turkey Demographic and Health Survey (TDHS) Syrian Migrants Sample data. The correlation between improved housing/unimproved housing conditions and various demographic characteristics of the Syrian refugee sample are presented using F-tests taking into account complex sample design. Results reveal that more than half of the Syrian refugees in Türkiye live under unimproved housing standards, and there are different demographic outcomes by housing conditions. According to the findings, women living in unimproved housing standards are more prone to have higher total fertility rate than in improved housing, yet the under-five mortality rates are higher in improved housing conditions. Also, it is found that Syrian refugee women have a similar figure as regards to the place of delivery and C-section births in improved housing and unimproved housing. This research aims to contribute to the literature on refugee studies by highlighting the relationship between the housing conditions and demographic characteristics of Syrian refugee population in Türkiye, aiming that the findings can be helpful for policymakers, and humanitarian organizations.

ÖZET

Konut oldukça önemli temel bir ihtiyaçtır ve yeterli standartta konut koşulları çocuklar, kadınlar, yaşlılar, göçmenler ve mülteciler gibi kırılgan durumda olanları da içerecek şekilde herkes için bir haktır. Bu tez, 2018 Türkiye Nüfus ve Sağlık Araştırması Suriyeli Göçmen Örneklemi verisini kullanarak Türkiye'de yaşayan Suriyeli mültecilerin demografik özelliklerini BM-Habitat'ın "yeterli standartta konut" kriterlerinden adapte edilmiş olan konut koşullarına göre sunmayı amaçlamaktadır. Suriyeli mültecilerin iyileştirilmiş konut/iyileştirilmemiş konut koşulları ile çeşitli demografik özellikleri arasındaki ilişki kompleks örneklem tasarımını dikkate alarak F-testleri ile ortaya koyulmuştur. Bulgular, Türkiye'deki Suriyeli mültecilerin yarıdan fazlasının iyileştirilmemiş konut standartlarında yaşadığını ve konut koşullarına göre farklı demografik sonuçlarını otaya çıkarmıştır. Bulgulara göre, iyileştirilmemiş konut koşullarında yaşayan kadınların toplam doğurganlık hızı, iyileştirilmiş konutlarda yaşayanlara göre daha yüksek bulunmuş ancak iyileştirilmiş konut koşullarında beş yaş altı ölüm hızları daha yüksek bulunmuştur. Ayrıca iyileştirilmiş konut ve iyileştirilmemiş konutlarda yaşayan Suriyeli mülteci kadınlarda doğumun yapıldığı yer ve sezaryen doğum oranlarında benzer sonuçlara sahip olduğu tespit edilmiştir. Bu tez, Türkiye'deki Suriyeli mülteci nüfusunun konut koşulları ile demografik özellikleri arasındaki ilişkiyi vurgulayarak mülteci çalışmaları literatürüne katkıda bulunmayı ve bulguların politika yapıcılara ve insani yardım kuruluşlarına faydalı olabilmesini amaçlamaktadır.

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CHAPTER 1. INTRODUCTION

A household is defined as people who live together in the same shelter, share resources, and whose people mostly sleep and eat together (Tiltnes et al., 2019). Households can vary in size and composition, and they can be related or unrelated individuals or a single person living alone.

Housing conditions can be an essential determinant of health, fertility, and fertility behavior. The improved standard of housing is directly relevant to the quality of life. Therefore, in the “1948 Universal Declaration of Human Rights” and the “1966 International Covenant on Economic, Social, and Cultural Rights”, it is legally stated that “adequate housing” is the crucial component of adequate living standards (UNECE, 2021). However, global conflicts result with millions of displaced people, and rural-to-urban migration with growing numbers for various reasons such as seeking better job opportunities or wishing to upgrade in living standards, come along with inadequate housing as well as unplanned urbanization. An increase in the population in urban areas, and the growth of cities, is referred to as “urbanization”.

Urbanization is shaped by the migration of people from rural to urban in search of better economic opportunities, improved living standards, and access to better services. Yet, in urban areas, mainly in developing countries, high rental costs and inadequate housing can be a problem for many people. The increase in urbanization lead to appearing of “slum” areas presenting sub-standard housing (Rice & Rice, 2009). Especially, refugees can come across with challenges finding an affordable and improved housing, which lead them to live under unimproved standard of housing. In fact, most of the refugees settle and live in urban areas rather than traditional refugee camps (nearly 78 percent by UNHCR, n.d.). Refugees living in urban areas rather than camps are generally driven by factors such as to have “freedoms, housing conditions, social networks, and economic participation" (Obi, 2021). However, this results in infrastructure problems such as unimproved water and sanitation, pollution, and higher crime and disease rates (UN, 2013).

Therefore, housing is vital, and improved housing standards are right for everybody, mostly for vulnerable ones such as children, women, elders, as well as migrants. For this reason, Miloon Kothari who was the UN Special Rapporteur on "adequate housing" states that:

"Adequate housing is the right of every woman, man, youth and child – in both urban and rural areas – to gain and sustain a secure home and community in which to live in peace and dignity" (Kothari, 2005, p.4).

It is remarked that "adequate housing" is a right for everyone everywhere. Most of the migrants, refugees, or displaced persons are associated with higher vulnerability than the locals. It should be re-emphasized that migrants, refugees, or other displaced people have the right to adequate housing as a part of human rights.

In today's world, more than 100 million people are obliged to flee their houses, which leads them to be displaced, and given that number, at least 35 million of them are refugees (UNHCR, 2023). According to UNHCR (2023), Syrian conflict, which had started in 2011 has become the largest refugee crisis globally. Of more than 14 million citizens of the Syrian Arab Republic, almost 7 million Syrians were internally displaced, and involuntarily left their homes with their families. As reported by the British Red Cross (2023), "more than 4 out of 5 Syrians (83 percent) are living in poverty"; the article also shows that "if Syrian Arap Republic constituted of 100 citizens, 83 people would live in poverty, 77 would need access to health care, 70 would not have enough food to eat, 70 would not have regular access to clean water, and 12 children would be out of school". Türkiye, having the largest refugee number of Syrians, is followed by Lebanon, and Jordan. Including all Syrians in other countries, nearly 5.5 million Syrians are hosted due to the conflict.

Within the context of Türkiye, according to the Republic of Türkiye Ministry of Interior Presidency of Migration Management (n.d.), Türkiye has been hosting a significant number of Syrian refugees since 2012, after the conflict has begun in Syria. It is reported that Türkiye hosted over 3.5 million Syrian refugees on the record with

the “temporary protection status”, making Türkiye have the largest number of Syrian refugees globally (UNHCR, 2023). While there are millions of Syrian refugees, providing an improved standard of living for them might not be met.

Improved housing conditions are associated with several benefits, such as healthy and quality of life and better life standards (Iddi et al., 2022). Housing conditions can affect maternal health, total fertility rate, family planning, and child nutrition and health. In addition to maternal health, housing materials is associated with childhood mortality (Adebowale et al., 2017). That is why Sustainable Development Goal 11 is about to “make cities and human settlements inclusive, safe, resilient and sustainable” (UN DESA, 2022). These bring human settlements and improved housing conditions forefront regarding demographic events.

On the basis of improving housing standards for everyone, UN-Habitat is authorized to promote safe and sustainable urban areas. In order to ensure sustainable towns and cities, UN-Habitat (2018) stated that there are criteria regarding better urban development; the agency defined that “adequate housing” is based on -but should not be limited to: “*Access to water, access to sanitation, sufficient living area, structural quality, durability and location, security of tenure, affordability, accessibility, and cultural adequacy.”* The adequate standard of living is associated with how people live and under what conditions and where they live.

This thesis defines improved and unimproved housing conditions adapted from the UN-Habitat’s “adequate housing” term. It aims to analyze the demographic characteristics of Syrian refugees in Türkiye by housing conditions using the dataset of the “2018 Turkey Demographic and Health Survey – Syrian Migrant Sample.”

Specifically, this thesis analyzes the demographic conditions of Syrian refugees in Türkiye by housing conditions and focuses on two main questions, which are:

1. How can improved housing be determined using 2018-TDHS, and what is the prevalence of it among Syrian refugees?
2. How do the demographic characteristics of Syrian refugees differ by housing conditions?

These questions help the entire research process and define the study's scope and purpose, and, this thesis constitutes of 6 Chapters with Appendix: Introduction, Literature Review and the Studies Using DHS, Concepts and Background Information, Data and Methodology, Results, Discussion and Conclusion. The appendix is needed to see the demographic differences in housing conditions between the non-mobile Syrian women and Syrian women in the sample to improve the comprehensiveness of the research and to see whether non-mobility is a factor to affects the demographic outcomes. Therefore, it has been placed in Appendix A to protect the main idea of the thesis. When comparing the results of non-mobile Syrian refugee women and Syrian refugee women, it can be seen that the results change slightly, also non-mobile Syrian refugee women show a close pattern with Syrian refugee women in the sample by the results.

CHAPTER 2. LITERATURE REVIEW AND THE STUDIES USING DHS

2.1. Housing and Demographic Outcomes

In this part, other studies on housing conditions and their relation to child health, mortality, women's fertility and health were reviewed. Since there is limited information on housing and its link to refugees, the conceptual and theoretical framework has been mainly formed on UN-Habitat “adequate housing” definition and the “WHO and UNICEF Joint Monitoring Programme (JMP)” throughout the MDG and SDG monitoring period.

According to UN (2013), the rapid growth of towns and cities, impacting the social, political, cultural, and environmental trends, has made sustainable urbanization a major challenge for this century. It is predicted that there will be 6 billion people by 2050 with rapid urbanization which refers to moving of populations from rural to urban areas resulting with changes in urban. Demirci (2008) also states that urbanization, a cyclical process, refers to alters in the movement process of people to cities. This urbanization not only led to serious consequences but also grow “slum”, “informal settings” and “inadequate housing” fact.

Housing conditions are important for people's well-being, and improved housing conditions provide people to be healthier. (Selçuk et al., 2021). On the other hand, unimproved housing conditions, including non-safe drinking water and poor sanitation, end up with health problems for children, and child mortality can rise (Tusting et al., 2020). Housing improvements can protect children from numerous diseases like infectious diseases (Wolff et al., 2001). In addition to the child health, women's reproductive health and fertility rate are affected by their surroundings. Fertility is affected by various factors, primarily economic and cultural background, health situation, and physical environment (Arslan, 2022). Thus, housing conditions are important in terms of both infant and maternal health (Reece, 2021).

Housing conditions are closely related to individuals' health and demographic profile, such as education, marital status, and fertility rate; also, housing and socio-economic situation go hand-in-hand. “Adequate housing” can eradicate diseases, especially infectious diseases, improve well-being, reduce the effects of climate events, and eliminate poverty (WHO, 2018). Therefore, there is a noticeable interlinked relationship between housing and human life in every aspect.

Poor sanitation can have implications for women's reproductive health, and can cause infertility (World Bank, 2022). Through providing women with access to safe sanitation, the threat of infections can be greatly eliminated, which can then have an impact on reproductive health, and fertility. Also, a lack of hygiene could bring about severe health issues, such as reproductive and urinary tract infections, may being responsible for infertility. Insufficient water and sanitation in households may have a deleterious impact on maternal and infant health due to a variety of factors, with the consumption of contaminated water expectant mothers, and substandard sanitation (Cameron et al., 2021). In addition, increasing access to institutional delivery is one of the key strategies to reduce childbirth-related maternal mortality.

Considering that inadequate maternal health can cause bad perinatal effects, it is expected that housing problems also homelessness can have a detrimental effect on births (DiTosto et al., 2021). For that, research by Himmelstein and Desmond (2021) analyzed the correlation between evictions which is forced action by landlord to evict the tenants due to the rising rents and birth outcomes. Upon studying the births of infants born to evicted mothers, it is ascertained that evictions during pregnancy have a link with prematurity and low birth weight as well as infant mortality. This shows housing is a crucial and providing housing to pregnant women in danger of eviction could have a positive effect on health of infants.

