

Comparison of Health Status between Peripheral and Central Urban Areas: A Case Study of Karbala and Najaf

Mohammed Azeez Jasim Alwatan¹, Zahra Karimi Moughari², Mahmoud Sharepour³

¹ PhD Student in Economics, University of Mazandaran, Babolsar, Iran. Email: fb.mh701@gmail.com
ORCID: 0009-0005-9377-7808

² Associate Professor, Department of Economics, Faculty of Economics and Administrative Sciences, University of Mazandaran, Babolsar, Iran. Email: zakarimi@umz.ac.ir ORCID: 0000-0002-6710-3237

³ Professor, Department of Social Sciences, Faculty of Humanities and Social Sciences, University of Mazandaran, Babolsar, Iran. Email: m.sharepour@umz.ac.ir ORCID: 0000-0002-1969-941

Abstract: Marginalization (peripheral informal settlements) is one of the most significant consequences of rapid urbanization and unbalanced urban development. It can adversely affect residents' health by generating economic, social, and physical inequalities. The cities of Najaf and Karbala, owing to population growth, large-scale migration, and the expansion of informal settlements, face multiple challenges in the provision of urban services and public health. Accordingly, the present study aims to compare the health status as well as the economic, social, and physical characteristics of residents living in peripheral (marginal) areas and central urban areas of Najaf and Karbala. This research is applied in purpose and descriptive–analytical and survey-based in method. Required data were collected through documentary studies and field surveys using a structured questionnaire. The statistical population consisted of residents of Najaf and Karbala, from which a sample of 684 individuals was selected through appropriate sampling methods. Data analysis employed descriptive statistics (frequency, percentage, mean, and standard deviation) as well as one-sample t-tests and analysis of variance (ANOVA). The results revealed significant differences between residents of peripheral and central urban areas in several economic, social, and physical indicators. Examination of sample characteristics further indicated differences between the two cities in access to cooling and heating facilities, income status, health-related behaviors, and patterns of healthcare service utilization—differences that can influence quality of life and health outcomes. The findings demonstrated that the quality of the residential environment, urban facilities and infrastructure, household economic status, and health-oriented behaviors are among the most important determinants of residents' health. Deprivation of these amenities in peripheral areas increases the likelihood of health inequalities. Overall, the results underscore the necessity of simultaneously addressing economic, social, physical, and health dimensions in urban planning. Development of infrastructure in peripheral areas, improvement of housing quality, enhancement of equitable access to health services, elevation of household welfare, and implementation of educational and preventive programs can play an effective role in reducing health inequalities and improving the quality of life of residents in Najaf and Karbala.

Keywords: Marginalization, Health, Urban health, Economic characteristics, social characteristics, Physical characteristics, Najaf, Karbala

1. Introduction

Urban marginalization is one of the most significant consequences of rapid urbanization and unbalanced urban development in developing countries. It has increasingly become a major challenge for urban planning, social justice, and public health. The expansion of informal settlements and marginalized neighborhoods, which are primarily driven by rural-to-urban migration, rapid urban population growth, poverty, economic inequality, and weak urban



governance, has created substantial disparities in the quality of life among urban residents. These disparities extend beyond economic conditions to encompass the social, physical, and health dimensions of residents' lives, resulting in a considerable gap between marginalized communities and the formal urban core.

One of the most important consequences of these inequalities is the disparity in residents' health status. Human health is influenced not only by biological and medical factors but also by a wide range of social, economic, environmental, and physical determinants, collectively referred to as the social determinants of health. Income, employment, educational attainment, social security, housing quality, access to basic infrastructure, living environment, and healthcare services are among the key factors that directly or indirectly affect individuals' health. Consequently, differences in these indicators between marginalized settlements and the urban core can lead to significant inequalities in health outcomes.

In Iraq, particularly following years of war, political instability, economic crises, and large-scale population displacement, the expansion of marginalized settlements has accelerated considerably. The cities of Najaf and Karbala, owing to their religious, cultural, and economic significance, receive millions of pilgrims annually while also serving as major destinations for internal migration. Combined with rapid population growth and the limited capacity of urban infrastructure, these conditions have contributed to the expansion of peripheral settlements and widened the gap between these areas and the formal urban fabric. In many of these settlements, inadequate urban services, poor healthcare infrastructure, substandard housing conditions, high population density, limited employment opportunities, and low household incomes have created unfavorable living conditions for residents. Such conditions may have substantial consequences for their physical, mental, and social well-being.

In contrast, residents living in the formal urban core generally enjoy greater access to municipal services, healthcare facilities, educational opportunities, and adequate infrastructure. These differences are likely to result in significant disparities in health status as well as in the economic, social, and physical characteristics of the two groups of residents. Examining these disparities not only provides a clearer understanding of the extent of urban inequality but also facilitates the identification of vulnerable populations, the prioritization of interventions, and the development of effective policies aimed at promoting social equity and improving urban health.

Despite the importance of this issue, previous studies in Iraq have largely focused on isolated aspects of either marginalization or health. Only a limited number of studies have simultaneously compared the health status and the economic, social, and physical characteristics of residents living in marginalized settlements and those residing in the urban core. Furthermore, comprehensive comparative evidence concerning the cities of Najaf and Karbala—two cities of exceptional religious, demographic, and economic importance—remains scarce. This research gap highlights the need for studies capable of simultaneously examining multiple dimensions of living conditions and health among residents of these two types of urban settlements.

Accordingly, the present study aims to compare the health status and the economic, social, and physical characteristics of residents living in marginalized settlements and the urban core of Najaf and Karbala. By identifying the differences between these two groups, this study seeks to provide a comprehensive picture of urban inequalities. Moreover, by examining the relationship between economic, social, and physical conditions and residents' health status, it aims to generate empirical evidence that can support policymakers, urban planners, and public health authorities in designing and implementing more effective policies and interventions to reduce inequalities, improve quality of life, and promote the health and well-being of urban residents.

2. Theoretical foundations

2.1 Marginalization and its concept

Marginalization is a multifaceted phenomenon that can be studied from physical, social, economic, and legal perspectives. This phenomenon, which is the result of processes such as excessive migration, economic inequalities, and ineffective urban development policies, not only affects the urban structure, but also poses serious challenges to the health and quality of life of residents. In the cities of Najaf and Karbala, this phenomenon is of particular

importance due to the religious characteristics and migration potential of these areas. The definitions provided by researchers such as Park, Abram, Clinard, Raisdana, and Hatami-Nejad indicate the complexity of this concept and the need to carefully examine it in local and regional contexts. In this study, Marginalization will be analyzed as a multidimensional situation in order to comprehensively examine its effects on the health of residents of the suburban areas of Najaf and Karbala.