Adequate prenatal care is important for monitoring the health of the women. The quality of housing can influence the women to access timely and appropriate prenatal care. Thus, infant mortality rates can be reduced. Also, the location of housing in relation to healthcare facilities can impact access to medical care. On the other hand,

limited access to healthcare institutions, especially in economically disadvantaged areas, may result in delays in seeking care for infants, and, lead to poor health outcomes.

Muchomba et al. (2021) examined 1,004,000 women giving birth, and revealed that over than the average “municipal rental housing” prices is strongly linked to “severe maternal morbidity” other than assisting public low-priced housing. It appears that increased access to public low-priced housing could reduce the link between rental prices and severe maternal morbidity, thereby diminishing socioeconomic differences in severe maternal morbidity.

Kulu et al. (2007) observed that there was a major contrast in fertility rates between different types of dwellings, with the highest number of births occurring among households living in single-family dwellings and the fewest for those inhabiting apartments. Stone (2018) reports that higher rents are linked to lower fertility across all ages, for instance, women in their twentieths or thirties experience a decline in fertility if rent of housing is higher. Different from renting, the price of dwelling come through another story for women in the late and upper thirties. The results suggest that women in their late and upper thirties are more prone to higher fertility when the price of dwelling is going up, and compared to younger women, women upper thirties are further inclined to own their dwelling so higher housing prices may be a benefit to them as it increases their wealth.

Although housing conditions can be effective regarding fertility levels, the characteristics of the household members can be another factor. Ahinkorah et al. (2021) carried out a study in Ghana and found that women of high-socio economic status are less prone to want more children than women of the lower-socio economic situation, and women in Islamic religious areas are more prone to want more children compared to other religious areas. The findings also suggested that women in the poorest wealth quintile desired more children compared to woman in the richest wealth quintile; additionally, educated women wanted fewer children than those without

formal education. Thus, it can be inferred that various elements, such as education and socio-economic status, affect fertility also the desire to have more children.

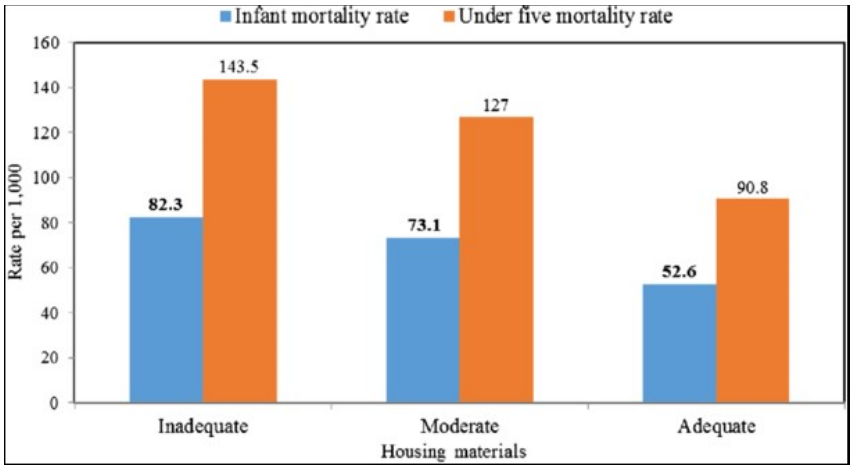
Besides to fertility desire, inadequate environmental circumstances and lack of hygiene during the birth of child are related to risky infections and mortality of mothers and infants (Arowosegbe, 2021). Enhancing “water, sanitation, and hygiene” (WASH) has been recognized as an effective approach to reduce the death rate of mothers and babies. In other words, infant health can be affected from substandard or inadequate housing conditions, such as overcrowding, poor “water, sanitation, and hygiene” (WASH) is associated with adverse health outcomes for infants. Infants living in such bad conditions may face a high risk of respiratory infections and other health issues. Those residing in countryside, slums, disaster zones and economically deprived states are more impacted in inadequate “WASH” practices (UNICEF, n.d.).

Improved access to clean drinking water is fundamental for preventing waterborne diseases like diarrhea and fever. Mothers and infants are vulnerable to infections, and providing access to clean water reduces the risk of these diseases which can have severe consequences for both mother and infant health. Proper sanitation facilities play a huge role in preventing the infectious diseases. Also, overcrowded housing increases the risk of infectious disease transmission (Ahmad et al. 2020). Especially in neonatal period, infants in crowded households can be more prone to respiratory and other communicable disease. That means poor “WASH” practices, overcrowded areas in housing lead infants to be infected during the neonatal period. It is evident that “WASH” and reproductive, maternal, neonatal and child health are linked (Crago, 2019).

Child undernutrition is associated with inadequate “WASH” practices, as well as "inadequate housing”. These factors contribute to an environment where children are more vulnerable to malnutrition. Sahiledengle et al. (2022) confirms that inadequate access to “WASH” affect child growth in a negative way, and it has impact on “child linear growth indicators”.

Another housing factor being associated with demographic outcomes is flooring and building material. Bluyssen and Koller (2016) state that flooring can be an important element in determining the internal environment. Housing materials should be adequate and non-toxic. Some building materials, such as those prone to mold or decay, can reduce indoor air quality. Toxic materials are related to several infant deaths (Currie and Schmieder, 2009). Exposure to contaminated materials resulting from poor building materials may lead to respiratory problems in infants and affect the health of all household. For example, Hauptman and Woolf (2017) focused on infants and children in term of exposure to environmental toxins, and discussed that infants and toddlers, who are learning to crawl, are in nearer proximity to the floor than children and mature people. Therefore, they may come into contact with chemical-including dust which accumulates on the floor or carpets when they touch it with their hands or feet.

Figure 2.1. Infant and under-five mortality rates according to housing materials type in Nigeria



Source: *Adebowale et al. (2017).*

Figure 1 shows that infant mortality decreases from *"82.3 to 52.6 per 1000 live births"* from inadequate to adequate housing materials. Adebowale et al. (2017) confirmed that the prevalence of under-five mortality in Nigeria was risen up due to the inadequate housing materials. In fact, this indicates that improved and healthy

choice of housing materials directly affects the health of infants, and can reduce the infant mortality rate.

2.2. Housing and Refugees

"International Human Rights Law" acknowledges the right to adequate housing; despite this, there are still well in excess of one billion individuals worldwide who are living in dangerous circumstances in slums and informal settlements, putting a risk to their health and safety (UN-Habitat, 2014). Moreover, approximately one hundred million people have nowhere to call home, and millions more are forcefully expelled or relocated from their dwellings every twelvemonth.

Therefore, the section of this thesis reviews the literature on housing link to refugee crises which is a global challenge, where forced displacement not only makes it difficult for the fundamental human right to shelter but also for the social and economic integration and well-being of refugees.

Refugees, IDPs and migrants are often more vulnerable to living in slums and inadequate housing due to many factors related to forced displacement, economic challenges, and limited access to resources. Easton-Calabria et al. (2022) reports that over half of the world's Internally Displaced Persons (IDPs) are not inhabiting in camps, and many of them live in metropolitan areas alongside the urban disadvantaged, refugees, and immigrants. Many refugees face economic challenges, and this makes it difficult for them to afford housing in established urban areas, causing settling in informal settlements or slums where housing costs may be lower. Refugees are likely to be more exposed to discrimination, harassment, physical problems, mental health shocks, and fluctuations in socio-economic status. They are often subject to dramatic and unpredictable smashes in their economic lives. Therefore, finding an improved shelter is rather complicated for them, even though adequate housing is a human right.

Having access to safe, resourceful areas and affordable housing with quality promotes good health, but many districts have scarcity of budget-friendly housing because of implementation of discriminative housing regulations for some people and minorities who are more prone to negative birth outcomes (Akah et al. 2017). For this reason, people being discriminated are forced to reside in housing that negatively impacts their health and results poor birth outcomes as well as high infant mortality.

Harrison et al. (2005) reported that EU Member States practices on housing in terms of migrants, minorities, and refugees. This paper showed that there is segregation mainly "ethnic segregation" between majorities and minorities who are residing in substandard housing conditions such as lack of clean drinking water source, sanitation, and having crowding problem which creates socio-economic inequality. In fact, refugees have faced the same problem regarding housing conditions.

According to NFP Greece National Report (2004), it was documented that refugee reception areas are subject to substandard living conditions, including extreme overcrowding and absence of basic hygiene resources. Especially for refugees with limited financial resources in host countries finding adequate housing can be challenging, and because of "racism" and "xenophobia", they may not to find the secure tenures and improved housing (UN-Habitat, 2014). Refugee camps in many parts of the globe, especially if the displacement has been ongoing for a long time, tend to be overcrowded with insufficient accommodation and amenities.

Given the results of 2018 TDHS, most Syrian refugees in Türkiye have adequate housing standards regarding sanitation facilities, drinking water sources, and housing material characteristics. However, adequate housing concerning sufficient living areas is somewhat different. Many of the Syrian refugee sample population live in houses with two rooms although the average household consists of 6.0 persons (HUIPS, 2019). This can cause overcrowding in the living areas, which triggers some problems, including mental and physical health. However, it is challenging to associate only one aspect of housing with health situations (Nkosi et al., 2019).

On the other hand, some research found a link between overcrowding and health problems, such as infectious diseases. According to UN-Habitat, an overcrowded area is described as more than two people per room comprising a kitchen and living room. Overcrowding is a crucial situation that should be focused on because of infectious diseases. It is stated that the risk of getting infected by infectious diseases is higher in limited spaces like slums (von Seidlein et al., 2021). Besides, overcrowding is associated with the household's wealth situation; those who cannot meet the expense of private spaces are more likely to be in overcrowded dwellings.

In addition, overcrowding is associated with the household's wealth situation; people who cannot afford to live in private spaces are more prone to live in insufficient places (Solari and Mare, 2012, cited in Sanchez, 2018). AIDA (2021) stated that Syrian refugees are inclined to live in poor neighborhoods, which causes them to live under unhealthy conditions because of overcrowding and inadequate housing. Especially, the COVID-19 pandemic revealed that adequate housing is vital for everyone, and housing conditions directly affect health (Sanjee D. et al., 2022). This pandemic has changed the housing approach in the world, and people living in “slums, informal settlements, and refugee camps” have higher vulnerability due to their inadequate living standards, such as lack of sanitation and drinking water, and insufficient living areas or overcrowded rooms.

It is essential to know that the experiences of refugees are shaped by many components like ethnicity, sex, age, and socioeconomic status. Hence, there is another side of being a refugee in another country especially being a women refugee. A gender-based analysis has demonstrated women are more affected than man on housing conditions, and inequality can be evidenced through the policies that are designed to leave certain people out, an absence of control over possessions, lack of security of tenure (OHCHR, 2012). Insufficient security of tenure can have negative consequences for women. Women have restricted autonomy to control over or ownership of housing, making them more exposed to abuse and violence not only in the household but also multiple realms.

Refugee women in the camps and host countries can experience gender-based violence, including sexual harassment, assault, and exploitation sometimes due to the inadequate housing conditions, such as overcrowded shelters or informal settlements, can danger the safety and security of them. The risk of gender-based violence can be more in areas with insufficient security. For example, the area of toilet services in camps could have considerable impact on a women's physical security, and it is known that in camps, toilets are mainly located away from the dwellings, remote and dark places (UNHCR, 1991); which can cause for women to be exposed to sexual attacks while on the way to latrine. Also, due to "the gender division of labour" for some societies, women are responsible for fetching water in camps, so according to Donnely and Muthiah (2019) there must be safety improvements and enough light on the road.

Moreover, lack of proper sanitation, drinking water, and hygiene facilities can lead to maternal and perinatal health problems for women, stillbirth and the risk of infections (Campbell et al. 2015). Limited access to facilities for reproductive health and insufficient conditions for childbirth can bring about serious risks to refugee women and newborns.