Marginalization, as one of the prominent social and urbanization phenomena in developing countries, including Iraq, has been the focus of researchers from various perspectives and numerous definitions have been presented. These definitions, which have been formed based on various specialized aspects and perspectives, can be summarized in three main categories:

1. Physical characteristics: Slums from a physical perspective refer to areas characterized by substandard housing, lack of basic infrastructure such as safe drinking water, sewage systems, electricity and proper communication routes, and high population density. These areas are often formed on the outskirts of large cities and differ significantly from the central areas of the city in terms of construction quality and access to urban services (Turok, 2015; Srinivas, 2015).
2. Socio-economic characteristics: From a social perspective, marginalization is associated with issues such as poverty, low income, unemployment or employment in informal and unstable jobs, and low levels of education and professional skills. Residents of these areas are often disadvantaged due to economic and social constraints. They remain behind in the city's social and economic system and are marginalized (Hatami-Nejad, 2003).
3. Legal characteristics: From a legal perspective, slums refer to settlements in areas that lack legal ownership or compliance with building regulations. These areas are usually developed informally and without official permits, which creates numerous problems for urban management and public service delivery (Turok, 2015).

One of the first to use the term marginalization was Park. In a study, he described the marginalized as someone who is culturally in a dual position: someone who is simultaneously connected to two different cultures, but who does not fully belong to either. According to Park, the marginalized person lives in a cultural limbo; he has neither completely abandoned his past nor fully adapted to the culture and values of the host society (Park, 1937). This definition emphasizes the cultural and social dimension of marginalization and reflects the state of identity and social suspension of individuals in these areas.

Charles Abram defines slums from a physical and environmental perspective and associates them with areas of the city that are characterized by features such as dilapidation, lack of health services, high population density, lack of basic facilities, and vulnerability to natural hazards (Mashhadizadeh Dehaqani, 2007). This definition emphasizes the poor environmental and infrastructural conditions in slum areas.

Marshall Clinard defines marginalization as a subculture with a set of specific values and norms that is associated with characteristics such as poor hygiene, social deviance, and social isolation. He believes that marginalized people are driven to areas that are more likely to absorb them due to financial constraints and inability to adapt to the economic and social system of the city (Hatami-nejad, 2003). This perspective focuses on the social aspects and isolation caused by marginalization.

Raisdana (2001) considers marginalization to be the result of uneven urban growth, stressful capital accumulation, rural unemployment, and the breakdown of traditional family ties. He describes marginalized areas as areas around large cities where residents have been excluded from the mainstream of urbanization due to economic and social conditions (Raisdana, 2001: 20). Hatami-nejad also defines marginalized people as people who live within the economic boundaries of the city, but due to livelihood problems and inability to adapt to the urban system, take refuge in the outskirts of cities to escape the high costs of living in central areas (Hatami-nejad, 2003: 14).

2.2 Marginalization and sustainable development

As one of the main challenges of urbanization in developing countries, including Iraq, marginalization is a multifaceted phenomenon that has profound effects on sustainable development. Sustainable development, which according to the United Nations definition is development that meets the needs of the present without compromising the ability of future generations to meet their own needs, is examined in three main dimensions: economic, social, and environmental. However, marginalization, due to its specific characteristics, including inadequate physical conditions, social, economic, and environmental problems, creates numerous obstacles to the realization of sustainable development. In this section, using existing resources and focusing on the characteristics of marginalization, the relationship of this phenomenon with sustainable development is analyzed comprehensively and continuously, with emphasis on the challenges that are exacerbated in the cities of Najaf and Karbala due to their religious status and migration.

2-2-1-Physical characteristics and impact on sustainable development

One of the most prominent features of slums is their undesirable physical appearance, which severely affects the quality of life and sustainable development. Slums are often characterized by dilapidated, dilapidated, and substandard buildings that are not only visually unsightly but also pose a safety hazard (Qadimi, 2016). The narrow and winding streets of these areas make it impossible or difficult for emergency vehicles such as fire, ambulance, and police to access them in times of crisis, which endangers the safety of residents. From a sustainable development perspective, these physical conditions prevent the creation of safe and efficient urban environments, which is a prerequisite for environmentally and socially sustainable development. In the cities of Najaf and Karbala, the rapid growth of slums due to large-scale migration has exacerbated these problems. The lack of basic infrastructure such as sewage systems, safe drinking water, and waste management not only threatens the health of residents, but also leads to environmental pollution, such as garbage accumulation and sewage flow in the streets, leading to the destruction of natural resources and a decrease in environmental sustainability (Qadimi, 2016). These conditions pose serious challenges to achieving the Sustainable Development Goals, especially Goal 11 (Sustainable Cities and Communities).

2-2-2-Social characteristics and impact on sustainable development

Marginalization is associated with specific social characteristics that affect sustainable development in social and cultural dimensions. One of these characteristics is the existence of specific subcultures in marginalized areas that are formed due to the diversity of cultural and ethnic backgrounds of immigrants. These subcultures often have difficulty integrating with the main urban culture, which makes it difficult to implement social programs such as education, health, and family planning (Qadimi, 2016). In the cities of Najaf and Karbala, this feature is more prominent due to the presence of immigrants from different regions with different values and traditions. This cultural and social isolation prevents the creation of social cohesion, which is one of the main pillars of sustainable development.

In addition, the lack or absence of educational and welfare facilities in marginalized areas impairs the socialization process of children and adolescents and leads to increased social deviations (Qadimi, 2016). For example, closing some schools in marginalized areas or holding classes every other day limits educational opportunities and perpetuates the cycle of poverty and deprivation. This situation contradicts Sustainable Development Goal 4 (quality education), as equitable access to education for all, including residents of marginalized areas, is a prerequisite for sustainable development.

Marginalization is also known as a source of social deviations and deviance. According to Marshal Clinard, marginalized areas provide a platform for illegal activities such as drug trafficking, theft, and prostitution due to the lack of normative conformity and low levels of livelihood (Qadimi, 2016). The lack of security centers such as police stations in these areas has turned them into a haven for criminal activities. These social issues not only threaten public security, but also prevent the realization of sustainable development in the social dimension by creating instability. Examples such as the riots of 1991 in the marginalized areas of Mashhad or the riots of 2005 and 2007 in the suburbs of Paris indicate the potential of marginalized areas to create social unrest. These riots are often the result of feelings

of relative deprivation, discrimination and lack of equal opportunities, which contradict the Sustainable Development Goals, especially the reduction of inequalities (Goal No. 10).

2-2-3-Economic characteristics and impact on sustainable development

From an economic perspective, marginalization is characterized by a lack of formal employment and inadequate income. Due to the lack of specialized skills and capital, most residents of marginalized areas turn to informal and unstable jobs such as peddling, begging, or even illegal activities (Qaderi et al., 2018). This situation, combined with high unemployment rates and low incomes, perpetuates the cycle of poverty in these areas. In the cities of Najaf and Karbala, the local economy, which is largely dependent on pilgrimage activities, provides limited opportunities for low-skilled migrants, which leads to the proliferation of informal employment. This situation is in conflict with Sustainable Development Goal 8 (Decent work and economic growth), as access to sustainable jobs and adequate incomes for all is one of the pillars of sustainable development.

In addition, high population growth rates in marginalized areas, often resulting from a young population structure, lead to lower per capita incomes and increased malnutrition and poverty (Sinding, 2009). However, some households increase their incomes slightly by taking up part-time jobs, but this income is still not enough to meet basic needs (Boushey, 2014). This economic situation, combined with the lack of social insurance and limited access to financial facilities, makes residents vulnerable to economic shocks and hinders the achievement of sustainable development in the economic dimension.

2-2-4-Environmental characteristics and impact on sustainable development

Marginalization is associated with numerous environmental problems that jeopardize sustainable development in the environmental dimension. Garbage accumulation, lack of waste collection systems, sewage flow in the streets, and noise and air pollution are among the common problems in these areas (Qadimi, 2016). These conditions not only threaten the health of residents, but also undermine environmental sustainability by destroying natural resources, such as water and soil. In the cities of Najaf and Karbala, these problems have been exacerbated due to high population density and pressure on limited resources. This situation is inconsistent with Sustainable Development Goal 6 (Clean Water and Sanitation) and Goal 13 (Climate Action), because sustainable management of natural resources and pollution reduction are prerequisites for sustainable development.

2-2-5-Marginalization and the challenges of sustainable development in the cities of Najaf and Karbala

In the cities of Najaf and Karbala, marginalization has taken on more complex dimensions due to religious attractions and large-scale migration. These cities, which host international pilgrims and internal migrants, face double pressure on urban infrastructure. The marginalized areas of these cities face physical problems such as substandard housing, social problems such as cultural isolation and social deviations, economic problems such as lack of formal jobs, and environmental problems such as pollution and lack of health infrastructure. These characteristics make it difficult to achieve sustainable development in these cities and require comprehensive policies to improve living conditions and reduce inequalities.

Marginalization is recognized as a multifaceted phenomenon, with physical (unsightly appearance and lack of infrastructure), social (subcultures, lack of educational facilities, and social deviations), economic (lack of formal employment and low income), and environmental (pollution and inefficient waste management) characteristics. These characteristics not only reduce the quality of life of residents, but also jeopardize sustainable development by creating obstacles to sustainable development goals, such as reducing inequalities, access to education and decent work, and environmental protection. In the cities of Najaf and Karbala, these challenges are more severe due to the religious status and migration of these cities. Therefore, a detailed examination of the relationship between Marginalization and sustainable development in these areas can help formulate effective policies and solutions to improve living conditions and achieve sustainable development.

3. Empirical evidence

Health, like many words, is widely used in everyday conversations and articles, without a precise definition (Obermann et al., 2006). In different cultures, health is defined as a state of complete physical, mental, and spiritual well-being, as well as the absence of pain or physical illness. These definitions vary across societies, depending on the culture and common understanding of health (Sajjadi, 2005). Some older definitions, such as those of Galen and Avicenna, attribute health to the balance of the body's elements or its proper functioning and the absence of disease. In recent years, definitions of health have moved beyond biomedical models that refer only to the absence of disease. The World Health Organization defines health as a state of complete physical, mental, and social well-being, not merely the absence of disease. This definition emphasizes individual and social well-being and sees health as a positive concept that does not focus solely on disease (Stuckey, 2013).

The expansion of urbanization, with increasing population in marginal areas, has brought many health and social problems. In addition, urbanization, on the one hand, can be an opportunity to improve health through access to health services and better infrastructure, but on the other hand, it can create numerous risks for urban residents, such as air pollution, poor working conditions, and dietary changes, which affect their health. Rapid urbanization, if not accompanied by economic and social growth, creates many problems for cities. Marginalization is one of the results of this imbalance, which has particularly negative effects on environmental health, mental health, and social health. Due to characteristics such as lack of urban services, low quality housing, and employment in unstable jobs, these areas are the basis for the emergence of various social harms such as addiction, delinquency, and mental problems, which are a serious threat to health and sustainable urban development (Moghaddam Tabrizi et al., 2019).

A healthy environment is recognized as a human right and a prerequisite for sustainable development. In developing countries, many diseases arise due to poor sanitation and water pollution. These problems are especially prevalent in marginalized areas that face poverty, malnutrition, and lack of health services (Shatrian et al., 2010). Rapid urbanization exacerbates social and personal problems, and rural migrants who enter marginal areas face health problems, poor nutrition, and extreme poverty, which makes their living conditions more difficult (Aqabaei et al., 2019). In this regard, job instability and lack of security in the place of residence cause anxiety and psychological problems in the residents of these areas (Jafari et al., 2018).

In some countries, poverty has become a culture in some areas, and poor people get sick more often than others due to poor living conditions. These people, who live in unsanitary environments and have limited access to health care, take longer to treat their illnesses, which can prolong their illness. Overall, marginalization exacerbates social and health problems by creating unsuitable living conditions and has many negative effects on the health of residents. These issues can only be resolved by paying attention to sustainable urban development and improving living conditions in marginal areas.

The following are some related studies conducted in this field:

A study by Knights et al. (2023) examined health inequalities among migrants and challenges to lifelong immunization across the EU countries from 2000 to 2020 using panel data models. The study aimed to identify gaps in migrants' access to essential vaccines and immunization policies and to provide strategies to improve this situation. The study found that adult and adolescent migrants are among the groups with inadequate immunization coverage due to lack of childhood vaccines in countries of origin and marginalization in the health and immunization systems of host countries. A key finding of the study was that the decline in population-level vaccination coverage, which has intensified since the COVID-19 pandemic, has left migrants at greater risk of vaccine-preventable diseases. Migrants also often do not effectively benefit from the regular vaccination programs offered in European countries, increasing the risk of diseases such as measles and diphtheria spreading in this group. The study highlighted that the lack of full catch-up vaccination for migrants has deprived them of access to new vaccines such as HPV and prevented them from aligning with European vaccination programs. The research also examines the impact of the World Health Organization's (WHO) new 2030 Immunization Agenda. Payment that emphasizes equitable access to immunization and booster vaccination systems throughout the life course. Analyzing lessons learned from the COVID-19 pandemic, the authors emphasized the importance of designing more comprehensive vaccination programs in partnership with

migrant communities. In particular, the use of participatory approaches to design and implement interventions with affected communities was highlighted as a key strategy to advance equity in vaccine access in the European region.

another study by Sejo et al. (2024) conducted a cross-sectional study in the United States in 2022 to examine the impact of extreme heat and heat waves on cardiovascular mortality among marginalized populations. Designed as a scoping review, this study analyzed the scientific literature related to the effects of extreme heat on cardiovascular mortality in these population groups. In this study, 4674 samples were screened, of which 33 met the inclusion criteria. Of these, 73% were primary quantitative studies, all of which were observational in design. Half of these studies were cohort studies. Marginalized groups included the elderly (79%), racial/ethnic groups (42%), gender (42%), and people with low socioeconomic status (49%). Most studies examined total cardiovascular mortality as the primary endpoint, and only four studies separated the causes of death due to myocardial ischemia or infarction. The study emphasizes that future directions in this area should include more comprehensive analyses of other groups, such as people with disabilities, immigrants, outdoor workers, incarcerated individuals, and ethnic and racial minority groups (such as Hispanic/Latinx, Native American, and Asian American/Pacific Islander communities). The need for deeper analyses across diverse socioeconomic parameters and for disaggregated cardiovascular outcomes is also specifically emphasized. This study is a key step in understanding the effects of social inequality on cardiovascular health in the context of climate change and emphasizes the need to create targeted health policies to support marginalized populations.