CHAPTER 3. CONCEPTS AND BACKGROUND INFORMATION

3.1. UN-Habitat and Sustainable Development Goals

The United Nations Human Settlements Programme also known as UN-Habitat is an agency of the United Nations devoted to human habitation and settlements, established in 1978 (UN-Habitat, n.d.). With the intent to furnish sustainability, UN-Habitat is authorized to aim to ensure that everyone has adequate housing. The Agency is closely aligned with the "Sustainable Development Goals" (Table 3.1) established by the UN as well as accepted by its member states in 2015 in order to deal with various social, economic, and environmental challenges by 2030.

Sustainable Development Goals have direct and indirect relevance to adequate housing and the work of UN-Habitat. For example, UN-Habitat's efforts to upgrade slums and improve informal settlements reduce poverty and contribute to food security related to Goals 1 and 2; also, by providing better housing and infrastructure, the Agency helps enhance the well-being of urban populations related to Goal 3. UN-Habitat works to improve access to clean water and sanitation services, which is crucial for achieving Goal 6. This includes initiatives to provide urban residents with safe drinking water and proper sanitation facilities. The Table 3.1. shows the SDGs and their relation to housing, whether it has a direct or indirect connection.

Table 3.1. How Housing Supports the Sustainable Development Goals According to Direct, Integral and Indirect Relationship

SDG's Relation to Housing	
Direct/Integral	**Indirect**
Goal 1. No Poverty	
	Goal 2: Zero Hunger
Goal 3: Good health and well-being	
	Goal 4: Quality Education
Goal 5: Gender Equality	
Goal 6: Clean Water and Sanitation	
Goal 7: Affordable and Clean Energy	
Goal 8: Decent work and economic growth	
Goal 9: Industry, innovation and infrastructure	
Goal 10: Reduced inequalities	
Goal 11: Sustainable cities and communities	
Goal 12: Responsible consumption and production	
Goal 13: Climate action	
	Goal 14: Life below water
	Goal 15: Life on Land
Goal 16: Peace, justice and strong institutions	
Goal 17: Partnerships for the goals	

Source: Shulla and Köszeghy (2021).

*"**TARGET 11.1:** By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums*

***Indicator 11.1.1:** Proportion of urban population living in slums, informal settlements or inadequate housing" (UN-Habitat, 2018)*

Being primarily relevant to SDG 11, which ensures that "cities and human settlements are inclusive, secure, resilient, and sustainable" by 2030, housing can be seen as a critical factor in determining an individual's overall health, well-being, and access to essential services. Sanjee et al, (2022) stated that providing adequate housing is fundamental to realizing many SDGs, even when housing is not directly stated.

Thus, the necessity for adequate housing must be considered, especially for vulnerable people; otherwise, this goal is hard to achieve.

Within the scope of Sustainable Development Goal 11.1 of Indicator 11.1.1, UN-Habitat centered on these three elements: “slums, inadequate housing, and informal settlements.” This goal has a comprehensive range of applications. Compared to the MDGs, the SDGs encompass and expand the concept of slums. Establishing worldwide oversight of all these global goals requires determining the concepts and their manners. It is significant what generates slums, informal settlements, or adequate housing. However, people have struggled to determine what is non-slum or a slum.

To calculate the indicator of SDG 11.1.1, UN-Habitat focused on “slums, informal settlements, and inadequate housing”. Assessing Sustainable Development Goal 11.1.1, sources like “National Population and Housing Censuses”, “Households Expenditure, and Income Surveys”, “Multiple Indicator Cluster Surveys”, “Living Standard Measurement Surveys”, “Urban Inequities Surveys”, and “Demographic and Health Surveys” are drawn upon (UN-Habitat, 2018).

Moreover, UN-Habitat's core mission of promoting sustainable urban development directly supports Goal 11. The agency works to enhance the quality of life in cities, enhance access to basic services, and ensure environmentally sustainable urbanization.

Overall, UN-Habitat is pivotal in promoting SDGs, particularly those related to urbanization, poverty reduction, and environmental sustainability. Directly or indirectly, housing is highly influential in carrying out the 17 SDGs. Housing is an essential element for household resilience and sustainability, significantly contributing to global Indexes such as Poverty Index or Human Development Index, particularly regarding health, education, living standards, access to water, sanitation, and so on (Shulla & Köszeghy, 2021). It works to create more livable and environmentally sustainable cities and improve human settlements in alignment with the SDGs.

3.2. Concept of "Adequate Housing" by UN-Habitat

For the concept of "adequate housing" by UN-Habitat, "slums, informal settlements, and inadequate housing" criteria should be known. According to UN-Habitat (2019), these criteria are divided into eight which are "security of tenure, availability of services, materials, facilities and infrastructure, affordability, habitability, accessibility, location, and cultural adequacy."

While slum criteria include "access to water, access to sanitation, sufficient living area-overcrowding, structural quality-durability, location, and security of tenure", informal settlements have the same except for "sufficient living area-overcrowding". As for inadequate housing, those eight above are all included.

Table 3.2. UN-Habitat Criteria for "Slums, Informal Settlements and Inadequate Housing"

UN-HABITAT Criteria	Slums	Informal Settlements	Inadequate Housing
Access to Improved Water	+	+	+
Access to Improved Sanitation	+	+	+
Sufficient Living Area	+	-	+
Structural Quality-Durability and Location	+	+	+
Security of Tenure	+	+	+
Affordability	-	-	+
Accessibility	-	-	+
Cultural Adequacy	-	-	+

Source: UN-Habitat, (2018)

Globally, it is understood that everyone should have the right to live in an adequate dwelling, which is essential to successfully attaining the majority of Sustainable Development Goals. Adequate housing necessitates that people have reliable and stable access to energy, improved sanitation and water, a better health system, and other social services (Sharif, 2023).

3.2.1. Security of Tenure

Having a secure tenure is critical for reducing poverty, but many live under the threat of being evicted or without enough security (Payne & Lasserve, 2012). According to OHCHR (2009), ensuring a safe tenure is essential to adequate housing. Adequate housing cannot be provided if the inhabitants do not have enough tenure security. Adequate housing should ensure they have legal protection from harassment and such forms of harassment. With the absence of "security of tenure", safeguarding against compelled exile is almost improbable. Thus, the inhabitants become vulnerable to the violation of human rights.

Special Rapporteur on "adequate housing" defined refugees as one of the most vulnerable groups impacted by the insecurity of the tenure (IFRC & NRC, 2014). Especially refugee women, insecure tenure is a frequent problem for them, as their housing and land access depends on a man. Furthermore, single female household heads experience more difficulties. They encounter more barriers to securing tenure and housing. So, it can be seen that conflict brings about profound demographic changes.

3.2.2. Availability of Services, Materials, Facilities and Infrastructure

An "adequate housing" must provide its inhabitants with access to safe drinking water, improved sanitation, heating and lighting, sufficient energy for the cook, a place to store foods, and a reliable system for waste disposal.

Regarding infrastructure and availability of facilities, water is one of the vital requirements of life for humanity, which is considered more in developed countries than in underdeveloped ones (Demirci, 2008). As addressed by UN-Habitat, access to improved water means that a household has access to clean and safe drinking water from sources considered to be protected and out of contamination. This concept is related to SDG 6, aiming to ensure clean water and sanitation for everybody, which promotes infrastructure development, ensuring that water supply systems are

prevented from water contamination. In other words, access to improved water sources is critical to ensuring public health and well-being, as contaminated water can lead to a range of diseases and health issues. Those improved drinking water sources are "piped connection into house, plot or yard, public tap, standpipe, rainwater, protected spring, bottled water, bore hole, tube well, and protected dug well."

Particularly to children and women, when the housing obtains enough amount of water (20 liters/person/day) at a reasonable cost (not more than 10% of the total household earnings) as well as be accessible to its members not needed to put excessive work (no more than sixty minutes daily for the minimum sufficient quantity), a household is thought to access to improved water (UN-Habitat, 2018).

In numerous world regions, waterborne insects can carry diseases like dengue fever. Significantly, vectors as insects can reproduce in clean water instead of polluted water. Through straightforward measures of safeguarding water tanks, vector propagation and the risk of water contamination at the household level could be eliminated (WHO, n.d.).

It can be considered that a household has access to improved sanitation when they are supplied with an excreta disposal system which keeps human waste from contact hygienically, whether a private or public and shared with an appropriate number of people. Improved sanitation facilities involve such systems are "flush toilets direct connection to a sewer, pour flush latrine direct connection to a sewer, direct connection to septic tank or a pit, ventilated Improved pit latrine, pit latrine with a slab, pit latrine covering the pit totally, composting toilets."

Legally guaranteeing access to safe water and basic sanitation should not be seen as a privilege or a commodity but, instead, a right due to all (media brief). Sanitation is crucial for human health, as a lack of sanitation can bring about severe diseases such as diarrhea, respiratory infections, and malaria (Prüss-Ustün et al., 2019). Inadequate washing is still a significant factor for diseases, mainly among children, especially

young children, even though current mortality decline trends. Regarding SDG 6, the mortality from inadequate washing can provide monitoring of the results.

3.2.3. Affordability

Housing is necessary, and accommodation must be affordable as a human right. Affordability in housing is the ability of the household to afford their housing expenses without an excessive financial burden. Lack of affordability is associated with inadequate nutrition, mainly among children (Krieger & Higgins, 2011). UN-Habitat (2018) stated that "housing is not adequate if its cost threatens or compromises the occupants' enjoyment of other human rights."

3.2.4. Sufficient Living Area

The household dwelling unit offers sufficient living space if up to three people occupy the same habitable room (UN-Habitat, 2018). However, if more than three people are in the same room, the unit leads to overcrowding. When the number of people in the same room exceeds three, it causes overcrowding. Globally, crowding is a symbol of poverty as well as a lack of social (Adler & Newman, 2002).

Numerous studies have demonstrated a clear correlation between overcrowding and health since overcrowding has a range of adverse effects on health, both physical (via infection) and mental. Furthermore, researchers have linked overcrowding to the low-quality educational performance of children (Goux et al., 2005). Children living in an overcrowded house may not receive adequate sleep, potentially resulting in difficulty concentrating in the classroom, tiredness, and behavioral problems.

3.2.5. Accessibility

Adequate housing must address the needs particular to disadvantaged and excluded populations to meet accessibility criteria. Whether in childhood period or

getting older, people may encounter some situations that restrict their movement, such as having a disability or getting pregnant, or having a broken arm. Therefore, housing should be accessible to all, including people exposed to discrimination and economically disadvantaged.

Slums and inadequate houses are deprived of accessibility. Slums rarely have regulations, making it difficult to make them accessible for those people with disabilities. As such, efforts have been made to strengthen the accessibility of routes, water, and other services rather than the accessibility of disability-friendly environments (UN-Habitat, 2014). Adequate housing includes considerations for physical accessibility, ensuring that the housing unit is designed so that people with disabilities can easily move. This might involve features like ramps and wider doorways. Accessibility in housing is crucial to ensuring that people with disabilities can live independently and with dignity.

3.2.6. Location

Location is another criterion for determining adequate housing. Housing is inadequate when deprived of certain services such as hospitals, schools, childcare, and other services or without job facilities. Also, housing is inadequate if it is located in contaminated or hazardous areas.

Adequate housing considers presence of necessary services and amenities in the vicinity. A suitable location for housing ensures that especially for children have easy access to schools. However, if the residents are located far from the schools, it is difficult for children to get an education (UN-Habitat, 2009). Therefore, better-located housing reduces the need for long commutes and makes life qualified.

3.2.7. Cultural Adequacy

Adequate housing meets and respects the cultural identities of people living there. It ensures that housing respects and supports the cultural identity of residents.