In a study by Gizelis and Karim (2024) conducted a time series model in Liberia from 2000 to 2020 to examine the impact of epidemics on marginalized communities in conflict-affected countries. The study was designed based on the experience of the 2014 Ebola virus epidemic in Liberia and analyzed how epidemic-related security policies affected marginalized communities' attitudes toward security forces. The study assessed changes in public attitudes using two unique surveys conducted before and after the Ebola virus epidemic in two informal communities in Monrovia, West Point and Peace Island. These communities had a history of internally displaced persons and former soldiers. The results of the study showed that perceptions of discrimination and disrespect from the police increased in both communities and the demand for police services decreased. On the other hand, direct contact with military personnel increased feelings of safety among residents who did not witness abuse from them. The research found that the securitization of epidemics can reduce trust in the state and undermine its legitimacy. The findings also suggest significant differences in public perceptions of the police and the military in the context of securitizing health crises. The study emphasizes that security policies in health crisis management must be designed more carefully to prevent exacerbating feelings of alienation and victimization in marginalized communities.

In another study conducted by Klaffaus & Van Linder (2012) in Latin American countries during the period 1990-2010 using panel data models, studies were conducted on the growth of poverty and the expansion of informal settlements in these regions. This study points out that in the last two decades, poverty in Latin America has become a dominant urban phenomenon and a large part of the urban population lives in informal housing. About a quarter of the urban population of these countries is in informal settlements that lack basic services and infrastructure such as electricity, drinking water and sewage systems. Klaffaus & Van Linder believe that this situation is due to the rapid and uncontrolled growth of urbanization, the shortage of land for housing, as well as the inability of governments to provide adequate housing for low-income groups. They believe that economic and social gaps in urban areas have caused these areas to become hubs for the poor. The study also highlights the complexities of managing informal settlements. The researchers emphasize the need for structural changes in urban and housing policies and suggest that governments should adopt new and innovative approaches to address these problems. They also emphasize the importance of paying attention to social and economic differences in different areas and the importance of residents' participation in the urban planning process.

In a study by Khalifa (2011) The study, conducted in Egypt over the period 1992-2009 using a distributed lag autoregressive model, examines the challenges related to informal settlements in the country. The study shows that informal settlements in Egypt are recognized as one of the biggest social and urban challenges and continue to expand despite all efforts to control their growth. Khalifa believes that one of the main reasons for the growth of informal

settlements in Egypt is the social and economic changes that have occurred as a result of population growth and internal migration, especially from rural to urban areas. The study also emphasizes the importance of policy change in addressing this phenomenon. In particular, it is suggested that participatory housing policies, which involve informal settlement residents working with governments in the design and implementation of projects, could be an effective solution to managing these problems. In this regard, Khalbafa cites participatory development methods and affordable housing policies for the urban poor as effective steps in improving the situation of informal settlements. The most important point that this study points out is that informal settlements in Egypt are not only an economic problem, but also a social and political problem that directly affects the quality of life of people living in these areas. Therefore, to solve this problem, the social, economic and cultural problems of these areas must be addressed comprehensively, and this requires the cooperation and participation of all government, private and civil society institutions.

In a study conducted by Aldrin & North (2007) over the period 1980-2005 and using panel data models, the main focus was on marginalized immigrant youth. This research, which was conducted in different regions of Europe, especially in Northwestern Europe, examined the social issues and challenges of this group. The results of the research show that immigrant youth are more exposed to social and economic risks than native youth. One of the important points that was taken into account in this study was that many of these immigrant youth faced problems of cultural identity, social isolation and non-acceptance by the host society at some point in their lives. The study also highlighted the economic difficulties of immigrant families, showing that in many cases, the economic and social difficulties of these families prevent young immigrants from integrating properly into their new society. Immigrant families, especially those in the first years after their immigration, face many difficulties due to economic pressures, inability to find suitable jobs, and social conflicts. These difficulties expose many young immigrants to risks such as delinquency, addiction, and other antisocial behaviors. The results of this study also point to the challenges that immigrant families face in dealing with cultural issues. Especially in the early stages of migration, these families experience cultural alienation and dissonance due to unfamiliarity with the new language and culture, as well as negative experiences of migration, which directly affects their social and economic status.

In a study conducted by Clinard (1966) in New York, USA, a comprehensive study was conducted on social deviance in urban areas, especially among the slum dwellers. The study aimed to identify the various causes and factors that cause social deviance in the slum dwellers. By analyzing the economic and social conditions of the slum dwellers, Clinard concluded that most of the deviant behavior in these areas was directly related to major changes in the use of land and housing resources. One of the main findings of this study was that in many urban areas that were facing rapid population growth and unsustainable development, the lack of proper planning in land use and the shortage of suitable housing led to the formation of slum groups and the emergence of social problems such as unemployment, poverty, and increased crime in these areas.

The study emphasized that in the process of urban development, when policymakers fail to address the housing and infrastructure needs of growing areas, it creates the conditions for social disparities among vulnerable groups. In addition, deficiencies in the maintenance and reconstruction of urban infrastructure, especially in areas with rapidly growing populations, were another factor that contributed to the emergence of social crises among the marginalized. In this study, it was specifically noted that social deviance among marginalized people is more a result of their surrounding economic and social conditions than it is a result of individual behaviors. In other words, when individuals are placed in conditions of extreme poverty, lack of facilities, and unemployment, these conditions can lead them to deviant behaviors. Clinard This study emphasized the need to pay attention to comprehensive planning and sustainable development for marginalized areas and suggested that governments and urban authorities should take effective measures to provide adequate housing and create job opportunities in these areas to reduce the negative effects of these conditions. The study also concluded that to address social disparities among marginalized populations, attention should be paid not only to meeting housing needs, but also to social and cultural reforms in these areas. Finally, Clinard He suggested that further studies in this field could help to better understand the social and economic conditions of marginalized people and find practical solutions to reduce social problems.

Another study conducted by Ahmadipour (1991) shows that residents' satisfaction with the shack situation has improved compared to the past. This study specifically points out that despite the economic and social problems in these areas, some residents of these areas feel that their situation has improved compared to the past and are not willing to leave the area under any circumstances. This study specifically points out that immigrants to these areas have benefited from economic prosperity and new incomes on the one hand, but on the other hand, they have lower incomes than people living in cities.

The research also states that many residents of these areas are migrants who consider land reform and land distribution to be the main reason for their migration and have migrated to these areas due to unfavorable conditions in their previous place of residence.

Sheikhi (2001) analyzed the status of informal settlements in Tehran in a study. In this study, he concluded that these settlements generally go through three main stages: formation, transformation, and relative cohesion. He placed these settlements in a position between the city and the countryside and stated that the residents of these areas are mainly from the lower social and economic classes who have been forced to migrate to these areas due to economic problems and lack of job opportunities in rural and marginal areas. This study specifically points out that informal settlements in Tehran are significantly affected by economic and social factors such as unemployment, housing shortages, and inequality in the distribution of urban services. This study provides suggestions for organizing these settlements, including developing infrastructure and urban services, strengthening local participation, and paying attention to the special needs of residents of these neighborhoods.

A study conducted by Ebrahimzadeh et al. (2004) in the Karimabad area of Zahedan showed that one-third of the urban population in this area is marginalized, and a large part of this population lives in poverty and absolute unemployment. This study emphasizes that the expansion of informal settlements and spatial-physical anomalies in the city, especially in marginal areas, is due to the government's inability to provide appropriate services and facilities to improve the situation of the residents of these neighborhoods. This research also points out that development policies and urban planning should be designed to include marginalized people and, given their social and economic needs, provide appropriate solutions to improve their living conditions.

A study conducted by Rabbani et al. (2006) in Ahvaz examined the spread of marginalization in this metropolis and identified factors such as widespread migration, economic problems, and inadequate living conditions as the main factors of this phenomenon. The study shows that in these areas, especially in the surrounding villages, economic and social repulsions are highly prominent, which has caused people to migrate to the outskirts of the cities. The study also pointed out the negative effects of the expansion of slums in these areas, including increased crime, environmental pollution, and negative cultural effects. Based on the findings of this study, appropriate planning and policies in the field of resource distribution and job opportunities can help reduce the problems of slums.

In summary, numerous studies have shown the complexities of the phenomenon of marginalization, which is a result of a combination of various economic, social, and cultural factors. All of these studies emphasize the importance of paying attention to comprehensive and comprehensive policies to organize and reduce this phenomenon. Considering the needs of the residents of these areas and designing operational solutions to address their economic, social, and physical problems can help improve the situation of marginalized people and reduce the negative effects of this phenomenon. As can be seen, this issue has not been done in Iraq so far, and this study attempts to address this gap in the economic literature of Iraq.

The phenomenon of urbanization and its consequences, including marginalization, also requires an interdisciplinary study in Iraq. In this country, although few studies have been conducted in the fields of social sciences, the study of this phenomenon from an economic perspective has received less attention. The present study is innovative in several aspects. First, the analysis of the issue of marginalization in Iraq, which has been less widely used in previous analyses, is innovative. Second, the conceptual model used in this study specifically examines the impact of marginalization on urban health from different dimensions, which is a new aspect in studies related to Iraq.

Another innovative aspect of this research is the extensive analysis of the health status of citizens in marginalized areas, which is carried out using comprehensive and diverse data.

4. Variables used in the research

In this study, with the aim of comparing the health status and economic, social, and physical characteristics of residents of marginalized areas and urban areas in Najaf and Karbala, a set of dependent and independent variables were selected and operationalized based on theoretical foundations and existing empirical evidence. The selection of these variables was based on the theoretical framework of social determinants of health and previous studies (Dahlgren & Whitehead, 1991; WHO, 1997, 1998, 2005; Barton & Grant, 2006) to enable a comprehensive examination of the differences between the two study groups. In this framework, health status was considered as the dependent variable and physical, economic, social, and residential status in marginalized areas or urban areas were considered as independent variables.

The dependent variable of the study is the health status of residents, which, according to the definition of the World Health Organization, has physical, mental, and social dimensions. Physical health is measured through indicators such as nutritional status, noncommunicable diseases including cardiovascular diseases, diabetes, blood pressure, thyroid disorders, and cancer, communicable diseases such as tuberculosis, hepatitis B and C, and AIDS, as well as individuals' self-assessment of their health status. These indicators are considered the most important components of physical health assessment due to their direct relationship with living conditions, access to medical services, and household economic status (Liu et al., 2015; Alavi et al., 2003; Farhadian et al., 2010). Mental health is also assessed using the WHO-5 standard questionnaire, which includes components such as feelings of happiness and peace, vitality and energy, sleep quality, and satisfaction with daily life. This dimension of health is particularly important in marginalized environments where people are more exposed to economic pressures, social insecurity, and psychological stress (Gustafsson et al., 2016). In addition, social health is also measured through indicators such as poverty status, experience of violence, ability to communicate with others, existence of support networks and close friends, satisfaction with family relationships, and level of interaction with relatives, which indicate the level of social cohesion and quality of social relationships of individuals (Hadjnaghizadeh et al., 2012; Chaudry & Wimer, 2016).

The independent variables of the study are classified into four main categories: physical, economic, social, and marginalization. Physical factors represent the characteristics of the physical environment of the place of residence and include two main dimensions: urban facilities and housing quality. Urban facilities refer to the level of access of households to health, educational, recreational, and other urban infrastructure services, while housing quality is assessed through indicators such as proximity to pollution sources, availability of appropriate cooling and heating systems, the presence of standard sanitary facilities, the quality of light, color, and ventilation of the building, and other characteristics of the indoor environment of the residential unit. Numerous studies have shown that the quality of the residential environment and access to urban infrastructure are among the most important determinants of individual health (Sherwood, 1993; Reeder, 1990).

The second group of independent variables are economic factors, which include annual household income and the level of access to welfare facilities and equipment. The level of household income determines the ability of individuals to meet basic needs such as adequate nutrition, standard housing, medical and educational services and is therefore considered one of the most important determinants of health. Access to welfare facilities is also an indicator of the economic status and quality of life of households and can directly or indirectly affect the physical, mental and social health of individuals (Verschuuren, 2013; Sousa et al., 2010).

The third group of independent variables are social factors, which include health-related behaviors and workplace conditions. Health-related behaviors such as the rate of visits to health centers, tobacco and drug use, physical activity and daily exercise, and high-risk behaviors are among the factors that directly affect the health status of individuals (Paton et al., 2005; Millennium Ecosystem Assessment, 2003). In addition, workplace conditions are also measured through indicators such as exposure to loud noise, inappropriate lighting, extreme heat or cold, chemicals, physical stress from work, and other occupational hazards; factors that are particularly prevalent in informal

and low-income jobs in marginalized areas and can threaten the physical and mental health of individuals (Brannen et al., 2009; WHO, 1997, 1998, 2005).

Finally, the status of marginalization is considered as the most important independent variable of the research. This variable indicates the type of place where people live (marginal or urban context) and is explained through a set of physical, social and economic characteristics of residential areas. High population density, low quality of housing, lack of urban services, weak health and educational infrastructure, high unemployment rate, expansion of informal jobs, poverty and social deprivation are considered to be the most important characteristics of marginalized areas. Also, factors such as increasing land and housing prices in central areas of the city, decreasing economic power of households and migration from other areas are considered to be the most important areas for the expansion of marginalized settlements in the cities of Najaf and Karbala, which indirectly affect the health status of residents through reducing the quality of the living environment, limiting access to public services and increasing social harms.