3.3. Concept of “Improved Housing” in the World

Defining "adequate housing," improved housing refers to better living conditions for its inhabitants. Improved housing is associated with slum upgrading and adequate housing standards in the literature. Like adequate housing, improved housing is a human right that impacts people's health, well-being, and social development.

According to Tusting et al. (2017), improving housing can help eliminate the risk of malaria, malaria vectors, and biting humans. Indeed, children infected with malaria were less in children living in improved housing rather than unimproved housing. This demonstrates that child health is affected by unimproved housing conditions.

3.3.1. Improved Drinking Water/Sanitation

The “Joint Monitoring Programme for Water Supply and Sanitation” (JMP) provides comprehensive statistics for drinking water, sanitation, and hygiene, and it predicts both national and international progression on these elements with updated and broadened content (about JMP). Monitoring drinking water, sanitation, and hygiene more effectively worldwide, JMP focuses on improved and unimproved concepts regarding drinking water, sanitation, and hygiene. JMP puts focus on improved and unimproved notions regarding drinking water and sanitation, observing drinking water and sanitation effectively worldwide.

With its five years strategy plan between 2021 and 2025, JMP is centered on the “2030 Agenda for Sustainable Development”, producing reliable data on water and sanitation, and aims to diminish inequalities in these basic services (JMP, n.d.). The JMP states that a safe or an improved drinking water source should be accessible, available whenever required, and also, unpolluted and uncontaminated. JMP determines a water intake progression as “safely managed: drinking water from an improved water source that is accessible on premises, available when needed and free from faecal and priority chemical contamination; basic: drinking water from an

improved source, provided collection time is not more than 30 minutes for a roundtrip including queuing; limited: drinking water from an improved source for which collection time exceeds 30 minutes for a roundtrip including queuing; unimproved: drinking water from an unprotected dug well or unprotected spring; and surface water: drinking water directly from a river, dam, lake, pond, stream, canal or irrigation canal."

In addition to improved drinking water sources, the other element that JMP focused on is improved sanitation. Improved sanitation services should be designed to ensure that excreta are hygienically separated from human contact. If the inhabitants use improved sanitation facilities but share them with other households, including neighbors, the facilities are classified as limited. On the other hand, if the inhabitants do not share the improved facilities, these sanitation services are categorized as fundamental. So, the sanitation facilities are classified by JMP as "safely managed: use of improved facilities that are not shared with other households and where excreta are safely disposed of in situ or removed and treated offsite; basic: use of improved facilities which are not shared with other households; limited: use of improved facilities shared between two or more households; unimproved: use of pit latrines without a slab or platform, hanging latrines or bucket latrines; open defecation: disposal of human faeces in fields, forests, bushes, open bodies of water, beaches and other open spaces or with solid waste."

3.3.2. Improved Floor/Wall/Roof Materials

Housing variables are also based on building materials, mainly floor, wall, and roof. DHS and MICS surveys use the terms "natural," "rudimentary," and "finished" floor materials to categorize the types of materials used in the concept of improved housing (Florey & Taylor, 2016). Based on this, categorizing an improved floor, wall, and roof shows housing characteristics.

As indicated in the Table 3.3., Florey and Taylor (2016) think that while natural and rudimentary wall and roof materials are unimproved, finished wall and roof

materials are improved. Also, they indicate that natural flooring is unimproved, yet rudimentary and finished flooring are improved.

Table 3.3. Improved and Unimproved Housing Materials Summary

	Flooring Types	**Wall Types**	**Roof Types**
Unimproved Materials	Earth, sand, clay, mud	No wall	No roof
	Dung	Cane/palm/trunks	Grass/thatch/palm leaf
		Dirt	Sod
		Mud and sticks	Straw
		Tin/ cardboard/ paper/ bags	Rustic mat
		Thatched/straw	Palm/bamboo
		Bamboo with mud	Wood planks
		Stone with mud	Cardboard
		Uncovered adobe	Tarpaulin, plastic
		Plywood	
		Cardboard	
		Reused wood	
		Trunks with mud	
		Unburnt bricks	
		Unburnt bricks with plaster	
		Unburnt bricks with mud	
Improved Materials	Tablets/wood planks	Cement	Metal
	Palm, bamboo	Stone with lime/cement	Wood
	Mat	Bricks	Calamine/cement fiber
	Adobe	Cement blocks	Ceramic tiles
	Parquet, polished wood	Covered adobe	Cement
	Vinyl, asphalt strips, floor mat	Wood planks/shingles	Roofing shingles
	Linoleum	Burnt bricks with cement	Asbestos/slate roofing sheets
	Ceramic tiles, mosaic		
	Cement		
	Carpet		
	Stone		
	Bricks		

Source**:** Florey and Taylor (2016)

CHAPTER 4. DATA AND METHODOLOGY

4.1. Data

This thesis makes use of data from the 2018 Turkey Demographic and Health Survey (2018-TDHS) Syrian Migrant Sample data, which is the first and most extensive study specific to the Syrian refugees living in Türkiye, and the data is a representative estimate of the Syrian refugees in Türkiye. The survey used a weighted, multi-stage, stratified cluster sampling method for sampling.

Demographic and Health Survey (DHS) is a comprehensive survey applied by countries to gather data on demographic and health indicators focusing on women and children. These surveys provide valuable insights regarding fertility, child mortality, family planning and access to healthcare, and maternal and child health. Since Türkiye is hosting millions of Syrians, HUIPS conducted 2018-TDHS with a Syrian Migrant Sample, aiming to provide reliable results within the context of Syrians.

The primary goal of the 2018-TDHS, with the same purpose as DHS, is to procure up-to-date data on fertility rates and trends, women and reproductive health, child health and early childhood development, and family planning for Turkish residents and Syrians there. The survey was conducted with two questionnaires. The first one is the Household Questionnaire, which asks about demographic profiles such as age, sex, education, marital status, employment status, and more, also household characteristics such as the material of building and flooring, sanitation, drinking water sources, and wealth (HUIPS, 2019). The second one is the Individual Questionnaire or The Woman's Questionnaire, employed to women aged 15-49.

In total, 1,826 Syrian households were interviewed, including 2,216 women between the ages of 15-49. The findings from the Türkiye Sample study were presented people living in both urban and rural areas, whereas the results of the Syrian Migrant Sample were disseminated by those living in camps and urban (HUIPS, 2019). However, two variables, improved housing, and unimproved housing are generated to

represent the different perspectives rather than camp and urban residences in this thesis.

Table 4.1. The Variables of This Thesis

Main determinant variable	Sub-variables	Outcome Variables
Housing	The source of drinking water	
	The sanitation facilities	
	The living area	
	The floor materials	
	The building materials	

The main determinant variable is determined as "housing" (Table 4.1.), which is defined by "improved housing" and "unimproved housing," based on UN-Habitat Criteria on the "Adequate Housing" and the JMP within the bounds of possibility. This variable examines the relationship between the demographic characteristics of the Syrians with respect to their housing conditions in Türkiye.

Table 4.2. 2018-TDHS Housing Variables and UN-Habitat's "Adequate Housing" Variables

The TDHS-2018 used the variables to present housing characteristics of the populations;	The adequate housing by UN depends on;
Access to improved water Sanitation facilities	Availability of Services, Materials, Facilities and Infrastructure Access to water Access to sanitation
Rooms for sleeping	Sufficient living area
Material of building Material of flooring Material of roof	Structural quality-Durability and location
	Security of tenure
	Affordability
	Accessibility
	Cultural adequacy

This part is not formulated straightforwardly. Information derived from 2018-TDHS data does not cover all components of the UN definition (Table 4.2.). The variables in this thesis are based on the main determinant variable, "housing," divided into two: "improved housing" and "unimproved housing". Whether a dwelling is

improved or unimproved is also based on having “improved/unimproved water source,” “improved/unimproved sanitation,” “sufficient/overcrowded living area,” “improved/unimproved floor materials,” “improved/unimproved building materials”. The definitions of sub-variables were done in Chapter 3-Concepts and Background Information, according to UN-Habitat and JMP. That is why the next section will explain those attributes in this thesis.

4.1.1. The Source of Drinking Water (Improved/Unimproved)

The variable used to determine improved and unimproved sources of drinking water is:

- The source of drinking water for members of household

Using JMP and UN-Habitat definitions, two main categories have been made, improved source of drinking water and unimproved source of drinking water. Improved source of drinking water consists of “piped-into dwellings; piped to yard/plot; piped to a neighbor; public tap/standpipe; tube well or borehole; protected well; protected spring; rainwater; tanker truck; cart with small tank; bottled water. Unimproved source of drinking water includes unprotected well; unprotected spring; river/dam/lake/pond/stream/canal/irrigation channel; and others.”

While JMP used “surface water (river/dam/lake/pond/stream/canal/irrigation channel)” as a different category, this thesis explores it under the unimproved source of drinking water category as Croft et al., (2018) in DHS Guide indicated.

Table 4.3. Improved Source of Drinking Water and Unimproved Source of Drinking Water

Improved Source of Drinking Water	**Unimproved Source of Drinking Water**
Piped into dwelling	Unprotected well
Piped to yard/plot	Unprotected spring
Piped to neighbor	River/dam/lake/pond/stream/canal/irrigation channel
Public tap/standpipe	Other
Tube well or borehole	
Protected well	
Protected spring	
Rainwater	
Tanker truck	
Cart with small tank	
Bottled water	

The results of the 2018-TDHS show that (Table 4.4.) nearly every Syrian refugee household has an improved source of drinking water whereas less than 1% of Syrian refugee households cannot access an improved source of drinking water.

Table 4.4. Percent Distribution of Syrian Refugees According to Source of Drinking Water, TDHS Syrian Migrant Sample 2018

	Households		Population	
Source of drinking water	Number	Percent	Number	Percent
Improved	1,820	99.67	10,830	99.76
Unimproved	6	0.33	26	0.24
Total	1,826	100.00	10,856	100.00

4.1.2. Sanitation Facilities (Improved/Unimproved)

The variable used to determine improved sanitation or unimproved sanitation facility is:

- Type of toilet system

Like improved/unimproved source of drinking water attribute, improved sanitation facility (toilet facility) is composed of “flush to; piped sewer system, septic tank, pit latrine, do not know where; ventilated improved pit latrine (VIP); pit latrine

with slab; and composting toilet". Unimproved sanitation facility comprises "flush to somewhere else; pit latrine without slab/open pit; bucket toilet; hanging toilet/latrine; and other".

Moreover, different from the JMP, using "open defecation, disposal of human feces in fields, forests, bushes, open bodies of water, beaches, and other open spaces or with solid waste" as another category, this thesis explores it under the unimproved sanitation facility category as indicated in DHS Guide.

Table 4.5. Improved Sanitation Facilities and Unimproved Sanitation Facilities

Improved Sanitation Facilities	**Unimproved Sanitation Facilities**
Flush to piped sewer system	Flush to somewhere else
Flush to septic tank	Pit latrine without slab/open pit
Flush to pit latrine	Bucket toilet
Flush, don't know where	Hanging toilet/latrine
Ventilated improved pit latrine (VIP)	Other
Pit latrine with slab	
Composting toilet	

According to the results revealed above (Table 4.6.), 99% of Syrian refugees have access to improved sanitation facilities, but 1% of Syrian refugee households have unimproved sanitation facilities.

Table 4.6. Percent Distribution of Syrian Refugees According to Sanitation Facilities, TDHS Syrian Migrant Sample 2018

	Households		Population	
Sanitation facilities	Number	Percent	Number	Percent
Improved	1,806	98.90	10,739	98.92
Unimproved	20	1.10	117	1.08
Total	1,826	100.00	10,856	100.00

4.1.3. Living Area (Sufficient/Overcrowded)

The variables used to determine sufficient/overcrowded living areas are:

- Number of de jure members

- The number of rooms used for sleeping

A sufficient living area is considered for up to three people in the same habitable room by UN-Habitat, (2018).