Accordingly, the conceptual framework of the present study is based on the assumption that the differences in economic, social, and physical characteristics between the marginalized areas and the urban core are the basis for the differences in the physical, mental, and social health status of the residents of these two groups. Therefore, the simultaneous examination of these variables allows for a comprehensive analysis of health inequalities and identification of the most important factors affecting them, and can be a suitable basis for designing policies to reduce urban inequalities, improve the quality of life, and improve the health of residents of the cities of Najaf and Karbala.

4.1 Statistical population

Given the importance of religious cities in attracting migrants and pilgrims and the resulting rapid growth of informal settlements in these cities, the main objective of this study is to investigate the health of residents in the cities of Najaf and Karbala in Iraq. These two cities were selected as the statistical population of this study because they are major pilgrimage centers in the Islamic world and, due to their religious and geographical location, they host many migrants and pilgrims, which has led to the expansion of marginalized areas and health-related challenges. The selection of these two cities allows for comprehensive coverage of key geographical areas in Karbala and Najaf provinces and helps analyze the impact of marginalization on health in an urban context with specific religious and cultural characteristics. In this study, the health of residents of these cities is assessed as a whole to provide a comprehensive picture of the health status in marginalized areas. The cities of Najaf and Karbala, due to their religious importance and role as pilgrimage hubs, have unique characteristics in terms of geographical location and population, which are described below.

4-1-1-Najaf City

Najaf, one of the holiest cities for Shiites and the capital of Najaf Province in southwestern Iraq, is located at approximately 44 °E and 32 °N. The city is located near the Euphrates River and is approximately 70 meters above sea level. Najaf, with an area of approximately 400 square kilometers, hosts millions of pilgrims from all over the world annually due to the presence of the holy shrine of Imam Ali (AS). According to population estimates for 2023, Najaf has a population of over 1.5 million, of which about 30% (approximately 450,000) live in marginal areas. These areas, which are often formed on the outskirts of the city and on unsuitable land, face problems such as lack of urban infrastructure, substandard housing, and high population density. The population growth rate in Najaf is high due to religious and economic migration, putting great pressure on urban resources. The city of Najaf is divided into several districts, with its peripheral areas mainly concentrated in the southern and western parts of the city.

4-1-2-The city of Karbala

The city of Karbala, the capital of Karbala Province and another holy city for Shiites, is located at a geographical coordinate of approximately 44 degrees east longitude and 32.6 degrees north latitude. The city is located near Najaf and in the Euphrates River basin, and its elevation is about 40 meters above sea level. With an area of about 300 square kilometers, Karbala is one of the most important pilgrimage destinations in the Islamic world due to the presence of the holy shrines of Imam Hussein (AS) and Hazrat Abbas (AS). According to population estimates for 2023, Karbala

has a population of about 1.2 million, of which approximately 35 percent (approximately 420,000) live in the peripheral areas. These areas, which are mainly located on the eastern and northern outskirts of the city, face challenges such as lack of health services, lack of sewage systems, and environmental pollution. Karbala's population growth rate is also significant due to widespread migration and the presence of pilgrims, especially during pilgrimage days such as Arbāeen. The city of Karbala is divided into various areas, the outskirts of which are rapidly expanding due to the shortage of land and the high cost of housing in the city center.

These two cities are considered to be the most important urban centers in Iraq due to their religious status and their role in attracting immigrants and pilgrims, and are geographically located in the southwest of the country. The selection of Najaf and Karbala as the statistical population of this study provides the opportunity to examine in depth the impact of marginalization on health in a context where its religious, cultural, and demographic characteristics have created unique challenges. Studying the health of residents of these cities, focusing on marginalized areas, can help identify key factors affecting health and provide policy solutions to improve the quality of life in these areas.

4.2 Information analysis method

This research is applied in terms of purpose and descriptive-analytical in terms of method. and From Type Survey is. In order to Comparison Status Health and Features Economic, Social and Physical Residents Regions Marginal dweller and Text City In Najaf and Karbala, Information Case Need From two Source Data Secondary and Data Primary Collection Done is. Data Secondary From Way Reports, Documents Official, Statistics Published and Bases Information Valid Collection Done and For Recognition Features General Regions Case Study Case Use Appointment They have also Data Primary From Way Navigation Field and With The data were collected using a standard questionnaire. After examining its validity and reliability, the questionnaire was distributed to the selected samples to collect information on the health status, economic, social, and physical characteristics of the households.

In order to analyze the data, descriptive statistics including frequency, percentage, mean and standard deviation were first used to describe the characteristics of the respondents and research variables. Then, inferential statistics tests were used to test the research hypotheses. In order to examine the status of the variables relative to the baseline value, a one-sample t-test was used, and analysis of variance (ANOVA) was used to compare the means of the variables between the study groups and examine significant differences. All analyses were performed after considering the necessary assumptions, including normality of data distribution, and the results were evaluated at a confidence level of 95% ($\alpha=0.05$).

In this study, a combination of secondary and primary data was used to investigate the impact of marginalization on health in the cities of Najaf and Karbala. This integrated approach allows for a more comprehensive analysis of the research topic and increases the accuracy and validity of the results. Secondary data were extracted through reference to official statistical centers, institutional reports, published documents, and reliable databases. These data mainly included demographic, social, and health information related to the study areas and were used to draw a general framework of the health status and characteristics of marginalized settlements.

In addition to secondary data, primary research data were collected through field surveys and questionnaires. The questionnaire was designed to measure various aspects of health and living conditions of residents of marginal and non-marginal areas of the cities of Najaf and Karbala, and after undergoing validity and reliability evaluation, it was made available to the statistical community. The use of survey data has made it possible to directly include the views, experiences, and real conditions of the respondents in the analyses.

In order to ensure the accuracy and reliability of the measurement tool, the validity and reliability of the questionnaire were examined before its final implementation. The validity of the questionnaire was assessed in three dimensions: content validity, empirical validity, and construct validity. In examining content validity, the questionnaire items were designed using theoretical foundations, previous studies, and relevant standard questionnaires, and after being reviewed by a group of professors and experts in the fields of health and social sciences, necessary amendments were made based on their opinions. Also, to ensure the adequacy of coverage of the concepts

under study, the items were selected and revised based on the research background and theoretical framework of the study. The empirical validity of the instrument was assessed by examining the correlation of the questionnaire results with related indicators, and factor analysis was used to examine the construct validity. The results showed that the questionnaire items had an appropriate factor structure and were in good agreement with the theoretical dimensions of the research variables, especially health indicators.

In order to measure the reliability of the instrument, Cronbach's alpha coefficient was used, which is one of the most common indicators for evaluating the internal consistency of questionnaires. For this purpose, a pre-test of the questionnaire was conducted on 25 people from the study population, and the value of Cronbach's alpha coefficient was equal to 0.745. Given that Cronbach's alpha value is more than 0.70, it can be concluded that the questionnaire has desirable reliability and appropriate internal consistency and can be used to collect research data.