The percent distribution of Syrian refugee households (Table 4.7.) demonstrates that almost half live in sufficient conditions. Indeed, while 49% of Syrian refugees have a sufficient living area, 52% have overcrowded living areas. That means more than half of the households share three or more people per room.

Table 4.7. Percent Distribution of Syrian Refugees According to Living Area, TDHS Syrian Migrant Sample 2018

	Households		Population	
Living area	Number	Percent	Number	Percent
Sufficient	1,056	57.83	5,262	48.47
Overcrowded	770	42.17	5,594	51.53
Total	1,826	100.00	10,856	100.00

4.1.4. Floor Material (Improved/Unimproved)

The variable used to determine improved/unimproved floor materials is:

- Main material of floor

In this thesis, a material of flooring is accepted as improved if the floor material is finished and unimproved if the floor material is natural and rudimentary, based on DHS/MICS definitions of "finished, rudimentary, and natural materials". Nevertheless, contrary to the methods of DHS/MICS, this thesis considered rudimentary materials unimproved because it is not classified as "modern," according to Tusting et al. (2017).

Therefore, improved floor material includes parquet, polished, laminated wood; tile; cement; carpet; vinyl covering; mosaic; and laminate. However, unimproved floor materials are earth, sand; wood planks; and other.

Table 4.8. Improved Floor Materials and Unimproved Floor Materials

Improved (finished)	**Unimproved (natural, rudimentary)**
Parquet, polished, laminated, wood	Earth, sand
Tile	Wood planks
Cement	Other
Carpet	
Vinly covering	
Mozaic	
Laminate	

Table 4.9. shows that 97% of Syrian refugee households have improved floor materials, yet 4% have unimproved floor materials.

Table 4.9. Percent Distribution of Syrian Refugees According to Material of Flooring, TDHS Syrian Migrant Sample 2018

	Households		Population	
Floor material	Number	Percent	Number	Percent
Improved	1,763	96.55	10,477	96.51
Unimproved	63	3.45	379	3.49
Total	1,826	100.00	10,856	100.00

4.1.5. Building Material (Improved/Unimproved)

The variable used to determine improved/unimproved building material is:

- Main material of building

This thesis used the definition of “finished, rudimentary, and natural wall materials” by DHS and MICS definitions to determine the building type. Improved building material is when the building material is finished, and unimproved building materials are rudimentary and natural.

According to those definitions, improved wall materials consist of “cement; stone with lime/cement; bricks; cement blocks; covered adobe; wood planks/shingles; burnt bricks with cement”. For this reason, the improved building materials are determined as a brick house; stone house; detached house-reinforced concrete;

apartment-reinforced concrete; and container, while unimproved building materials are adobe house; tent; and other.

Table 4.10. Improved Building Materials and Unimproved Building Materials

Improved (finished)	**Unimproved (natural, rudimentary)**
Brick house	Adobe house
Stone house	Tent
Detached house-reinforced concrete	Other
Apartment-reinforced concrete	
Container	

By the descriptive results (Table 4.11.), 98% of Syrian refugee households have improved building materials, whereas 3% have unimproved building materials.

Table 4.11. Percent Distribution of Syrian Refugees According to Material of Building, TDHS Syrian Migrant Sample 2018

	Households		Population	
Building material	Number	Percent	Number	Percent
Improved	1,781	97.54	10,588	97.53
Unimproved	45	2.46	268	2.47
Total	1,826	100.00	10,856	100.00

The demographic outcome variables to be analyzed (see Chapter 5-Results) are age, sex, education level of women, total fertility rate, age-specific fertility rate, children ever born and living children, childhood mortality, use of contraceptive methods, antenatal care, and delivery assistance, c-section births, child's size and weight at birth.

Methodologically, the differences in the demographic indicators and outcomes are presented with respect to the binary housing variable. Formal statistical tests are carried out in all tabulations to test for differences in means or variables via the F-test.

CHAPTER 5. RESULTS

5.1. Demographic Profile of the Household Members

The primary purpose is this section to present the demographic profile of the Syrian refugees in Türkiye by housing conditions using 2018 TDHS Syrian Migrant Sample data.

Since 2018 TDHS draws on de jure population, the tables of improved and unimproved housing were based on weighted data for the observations in the tables; the percent distribution of the population by age and sex was analyzed according to improved or unimproved housing.

According to Table 5.1., the results indicate that there are 10,856 Syrian refugees in Türkiye, despite of the fact that 5,100 (48%) of live in improved housing, and 5,756 (52%) of live in unimproved housing. Table 5.2 shows the percentage of the population of Syrian refugees by age and sex, according to improved and unimproved housing. It can be seen that children under five years old has a higher percentage in unimproved housing, and female aged 20-24 (female in this age group found the highest fertility rate according to 2018 TDHS Syrian Migrant Sample) has a lower percentage in unimproved housing. This table shows that unimproved housing has a younger population than improved housing.

Table 5.1. Syrian Refugees' Household Population in Numbers and in Percent According to Housing Conditions, TDHS Syrian Migrant Sample 2018

Housing conditions	Freq	Percent
Improved	5,100	47.76
Unimproved	5,756	52.24
Total	10,856	100.00

Table 5.2. and Table 5.3. provides the percent distribution of household population by age groups, according to housing conditions and sex. According to below table, the percentage of total distribution between 0-15 age is higher in unimproved housing than improved housing. The result of this table presents that

unimproved housing has a younger population compared to improved housing. Table 5.3. shows that female population living in improved housing is less than male population there.

Table 5.2. Syrian Refugees' Household Population by Age, Sex in Housing Conditions, TDHS Syrian Migrant Sample 2018

	Housing conditions					
	Improved*			Unimproved**		
Age groups	Male	Female	Total	Male	Female	Total
0-4	14.20	13.93	14.07	22.80	20.29	21.55
5-9	9.72	10.79	10.21	17.19	16.81	17.00
10-14	12.08	12.20	12.13	13.05	15.11	14.07
15-19	12.09	11.44	11.79	8.98	8.03	8.51
20-24	14.44	11.34	13.01	6.31	8.73	7.52
25-29	9.31	8.37	8.88	6.93	8.59	7.76
30-34	7.18	5.88	6.58	7.86	7.16	7.51
35-39	4.81	5.38	5.07	5.78	4.80	5.30
40-44	3.90	4.95	4.38	3.51	3.16	3.34
45-49	3.39	3.24	3.32	2.21	1.82	2.02
50-54	2.96	4.36	3.61	1.87	1.63	1.75
55-59	1.62	3.13	2.31	1.08	1.18	1.13
60-64	1.93	2.08	2.00	1.16	1.00	1.08
65-69	1.06	1.38	1.21	0.54	0.68	0.61
70-74	0.65	0.71	0.68	0.24	0.37	0.31
75-79	0.44	0.18	0.32	0.23	0.24	0.24
80-84	0.17	0.52	0.33	0.09	0.18	0.13
85-89	0.01	0.05	0.03	0.08	0.15	0.11
90-94	0.00	0.05	0.02	0.00	0.05	0.03
95+	00.0	0.02	0.01	0.00	0.00	0.00
Don't know/missing	0.04	0.02	0.03	0.08	0.01	0.04
Total	100.00	100.00	100.00	100.00	100.00	100.00

** = p < 0.05, p values were provided by F-test.*
F(19.13,97521.50) = 2.6378 P = 0.0001
*** = p < 0.05, p values were provided by F-test.*
F(18.68, 1.1e+05) = 1.9724 P = 0.0073

Table 5.3. Syrian Refugees' Household Population in Percent According to Housing Conditions by Age and Sex, TDHS Syrian Migrant Sample 2018

	Housing conditions			
	Improved	Unimproved	Total	Number
Sex *				
Male	49.56	50.44	100.00	5,621
Female	45.80	54.20	100.00	5,235
Age groups**				
0-4	37.38	62.62	100.00	1,950
5-9	35.45	64.55	100.00	1,533
10-14	44.07	55.93	100.00	1,441
15-19	55.88	44.12	100.00	1,080
20-24	61.28	38.72	100.00	1,061
25-29	51.14	48.86	100.00	881
30-34	44.50	55.50	100.00	756
35-39	46.69	53.31	100.00	574
40-44	54.57	45.43	100.00	425
45-49	60.05	39.95	100.00	289
50-54	65.29	34.71	100.00	286
55-59	65.15	34.85	100.00	188
60-64	62.86	37.14	100.00	161
65-69	64.53	35.47	100.00	100
70-74	66.88	33.12	100.00	55
75-79	55.46	44.54	100.00	33
80-84	69.13	30.87	100.00	26
85-89	*	*	*	8
90-94	*	*	*	3
95+	*	*	*	1
Don't know/missing	*	*	*	5
Total	47.76	52.24	100.00	10,856

** = p < 0.05, p values were provided by F-test.*
F(1, 10855) = 14.5697 P = 0.0001
*** = p < 0.05, p values were provided by F-test.*
F(19.56,2.1e05) = 21.2761 P = 0.0000

Table 5.4. represents the percent distribution of household population according to non-camp and camp and by improved and unimproved housing conditions. 57% of non-camp residents live in improved housing conditions, but 43% of them live in unimproved housing conditions. Also, 46% of camp residents live in improved housing conditions, but 54% of them live in unimproved housing conditions.

Table 5.4. Syrian Refugees' Household Population in Percent according to Usual Residence (Camp and Non-Camp) and by Housing Conditions, TDHS Syrian Migrant Sample 2018

Usual place of living	Housing conditions			
	Improved	Unimproved	Total	Unweighted number
Non-camp	56.88	43.12	100.00	1,593
Camp	46.35	53.65	100.00	233
Total	56.39	43.61	100.00	1,826

p < 0.01, p values were provided by F-test.
F(1,1825)= 9.1539 P = 0.0025

The Table 5.5. shows that fewer households are female-headed households (10%), alongside little difference in improved housing as well as unimproved housing, which should be analyzed from a sociological point of view (see Conclusion and Discussion part). Although 65% of females live in improved housing, 56% of males live in improved houses, but while the number of female populations is 188, the number of male populations is 1,638 (Table 5.6.).

The below table also displays the number of usual members (de jure members) in housing conditions. For example, 22% of improved housing households have six usual members while only 2% of those have ten and more usual members. Besides, the both tables (Table 5.5. and Table 5.6.) reveals that the mean size of households is 5 in improved housing and 7 in unimproved housing households which indicates that the number of usual members is higher in unimproved housing rather than in improved housing.

Table 5.5. Household Composition in Improved and Unimproved Housing Conditions, TDHS Syrian Migrant Sample 2018

	Housing conditions		
Sex of head of the household*	Improved	Unimproved	Total
Male	88.51	91.91	89.99
Female	11.49	8.09	10.01
Total	100.00	100.00	100.00
Number of usual members			
1	1.10	0.18	0.07
2	10.24	1.15	6.28
3	15.61	0.78	9.14
4	11.26	18.17	14.27
5	20.92	14.40	18.07
6	22.22	9.14	16.51
7	6.22	20.60	12.49
8	5.73	10.03	7.61
9	4.39	5.30	4.79
10+	2.33	20.25	10.14
Total	100.00	100.00	100.00
Number	1,014	812	1,826
Mean size	5.03	7.09	6.06

** = p < 0.05, p values were provided by F-test.*
F(1, 1825) = 5.5682 P = 0.0184

Table 5.6. Household Composition in Improved and Unimproved Housing Conditions, TDHS Syrian Migrant Sample 2018

	Housing conditions			
Sex of head of the household*	Improved	Unimproved	Total	Number
Male	55.46	44.54	100.00	1,638
Female	64.75	35.25	100.00	188
Number of usual members				
1	*	*	100.00	13
2	92.01	7.99	100.00	118
3	96.28	3.72	100.00	168
4	44.48	55.52	100.00	263
5	65.27	34.73	100.00	324
6	75.86	24.14	100.00	304
7	28.09	71.91	100.00	234
8	42.46	57.54	100.00	135
9	51.69	48.31	100.00	86
10+	12.95	87.05	100.00	181
Total	56.39	43.61	100.00	1,826
Number of households	1,014	812	100.00	1,826
Mean size	5.03	7.09	6.06	

** = p < 0.05, p values were provided by F-test.*
F(1, 1825) = 5.5682 P = 0.0184

Since the observation numbers for remained are low, ownership of the ten most owned household possessions is calculated by housing conditions in the Table 5.7. According to the table, the most owned household item is washing machine both in improved and unimproved housing although the least owned is kettle for both.