4.3 Research population

The statistical population of this study consists of all residents of urban areas in the cities of Najaf and Karbala, who are divided into two groups: residents of marginalized areas and residents of non-marginalized areas. These two cities were selected as the geographical area of the study due to their special status as religious, immigrant-friendly cities with a rapidly growing urban population; factors that have led to the expansion of informal settlements and the formation of social and health inequalities in these cities.

In this study, the statistical population includes all households that resided in the designated areas during the research period. Marginal areas were identified based on indicators such as poor housing quality, limited access to infrastructure and health services, high population density, unfavorable socio-economic status, and being outside the formal framework of urban planning. In contrast, non-marginal areas were considered as a comparison group to allow for a more detailed examination of health differences between these two groups. The unit of analysis in this study is the household, and the required information was collected from household heads or informed adults. Focusing on the household level allows for the examination of various dimensions of health, including physical and mental health, and access to health services, within the context of the household's social and economic circumstances.

Given the vastness of the statistical population and the time and implementation limitations of the research, a representative sample of the statistical population has been selected, which is explained in detail in the sampling section. An effort has been made to ensure that the selected sample has the greatest similarity to the statistical population in terms of demographic and spatial characteristics in order to increase the generalizability of the research results.

A) The city of Najaf

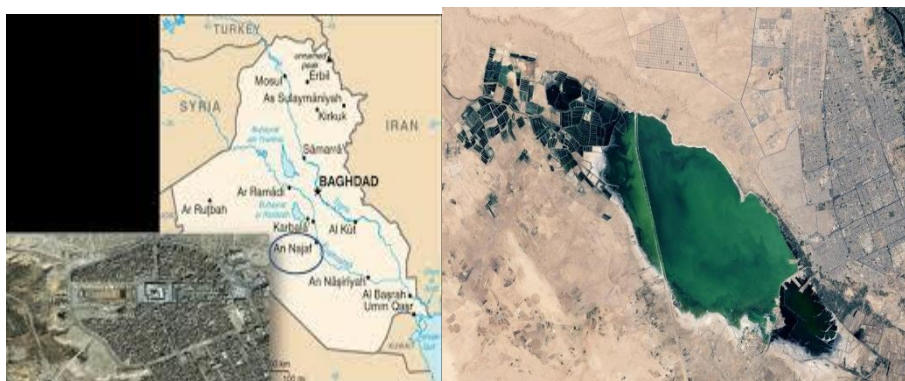
The city of Najaf is located in southwestern Iraq, in the central part of the Euphrates Plain. The city is located between the 31st parallel and the 15th parallel. degrees and 59 minutes to 32 degrees and 5 minutes north latitude from the equator and 44 It is located at 44 degrees and 18 minutes to 44 degrees and 22 minutes east longitude from the Greenwich meridian. The city of Najaf is bordered by Karbala Province to the north, Diwaniyah Province to the east, Muthanna Province to the south, and the desert areas bordering Saudi Arabia to the west.

The average altitude of the city of Najaf above sea level is about 30 meters and its climate is hot and dry desert with very hot summers and mild winters. These climatic conditions, together with limited water resources and pressure on urban infrastructure, have played an important role in the formation and expansion of informal settlements on the outskirts of the city.

According to official statistics and recent population estimates, the population of Najaf is estimated to be over 1.4 million. Rapid population growth, especially in recent decades, has been largely driven by internal migration, religious migration, and the arrival of permanent and seasonal pilgrims. This trend has led to the expansion of slums around the city, and a significant portion of the urban population lives in poor housing conditions, access to health

services, and urban infrastructure. Najaf is therefore a prime case study for examining the social and health consequences of slums in Iraq.

Figure 4-1-Geographical location of Najaf city



B) The city of Karbala

The city of Karbala is located in the central part of Iraq, about 100 kilometers southwest of Baghdad. The city lies between the 32nd parallel and the 15th parallel. degrees and 36 minutes to 32 degrees and 39 minutes north latitude and 44 It is located at 0 degrees and 0 minutes to 44 degrees and 5 minutes east longitude from the Greenwich meridian. Karbala is bordered by Anbar Province to the north, Babylon Province to the east, and the central desert regions of Iraq to the south and west.

The average altitude of the city of Karbala above sea level is about 28 meters and has a hot and semi-arid climate. The city's special religious status, as one of the most important pilgrimage centers in the Islamic world, has led to millions of pilgrims entering the city annually, either temporarily or permanently. This has placed additional pressure on urban services, housing, and the health system, and has paved the way for the expansion of informal settlements on the outskirts of the city.

The population of Karbala city is estimated at over 1.2 million people according to recent estimates. Population growth due to economic and religious migration, along with limited urban planning capacities, has resulted in a significant portion of residents living in marginalized areas with limited access to health services, clean water, and appropriate infrastructure. This situation has made Karbala city one of the important areas for studying the relationship between marginalization and urban health status in Iraq.

Figure 4-1-Geographical location of the city of Karbala



4-3-1-Sampling method

In this study, cluster sampling method was used to investigate the effect of marginalization on health in the cities of Najaf and Karbala. This method was selected considering the size of the statistical population, the geographical distribution of the urban population, and the focus of the study on marginalized and non-marginalized areas. For this purpose, first, the cities of Najaf and Karbala were selected as the main geographical units, and then the urban areas of each city were divided into clusters based on residential characteristics (marginalized and non-marginalized). In the next step, samples were randomly selected from each cluster and questionnaires were distributed among eligible individuals.

The sampling unit in this study was people living in urban areas, and information was collected from informed adults, especially heads of households or informed family members. This sampling method allowed for comparison of health status among different urban groups and was also appropriate for the field conditions of the cities under study.

Sample size

In order to determine the sample size, the Cochran formula for finite populations has been used. This formula allows determining the appropriate sample size, considering the size of the statistical population, the level of confidence, the accuracy of sampling, and the approximate proportion of individuals with the trait under study. The formula used is as follows:

In which:

N: Total urban population size

T: Confidence coefficient; Considering the significance level of 0.05, its value is considered to be 1.96.

P: Probability of the trait in the population; Given existing estimates that about one-third of the urban population lives in marginal areas, the p-value was taken to be 1/3.

q: The probability of the trait not existing in the population, which is equal to $(1 - p)$ and is equivalent to 2/3.

d: Sampling accuracy

By inserting the above values into the formula, the required sample size for each group was calculated to be 342 people. In this study, comparative sampling was conducted for four groups, including:

1. Suburban areas of Najaf city
2. Non-marginal areas of Najaf city
3. Suburban areas of Karbala city
4. Non-marginal areas of Karbala city

Accordingly, the final sample size for each group was determined to be 342 individuals and the total sample size was determined to be 1368 individuals (4×342). Considering the size of the statistical population and the objectives of the study, this sample size has the necessary statistical adequacy to conduct descriptive and inferential analyses and provides the ability to generalize the results to the statistical population under study.