Table 5.7. Possessions of Household Goods by Housing Conditions, TDHS Syrian Migrant Sample 2018

	Housing conditions		
Household possessions	Improved	Unimproved	Total
Deep freezer	6.13	4.91	5.60
Gas/electric oven	49.22	35.88	43.40
Washing machine	86.26	82.25	84.51
Iron	32.71	22.01	28.05
Vacuum cleaner	25.91	16.75	21.92
Kettle	3.48	2.61	3.10
Blender	7.06	3.10	5.34
Satellite TV	47.26	53.70	50.07
Internet	47.69	32.52	41.07
Air conditioner	4.03	2.93	3.55
Total	1,014	812	1,826

5.2. Characteristics of Women by Housing Conditions

Characteristics or backgrounds of women are significant in terms of fertility, reproductive health, and well-being. Some of these characteristics can be classified as age, educational level, or marital status.

Below two tables shows the percent distribution of characteristics of Syrian refugee women (aged 15-49) according to housing conditions. 78% of women who are living in improved housing are married with a small difference compared to unimproved housing (Table 5.8.). Besides, married women in unimproved housing are slightly higher than in improved housing as it is seen in Table 5.9. Moreover, women who are widowed living in improved or housing are less than those in unimproved housing.

Evidently, Syrian refugee women living in improved housing have higher educational levels than those living in unimproved housing. In contrast, women who lack education or have not been through the entirety of primary education are more prone to live in unimproved housing and less in improved housing. In fact, fertility rate, reproductive behavior, and contraception use are directly influenced by educational attainment. The results show that higher educational levels can be associated with better housing conditions.

Below Table 5.8. also presents that the most of Syrian refugees living in both improved and unimproved housing have an Arabic mother tongue, and Table 5.9. shows that there is a small difference in improved housing in comparison to unimproved housing. However, Syrian refugees who have an Arabic mother tongue are more inclined to live in unimproved housing than other Syrian refugees with a different mother tongue.

Table 5.8. Characteristics of Syrian Refugee Women (Age 15-49) in Percent by Housing Conditions, TDHS Syrian Migrant Sample 2018

	Housing conditions			
	Improved		Unimproved	
Age groups[a]	Unweighted number of women	Weighted percentage	Unweighted number of women	Weighted percentage
15-19	242	23.66	196	18.42
20-24	245	22.27	228	20.68
25-29	179	16.13	219	19.72
30-34	126	11.05	207	18.44
35-39	123	10.66	136	11.45
40-44	108	9.69	80	6.77
45-49	74	6.54	53	4.52
Total	1,097	100.00	1,119	100.00
Marital status[b]				
Never married	163	16.92	167	16.36
Married	875	78.00	895	78.51
Widowed	27	2.37	35	3.03
Divorced	18	1.46	17	1.63
No longer living together/separated	14	1.26	5	0.48
Total	1,097	100.00	1,119	100.00
Highest educational level[c]				
No education/primary incomplete	174	16.27	243	22.21
Complete primary	490	43.96	566	50.54
Complete secondary	241	22.00	192	17.01
Complete high school	192	17.77	118	10.24
Mother tongue[d]				
Turkish	60	4,58	42	3,89
Kurdish	100	9,81	71	6,98
Arabic	921	84,27	991	87,81
Other	16	1,33	15	1,32
Total	1,097	100.00	1,119	100.00

[a]: *F(5.17, 496.07) = 6.8707* *P = 0.0000*
[b]: *F(3.80, 364.62) = 1.1104* *P = 0.3503*
[c]: *F(2.64, 253.91) = 10.6306* *P = 0.0000*
[d]:*F(2.69, 258.55) = 1.6021* *P = 0.1939*

Table 5.9. Characteristics of Syrian Refugee Women (Age 15-49) in Percent by Housing Conditions, TDHS Syrian Migrant Sample 2018

	Housing conditions			
	Improved	Unimproved	Total	Unweighted number of women
Age groups[a]	Weighted p.	Weighted p.		
15-19	56.49	43.50	100.00	438
20-24	52.12	47.88	100.00	473
25-29	45.26	54.74	100.00	398
30-34	37.73	62.27	100.00	333
35-39	48.48	51.52	100.00	259
40-44	59.14	40.86	100.00	188
45-49	59.38	40.62	100.00	127
Marital Status[b]				
Never married	51.11	48.89	100.00	330
Married	50.11	49.89	100.00	1,770
Widowed	44.17	55.83	100.00	62
Divorced	47.47	52.53	100.00	35
No longer living together/separated	*	*	*	19
Highest educational level[c]				
No education/primary incomplete	42.54	57.46	100.00	417
Complete primary	46.79	53.21	100.00	1,056
Complete secondary	56.66	43.34	100.00	433
Complete high school	63.70	36.30	100.00	310
Mother tongue[d]				
Turkish	54.36	45.64	100.00	102
Kurdish	58.70	41.30	100.00	171
Arabic	49.24	50.76	100.00	1,912
Other	50.57	49.43	100.00	31
Total	50.27	49.73	100.00	2,216

[a]: *F(5.17, 496.07) = 6.8707* *P = 0.0000*
[b]: *F(3.80, 364.62) = 1.1104* *P = 0.3503*
[c]: *F(2.64, 253.91) = 10.6306* *P = 0.0000*
[d]: *F(2.69, 258.55) = 1.6021* *P = 0.1939*

According to Table 5.10., 51% of women outside of camps (non-camp residents) live in improved housing conditions, yet 49% of them live in unimproved housing conditions. Also, 41% of camp resident women live in improved housing conditions even though 59% of camp resident women live unimproved housing conditions.

Table 5.10. Percent Distribution of Syrian Refugee Women by Housing Conditions According to Usual Residence (camp and non-camp), TDHS Syrian Migrant Sample 2018

	Housing conditions			
Usual place of living of women	Improved	Unimproved	Total	Unweighted number of women
Non-camp	50.68	49.32	100.00	1,963
Camp	40.67	59.33	100.00	253
Total	50.27	49.73	100.00	2,216

p > 0.05, p values were provided by F-test.
F(1, 96) = 1.9279 P = 0.1682

By mobility, Table 5.11. reveals that the non-mobile Syrian refugee women live in improved housing is slightly lower (49%) compared to women live in unimproved housing conditions (51%). The proportion of mobile Syrian refugee women was rather higher in improved housing than unimproved housing.

Table 5.11. Percent Distribution of Syrian Refugee Women by Housing Conditions According to Women Being Mobile and Non-Mobile in 5 years (2013-2018), TDHS Syrian Migrant Sample 2018

	Housing conditions			
Women being mobile in 5 years	Improved	Unimproved	Total	Unweighted number of women
Non-mobile women	49.04	50.96	100.00	701
Mobile women	50.78	49.22	100.00	1,515
Total	50.27	49.73	100.00	2,216

p > 0.05, p values were provided by F-test.
F(1, 96) = 0.3019 P = 0.5840

Since the number of Syrian refugee women who own a house alone and jointly are less than 25, these two were combined in Table 5.12. Accordingly, 50% of Syrian

refugee women who does not own a house live in improved housing. And, 62% of Syrian refugee women who own a house alone or jointly live in improved housing.

Table 5.12. Percent Distribution of Syrian Refugee Women by Housing Conditions According to Household Ownership of Women, TDHS Syrian Migrant Sample 2018

	Housing conditions			
Household ownership of women	Improved	Unimproved	Total	Unweighted number of women
Does not own	49.97	50.03	100.00	2,154
Alone or jointly	61.47	38.53	100.00	62
Total	50.27	49.73	100.00	2,216

p > 0.05, p values were provided by F-test.
F(1, 96) = 2.2770 P = 0.1346

5.3. Fertility Rate

Fertility is a crucial topic in the 2018-TDHS Syrian Migrant Sample, as there is limited information on Syrians' fertility behavior. For this reason, this section provides Syrian refugee women's age-specific fertility rate (ASFR) and the total fertility rate (TFR) by housing conditions. In 2018-TDHS Syrian Migrant Sample, the rates are for three years preceding. And the TFR of Syrian women is calculated without considering marital status. TFR helps to calculate the overall level of current fertility and ASFR measures births to women of their reproductive ages.

According to Table 5.13., it is evident that the TFR is significantly higher for unimproved housing compared to the improved housing. Women living in improved housing have lower TFR (4) than those living in unimproved housing (6). The fertility rates generally decrease as age increases except for the 20-24 period since it is the fertility peak age of women in their reproductive period. That means fertility could be affected by both housing quality and women's backgrounds.

Table 5.13. Age Specific Fertility Rates (ASFR) and Total Fertility Rates[a] (TFR) of Syrian Refugee Women (Age 15-49) by Housing Conditions, TDHS Syrian Migrant Sample 2018

	Housing conditions		
Age groups	Improved*	Unimproved**	Total[a]
15-19	187	238	209
20-24	261	361	312
25-29	169	255	218
30-34	135	203	176
35-39	52	160	105
40-44	24	33	28
45-49	0	34	13
TFR	4.14	6.42	5.30

[a] Rates are for 3 years preceding the 2018 TDHS.

**: 15-19, p = 0.000; 20-24, p = 0.000; 25-29 p = 0.000; 30-34 p = 0.000; 35-39 p = 0.000; 40-44 p = 0.015; 45-49 p = -; TFR, p = 0.000*

***: 15-19, p = 0.000; 20-24, p = 0.000; 25-29 p = 0.000; 30-34 p = 0.000; 35-39 p = 0.000; 40-44 p = 0.002; 45-49 p = 0.144; TFR, p = 0.000*

5.4. Children Ever Born, and Living Children

Table 5.14. reveals the distribution of the children ever born numbers by different housing conditions. It is seen that 26% of women have never given birth, and the remains (74%) have been given at least once in their reproductive period. Less Syrian refugee women give birth in improved housing than in unimproved housing. Also, more Syrian refugee women gave four and more birth in unimproved housing compared to improved housing. These results can prove that having children is closely related to better housing conditions and quality of life standards.

Table 5.14. Syrian Refugee Women in Percent by Number of Children Ever Born according to Housing Conditions, TDHS Syrian Migrant Sample 2018

	N. of children ever born						
Housing conditions	0	1	2	3	4 and more	Total	Unweighted number of women
Improved	30.59	17.84	13.74	11.64	26.18	100.00	1,097
Unimproved	20.87	8.92	17.50	14.46	38.25	100.00	1,119
Total	25.76	13.40	15.61	13.05	32.19	100.00	2,216

p < 0.01, p values were provided by F-test.
F (3.82, 367.13) = 16.7506 P = 0.0000

Table 5.15. presents the Syrian refugee women who do not want more children by living children's numbers. These results carry information on women's fertility preferences and use of contraception. In total, 3% of Syrian refugee women do not want to have children, and 4% of this total percentage live in unimproved housing. While 56% of Syrian refugee women who have already given four births or more and living in improved housing want no more children, 61% of them in unimproved housing want no more children.

Table 5.15. Syrian Refugee Women in Percent Who Do Not Want More Children, by Number of Living Children, according to Housing Conditions, TDHS Syrian Migrant Sample 2018

	N. of living children						
Housing conditions	0	1	2	3	4 and more	Total	Unweighted number of women
Improved	1.58	8.34	12.59	21.35	56.15	100.00	347
Unimproved	3.68	3.60	14.48	17.27	60.98	100.00	465
Total	2.75	5.68	13.65	19.06	58.85	100.00	812

$p < 0.05$, p values were provided by F-test.
$F (3.84, 368.83) = 3.1135$ $P = 0.0167$

Table 5.16. and Table 5.17. show the Syrian refugee women by their ideal children number according to living children's numbers. In Table 5.16., 63% of Syrian refugee women stated that four or more children are ideal, while only 1% think one child is ideal. Even though the results are slightly different than those of unimproved housing (Table 5.17.), both improved, and unimproved housing have similar trends on ideal numbers.

Table 5.16. Syrian Refugee Women in Percent by Ideal Children Number, by Improved Housing, according to the Living Children Number, TDHS Syrian Migrant Sample 2018

	Improved housing					
	Number of living children					
Ideal number of children	0	1	2	3	4 and more	Total
0	1.98	2.55	4.97	9.70	11.54	5.80
1	1.65	1.02	0.95	1.88	0.00	1.05
2	23.71	26.19	15.14	6.46	4.64	16.20
3	14.83	20.74	14.21	19.60	4.78	13.93
4 and more	57.83	49.51	64.74	62.36	79.04	63.02
Total	100.00	100.00	100.00	100.00	100.00	100.00
Unweighted number of women	309	203	146	138	280	1,076

p < 0.01, p values were provided by F-test.
F (13.28, 1248.13) = 8.0602 P = 0.0000

Table 5.17. Syrian Refugee Women in Percent by Ideal Children Number, by Unimproved Housing, according to the Living Children Number, TDHS Syrian Migrant Sample 2018

	Unimproved housing					
	Number of living children					
Ideal number of children	0	1	2	3	4 and more	Total
0	7.25	5.64	4.85	7.57	8.75	7.24
1	1.09	1.05	1.73	2.96	1.35	1.57
2	23.35	15.90	16.26	11.14	6.92	13.45
3	10.44	19.71	15.40	18.43	4.86	11.37
4 and more	57.87	57.68	61.75	59.90	78.14	66.37
Total	100.00	100.00	100.00	100.00	100.00	100.00
Unweighted number of women	202	98	203	157	420	1,080

p < 0.01, p values were provided by F-test.
F (12.86, 1234.39) = 4.8452 P = 0.0000

5.4. Childhood Mortality

Childhood mortality rates are important indicators used in demographic research to assess children's health in a population. In this section, based on the 2018 TDHS Syrian Migrant Sample, “neo-natal mortality, post-neonatal mortality, infant mortality, child mortality, and under-five mortality rates” are computed by housing.

Table 5.18. reveals that neonatal mortality was 17, post-neonatal mortality was 14, infant mortality was 31, child mortality was 7, and under-five mortality was 38 deaths per 1,000 births in improved housing.

That neo-natal mortality was 9, post-neonatal mortality was 8, infant mortality was 17, child mortality was 4, and under-five mortality was 21 deaths per 1,000 births in unimproved housing. This sums up that almost 30% of children die before age five, especially in the first year of life.

Table 5.18. Childhood Mortality Rates[a] to Syrian Refugee Mothers according to Housing Conditions, TDHS Syrian Migrant Sample 2018

Housing conditions	Neo-natal	Post-neonatal	Infant	Child	Under-five
Improved	16.62	14.08	30.69	7.23	37.71
Unimproved	9.25	7.52	16.77	4.39	21.09
Total	12.94	10.80	23.73	5.81	29.40

[a] Rates are for 5 years preceding the 2018 TDHS.
Improved: NMR, p = 0.001; PMR, p = 0.005; IMR, p = 0.000; CMR, p = 0.033; U5MR p = 0.000
Unimproved: NMR, p = 0.003; PMR, p = 0.001; IMR, p = 0.000; CMR, p = 0.026; U5MR p = 0.000

5.5. Use of Contraceptive Methods

Table 5.19. shows the current use of contraceptive methods of currently married Syrian refugee women in Türkiye. It is revealed that currently, married Syrian refugee women have almost the same pattern of using contraceptive methods, although women using modern methods in unimproved housing (21%) is a bit higher than in improved housing (17%).

Table 5.19. Syrian Refugee Women in Percent by Current Use of Contraceptive Methods according to Housing Conditions, TDHS Syrian Migrant Sample 2018

Housing conditions	No	Modern	Traditional	Total	Unweighted number of women
Improved	67.85	16.81	15.33	100.00	1,097
Unimproved	64.40	21.16	14.43	100.00	1,119
Total	66.14	18.98	14.89	100.00	2,216

p > 0.1, p values were provided by F-test.
F (1.96, 188.18) = 2.7146 P = 0.0699

5.6. Antenatal Care and Delivery Assistance

This section covers antenatal care and delivery assistance, two integral components of maternal and child health. Table 5.20. presents antenatal care and delivery assistance for Syrian refugee women by housing conditions.

According to the Guide to DHS Statistics, skilled provider consists of doctor, nurse, midwife, and health worker/professional, so the results are computed this way. Furthermore, antenatal care refers to medical care, which includes regular visits and checks to ensure maternal health that pregnant women receive from healthcare professionals during their pregnancy.

Pregnancy is divided into three different periods, each known as a trimester. These trimesters consist of the first, second, and three. The Table 5.20. shows that Syrian women who had ANC in the first trimester are higher in improved housing (84%) than in unimproved housing (77%). Moreover, Syrian women living in improved housing had four and more ANC visits (71%) than those living in unimproved housing (58%).

Table 5.20. Syrian Refugee Women in Percent by Antenatal Care according to Housing Conditions, TDHS Syrian Migrant Sample 2018

Housing conditions	Taken ANC from a skilled provider*	Had 4+ ANC visits**	Unweighted n. of women	Had ANC in first trimester***	Unweighted n. of women who had ANC
Improved	94.68	71.25	512	83.61	484
Unimproved	91.65	58.84	712	76.45	652
Total	92.93	64.07	1,224	79.52	1,136

** = p > 0.05, p values were provided by F-test.*
F(1, 96) = 3.5652 P = 0.0620
*** = p < 0.01, p values were provided by F-test.*
F(1, 96) = 15.6728 P = 0.0001
****= p < 0.01, p values were provided by F-test.*
F(1, 96) = 7.9019 P = 0.0060

Overall, 93% of births to Syrian refugee women were delivered in a health facility rather than a home showed in Table 5.21. A health facility includes “a public

and private hospital, family medicine, family health center, university hospital migrant health center, community health center, maternity house, and private doctor." Syrian refugee women living in improved housing and unimproved housing have almost the same figure for giving birth in a health facility.

Table 5.21. Institutional Deliveries in Percent of Syrian Refugee Women according to Housing Conditions, TDHS Syrian Migrant Sample 2018

Housing conditions	Delivered in institution	Unweighted number of births
Improved	94.05	743
Unimproved	92.93	1,219
Total	93.36	1,962

p > 0.05, p values were provided by F-test.
F (1.87, 179.98) = 0.7667 P = 0.4584

5.7. C-Section Births

C- section birth refers to delivery by cesarean. By providing access to cesarean sections, maternal health can be in control, so the number of neonatal mortalities can be decreased. However, there are also some severe results of C-section births, so it should be done just for medically needed.

Table 5.22. shows the moment to conduct C-sections of Syrian refugee women by housing conditions. While 30% of Syrian refugee women living in improved housing delivered by C-section births, 25% of Syrian refugee women living in unimproved housing delivered by C-section births.

Even though 74% of Syrian refugee women living in unimproved housing planned before the onset of labor pains, 79% of Syrian refugee women living in unimproved housing planned before the onset of labor pains. 26% of Syrian refugee women living in improved housing decided after the onset of labor pains, whereas 20% of those living in unimproved housing decided after the onset of labor pains.

Table 5.22. Live Births in Percent by Caesarean Section, Planned Before the Onset of Labor Pains in Percent, and Decided After the Onset of Labor Pains in Percent, according to Housing Conditions, TDHS Syrian Migrant Sample 2018

			Moment to conduct C-section**		
Housing conditions	Delivered by C-section in percent*	Unweighted number of births	Planned before onset of labor pains	Decided after onset of labor pains	Unweighted number of c-section births
Improved	29.92	743	74.35	25.65	222
Unimproved	25.19	1,219	78.47	20.13	313
Total	26.99	1,962	76.75	22.44	535

**: F (1.95, 186.95) = 1.7554 P = 0.1766*
***: F (1.70, 159.67) = 1.4378 P = 0.2408*

5.8. Child's Size and Weight at Birth

Assessing birth weight is crucial as it provides information about maternal nutrition and can be used to predict the risk of death if the child lives (2018-TDHS). It has been demonstrated that children born with a low birth weight have a greater potential to die. In 2018 TDHS, the mother's perception of the baby's size at birth was acquired. Despite being subjective, these predictions can still serve as an effective proxy.

The live births by the baby's size at birth is shown in Table 5.23. According to Syrian refugee mothers living in improved housing, 7% of babies were reported to be very small at birth, whereas those living in unimproved housing reported that 9% of babies were very small at birth. In addition to being very small, Syrian refugee mothers living in improved housing stated that 1% of babies were very large at birth. In unimproved housing, 2% were stated as very large at birth.

Table 5.24. indicates that while 16% of the reported birth weights percentage is less than 2.5 kg in improved housing, 22% is less than 2.5 kg in unimproved housing. In other words, it can be inferred that babies living in unimproved housing conditions are more likely to less than 2.5 kg.

Table 5.23. Live Births in Last 5 Years Preceding the Survey in Percent by the Prediction of Syrian Refugee Mothers of Baby's Size at Birth, according to Housing Conditions, TDHS Syrian Migrant Sample 2018

Live births by size of baby at birth									
Housing conditions	Very large	Large	Average	Smaller	Very Small	Don't know	Missing	Total	Unw. n. of births
Improved	0.44	5.93	72.58	12.22	6.53	2.30	0.00	100.00	743
Unimproved	1.50	7.30	62.79	16.16	9.00	2.90	0.36	100.00	1,219
Total	1.09	6.78	66.51	14.66	8.06	2.67	0.22	100.00	1,962

p < 0.05, p values were provided by F-test.
F (5.33, 511.45) = 2.5098 P = 0.0263

Table 5.24. Reported Birth Weight Under 2.5 kg in Percent, according to Housing Conditions, TDHS Syrian Migrant Sample 2018

	Reported birth weight	
Housing conditions	Under 2.5 kg in percent	Unweighted number of births
Improved	16.30	639
Unimproved	22.43	947
Total	19.97	1,586

p < 0.01, p values were provided by F-test.
F (3.70, 354.90) = 4.0101 P = 0.0044

CHAPTER 6. DISCUSSION AND CONCLUSION

In this study, the demographic characteristics of Syrian refugees with respect to housing conditions were examined. Even though Syrians are “forced migrants” and not accepted as “refugee”, this study used “refugee” term to better grasp the approach. In fact, the term “forced migrants” is a global topic, affecting countries across the world, which requires international cooperation to tackle. Forced migrants often face challenges when to access the most basic and human facilities such as shelter, food, clean water, and healthcare. Being a forced migrant can also involve legal protection problems. For example, they may not be qualified to obtain “asylum seeker”, or a “refugee” status, and lack of legal status can create vulnerabilities for them. While many Syrians in Türkiye fit the “legal definition of refugees” in practice, they are not recognized as such according to the 1951 Refugee Convention because it is stated in this convention that refugees can only be originated from European countries. For this reason, Syrians (came since 2011 Syrian crisis) in Türkiye officially referred as people under "temporary protection".

Indeed, Türkiye have implemented a temporary protection status to manage millions of Syrians and to provide them with certain rights. This status ensures people are not sent back to Syria against their will, and this application provides registered people with the right to legally stay in Türkiye (MHD, 2017). However, this legal status does not represent the same refugee status and rights as defined by the UN Convention.

Although it has been more than a decade since the beginning of the crisis in Syria, their status has not changed. Today, over three million Syrian refugees in Türkiye are under temporary protection status. However, according to this thesis’ calculations, greater than half of Syrians could not live under improved housing standards. In fact, housing conditions affect the health of household members, especially women and children.

For this, a variable of “housing” was created, and based on UN-Habitat’s “adequate housing” definition, “improved housing” and “unimproved housing” variables were generated using sources of drinking water, sanitation, living area, floor material, and building material. We explored the relationship between demographic outcomes – “fertility rate, children ever born and living children, childhood mortality, use of contraceptive methods, antenatal care and delivery assistance, c-section births, child’s size and weight at birth” – and improved housing as well as unimproved housing using STATA software.

According to the results, while 5,100 Syrian refugees in Türkiye live in improved housing, 5,756 live in unimproved housing. World Bank (n.d.) states that 3.6 billion people worldwide lack access to improved sanitation, which means nearly every 40 in 100 people lack basic toilet services, and still is a challenge regarding “Sustainable Development Goals”. By reviewing literature, this study revealed unimproved housing, characterized by substandard living environments including overcrowded spaces, and limited access to basic facilities such as clean water and sanitation, has serious implications for the well-being and health of refugee populations. Also, the direct and indirect effects of inadequate or unimproved housing on the health of refugees can be seen in the Literature Part. For example, unimproved living conditions can cause the higher risk of infectious diseases, and maternal and child health.

However, almost all Syrian refugee households in Türkiye have access to improved sanitation according to the analysis result. It also has the same figure as a source of drinking water, building materials, and floor materials. According to the results, the only difference can be seen in the living area. Many Syrian households live in insufficient spaces, in other words, crowded areas. This can lead to infectious diseases to transmit easily. Significantly, the COVID-19 pandemic shows how sufficient living area is important for disease transmission.

When fertility rates were analyzed by housing conditions, TFR was computed higher in unimproved housing than improved housing. The higher educational

attainment of Syrian refugee women was found to be less in unimproved housing than in improved housing. The percentage of contraceptive use in improved housing and unimproved housing has a similar pattern, which shows that all Syrian refugee women have close opinions on contraceptive use regardless of housing conditions. There is also a similar figure on the place of delivery and C-section births in both Syrian refugee women. Yet, the smallest babies were born to unimproved housing than improved housing. This proves that housing conditions are important in terms of neo-natal and maternal health.

"Neo-natal mortality rate", "post-neonatal mortality rate", "infant mortality rate", "child mortality rate" and "under-five mortality rate" are computed by housing conditions. The results were expected as the other studies in terms of demographic outcomes and housing relationship. But the results indicated different perspective especially in childhood mortality. The mortality rates were higher in improved housing than in unimproved housing. This result can be associated with some reasons, and the results of the other studies in the literature part are mainly show the African case. However, Türkiye is a developing country, and this may change the approach, and mobility of women can be responsible for this result (see Appendix A). Yet, according to literature, we expected to have higher childhood mortality rates since unimproved housing standards are related to poor health outcomes.

Furthermore, the percentage of female-headed households are found slightly higher in improved housing than female-headed households in unimproved housing. Also, the male-headed households are far higher in both improved and unimproved housing than the female-headed households. So, one can say the household structure in improved housing shows less patriarchal characteristics. From the sociological point of view, it can be said that cultural norms can influence household structures. In some societies, a male especially the older male is accepted as the head of the household, and as the "breadwinner". This can be influenced by cultural and historical background of the society.

According to the results of Household Possessions, the improved households can be economically better than the unimproved households. Also, the average number of household's members in improved housing are 5, yet it is 7 in unimproved housing, which reveals that the mean size of improved housing is less than unimproved housing.

To sum up, improved housing is determined by using housing characteristics variables in 2018-TDHS. According to the results, 5,100 Syrian refugees in Türkiye live in improved housing, and 5,756 live in unimproved housing. Although 48% of Syrian refugees live in improved housing, 52% live in unimproved housing. Results of analyses show that the level of Syrian refugees living in unimproved housing is higher than living in improved housing. Moreover, the demographic characteristics of Syrian refugees differ by improved and unimproved housing conditions. This study is the first on the housing conditions of refugee population in Türkiye based on TDHS Syrian Migrant Sample 2018. Therefore, there is not another study in Türkiye to compare with. However, there are limited research in the world especially in Africa based on DHS and adequate housing conditions.

This study can be the source and pave the way for and guide future studies in the field and also can lead various policies for policy-makers. For example, the results show that children should consume nutritious food because of their healthy growth, both physical and brain development. Therefore, I recommend that refugees with limited financial resources can be supported by healthy and nutritious food products for the general health of children. Especially, junk food products should be replaced by nutritious foods. In this way, the child's size can be an ideal healthy size. Besides, the total fertility rate of refugees should be comprehensively approached. Providing family planning education or counseling, and implementing reproductive health programs can be expanded. To do this, policymakers should take into account cultural background, and human rights, and be sensitive. Also, female refugees can be empowered through different occupations by their ability and skills, so they can better adapt and integrate into the host countries, this may contribute increased decision-making process in the family and may share the title of "head of the household" with becoming more confident individual.

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APPENDIX A

Table A.1. The Numbers of Syrian Refugee Women by Housing Conditions According to Women Being Mobile and Non-Mobile in 5 years (2013-2018), TDHS Syrian Migrant Sample 2018

Women being mobile in 5 years	Housing conditions		
	Improved	Unimproved	Unweighted number of women
Non-mobile women	755	760	1,515
Mobile women	342	359	701
Total	1,097	1,119	2,216

Table A.2. Childhood Mortality Rates to Syrian Refugee Mothers Being Non-mobile in 5 years (2013-2018), according to Housing Conditions, TDHS Syrian Migrant Sample 2018

Housing conditions	Neo-natal	Post-neonatal	Infant	Child	Under-five
Improved	18.94	17.35	36.29	7.83	43.84
Unimproved	8.60	9.47	18.07	5.63	23.59
Total	13.77	13.41	27.18	6.73	33.72

Table A.3. Institutional Deliveries in Percent of Syrian Refugee Women being Non-mobile according to Housing Conditions, TDHS Syrian Migrant Sample 2018

Housing conditions	Delivered in institution	Unweighted number of births
Improved	92.31	472
Unimproved	92.03	757
Total	92.14	1,229

Table A.4. Age Specific Fertility Rates (ASFR) and Total Fertility Rates (TFR) of Syrian Refugee Women being Non-mobile (Age 15-49) by Housing Conditions, TDHS Syrian Migrant Sample 2018

Age groups	Improved	Unimproved	Total[a]
15-19	192	248	209
20-24	243	362	312
25-29	177	245	218
30-34	124	189	176
35-39	52	167	105
40-44	35	44	28
45-49	0	17	13
TFR	4.11	6.36	5.30

[a] : Rates are for 3 years preceding the 2018 TDHS.

Table A.5. Syrian Refugee Women being Non-mobile in Percent by Antenatal Care According to Housing Conditions, TDHS Syrian Migrant Sample 2018

Housing conditions	Taken ANC from a skilled provider	Had ANC in first trimester	Had 4+ ANC visits	Unweighted n. of women who had ANC
Improved	94.10	83.18	71.13	356
Unimproved	91.88	75.49	57.64	482
Total	92.88	78.85	63.46	838

Table A.6. Live Births in Percent by the Prediction of Syrian Refugee Mothers being Non-mobile of Baby's Size at Birth, according to Housing Conditions, TDHS Syrian Migrant Sample 2018

	Live births by size of baby at birth								
Housing conditions	Very large	Large	Average	Smaller	Very Small	Don't know	Missing	Total	Unw. Number of births
Improved	0,60	4,70	72,31	12,94	6,67	2,77	0.00	100.00	512
Unimproved	1,89	8,48	62,03	15,98	8,39	3,22	0.00	100.00	843
Total	1,39	7,01	66,03	14,80	7,73	3,04	0.00	100.00	1,335

Table A.7. Live Births in Percent by the Prediction of Syrian Refugee Mother being Non-mobile of Baby's Size at Birth More or Less Than 2.5 Kg, according to Housing Conditions, TDHS Syrian Migrant Sample 2018

	Reported birth weight	
Housing conditions	Under 2.5 kg in Percent	Number of births
Improved	17.54	429
Unimproved	23.15	624
Total	20.85	1,053

Table A.8. Currently Married Syrian Refugee Women being Non-mobile in Percent by Current Use of Contraceptive Methods according to Housing Conditions, TDHS Syrian Migrant Sample 2018

Housing conditions	No	Modern	Traditional	Total	Unweighted number of women
Improved	67.61	16.02	16.37	100.00	755
Unimproved	65.05	14.33	20.62	100.00	760
Total	66.35	15.19	18.46	100.00	1,515

Table A.9. Syrian Refugee Women being Non-mobile in Percent by Children Ever Born Numbers according to Housing Conditions, TDHS Syrian Migrant Sample 2018

	Number of children ever born						
Housing conditions	0	1	2	3	4 and more	Total	Unweighted number of women
Improved	30.20	18.47	15.26	11.44	24.62	100.00	755
Unimproved	20.63	10.18	18.85	13.27	37.06	100.00	760
Total	25.49	14.39	17.03	12.34	30.75	100.00	1,515

Table A.10. Syrian Refugee Women being Non-mobile in Percent Who Do Not Want More Children, by Number of Living Children, according to Housing Conditions, TDHS Syrian Migrant Sample 2018

	Number of living children					
Housing conditions	0	1	2	3	4 and more	Total
Improved	1.75	9.36	13.94	20.79	54.17	100.00
Unimproved	3.83	3.85	15.16	15.51	61.66	100.00
Total	2.87	6.40	14.60	17.95	58.19	100.00

Table A.11. Syrian Refugee Women being Non-mobile in Percent by Ideal Children Number, by Improved Housing, according to the Living Children Number, TDHS Syrian Migrant Sample 2018

	Improved housing					
	N. of living children					
Ideal number of children	0	1	2	3	4 and more	Total
0	1.74	2.78	6.31	9.67	10.37	5.59
1	1.51	0.69	0.90	2.314	0.00	1.00
2	22.04	25.30	16.23	8.10	5.72	16.33
3	14.51	19.46	13.53	21.98	4.77	13.91
4 and more	60.20	51.77	63.03	57.93	79.13	63.18
Total	100.00	100.00	100.00	100.00	100.00	100.00

Table A.12. Syrian Refugee Women being Non-mobile in Percent by Ideal Children Number, by Unimproved Housing, according to the Living Children Number, TDHS Syrian Migrant Sample 2018

	Unimproved housing					
	N. of living children					
Ideal number of children	0	1	2	3	4 and more	Total
0	7.29	5.28	3.74	4.11	7.49	5.97
1	0.00	0.00	1.63	3.40	1.60	1.38
2	19.74	15.85	16.30	12.61	6.79	13.01
3	7.29	20.59	16.30	18.76	4.39	11.13
4 and more	65.69	58.28	62.06	61.11	79.74	68.51
Total	100.00	100.00	100.00	100.00	100.00	100.00

Table A.13. Live Births to Non-mobile Syrian Refugee Women in Percent by Caesarean Section, Planned Before the Onset of Labor Pains in Percent, and Decided After the Onset of Labor Pains in Percent, according to Housing Conditions, TDHS Syrian Migrant Sample 2018

		Moment to conduct C-section	
Housing conditions	Delivered by C-section in Percent	Planned before onset of labor pains	Decided after onset of labor pains
Improved	30.54	72.08	27.92
Unimproved	25.71	78.91	21.09
Total	27.59	75.97	24.03