Table 4-1-Number of samples in the cities studied

City	Community population (total men and women)	Marginal areas	Proportion of residents in peripheral areas	Sample population (total men and women)	Sample of marginal areas (total men and women)	Sample text/non-marginal areas (total male and female)

Najaf	1,017,660	Marginal dweller	30%	342	103	239
Karbala	618,426	Marginal dweller	33%	342	113	229
Total sum	1,636,086	—	—	684	216	468

This table shows the allocation of sample size in the two cities of Najaf and Karbala, considering the total urban population and the proportion of residents in the peripheral areas. The purpose of this distribution was to ensure appropriate representation of both urban and peripheral residents in the statistical sample and to allow for valid comparisons of health status between these groups.

According to data, the total population of Najaf city is 1,017,660. There are about 30 percent of them live in marginalized areas. Given this proportion, out of a total of 342 The sample size selected for this city is 103. People living in peripheral areas and 239 The population is allocated to residents of the city's inner or non-periphery areas. This distribution shows that the share of the sample of the peripheries in Najaf is determined in proportion to the population weight of this group in the statistical population. In the city of Karbala, the total population is 618,426. Reported cases and the proportion of residents of marginalized areas 33 percent. Accordingly, out of a total of 342 The representative person of this city is 113. People from peripheral areas and 229 People were selected from the areas surrounding the city. The relative increase in the share of the marginalized sample in Karbala compared to Najaf is a reflection of the higher share of the marginalized population in the demographic structure of this city.

In total, the total sample size of the study was 684. Of these, 216 are People (about one-third) From marginalized areas and 468 People were selected from the inner or non-peripheral areas of the cities. This combination shows that the sampling design was carried out in such a way that the spatial diversity of residence is well reflected in the sample and comparative analyses between inner and peripheral residents are possible.

Overall, the distribution of the sample in the cities of Najaf and Karbala shows a logical and statistical fit between the sample size and the population structure of the marginalized and non-marginalized areas. This increases the external validity of the research results and ensures that the findings related to the relationship between marginalization and health status reflect the demographic and spatial realities of the cities under study and can be generalized to the target statistical population.

4-3-4-Research questionnaire

In this study, in order to investigate the impact of marginalization on the health status of residents of the cities of Najaf and Karbala, two complementary questionnaires were used, each covering a part of the theoretical and empirical dimensions of the research. The design of these questionnaires was based on a review of theoretical and empirical literature related to the social determinants of health and studies conducted in the field of marginalization and urban health, and an attempt was made to measure the different dimensions of the phenomenon under study in a comprehensive and systematic manner.

The first questionnaire focuses on identifying and prioritizing factors affecting individuals' physical and mental health, examining the role of infrastructure variables, housing health indicators, health behaviors, and economic conditions. The items in this questionnaire are designed using multi-point scales to accurately measure the importance of each factor from the respondents' perspective. This questionnaire allows for a comparative analysis of the relative importance of different factors affecting health in marginalized and non-marginalized areas and is considered a basis for explaining the mechanisms of the impact of marginalization on health.

The second questionnaire, with a descriptive-analytical approach, collects more detailed information about demographic characteristics, socio-economic status, housing conditions, migration patterns, health-related behaviors, and physical and mental health status of respondents. By covering variables such as type of employment, level of education, home ownership, access to basic and health services, history of diseases, physical activity, and mental health, this questionnaire allows for a multidimensional assessment of health in relation to marginalized conditions.

Also, the presence of questions related to migration patterns and settlement patterns in the city helps identify the factors underlying settlement in marginalized areas. The combination of these two questionnaires has created an integrated approach to data collection that, on the one hand, measures residents' perceptions and subjective evaluations of factors affecting health, and on the other hand, collects objective and behavioral data related to health status and living conditions. This synergy increases the accuracy of analyses and strengthens the possibility of examining causal and structural relationships between marginalization and health.

4.4 Factors affecting health

In this section, descriptive statistics obtained from data collected through research questionnaires are examined. The purpose of presenting descriptive statistics is to draw a general picture of the demographic, social, economic, and health characteristics of the respondents, as well as to identify the dominant patterns among the residents of the marginal and non-marginal areas of the cities of Najaf and Karbala. Descriptive statistics, as the first step in data analysis, provide the necessary basis for conducting inferential analyses and more accurate interpretation of the results.

In this regard, statistical indicators such as frequency, percentage, mean and standard deviation have been calculated and reported for different variables. Demographic variables include age, gender, marital status, education level and employment status of the respondents and have been analyzed in order to understand the composition of the research sample and its representativeness of the statistical population under study. Examining these variables allows for an initial assessment of the differences and similarities between different groups of respondents. In addition to individual and family characteristics, descriptive statistics related to housing conditions, access to infrastructure and urban services, household economic status, and migration patterns are also considered. These variables play an important role in explaining the situation of marginalization and contribute to a better understanding of the social and economic contexts affecting the health of residents. Descriptive analysis of these indicators shows how many respondents face a lack of health services, inadequate infrastructure, or unstable economic conditions.

In the health section, descriptive statistics related to physical health, mental health, and health-related behaviors, including the rate of visits to health centers, physical activity, substance use, and self-rated health, were examined. These analyses provide an overall picture of the health status of respondents and allow for initial comparisons between different groups, especially residents of marginalized and non-marginalized areas.

Overall, the results of descriptive statistics, while providing a comprehensive understanding of the characteristics of the research sample, provide the necessary basis for testing hypotheses and analyzing causal relationships between marginalization and health in the subsequent sections of this chapter. The findings of this section will be used as an introduction to inferential analyses and statistical modeling in the remainder of the chapter.

4-4-1-Examination of individual characteristics

This part of the research examines the individual characteristics collected from the research questionnaires.

Table 4-2-Age distribution of the studied sample

Age	Najaf city		The city of Karbala	
	Abundance	Percentage	Abundance	Percentage
15 to 25 years	45	15.0	39	15.2
26 to 35 years old	126	41.9	116	45.1
36 to 45 years old	75	24.9	52	20.2
46 to 50 years	22	7.2	23	8.9
50 years and above	30	10.0	26	10.1
Total respondents	298	99.0	256	99.6

No answer	3	1.0	1	0.4
Total	301	100.0	257	100.0

The above table shows the age distribution of the research respondents by city of Najaf and Karbala. An examination of this table indicates that in both cities, the majority of the research sample consists of people of economically and socially active ages, which is of particular importance from the perspective of examining the impact of marginalization on health.

In Najaf, the highest frequency is in the age group of 26 to 35 years, which accounts for the majority of the sample with 41.9 percent of all respondents. After that, the age group of 36 to 45 years is in second place with 24.9 percent. This distribution shows that about two-thirds of the respondents in Najaf are in the age range of 26 to 45 years; a range that is usually associated with the highest level of economic activity, family responsibilities, and at the same time, exposure to occupational and social pressures, and can have a direct impact on the physical and mental health of individuals.

A similar pattern is observed in the city of Karbala, with the 26-35 age group accounting for the largest share of respondents at 45.1 percent. The 36-45 age group is next at 20.2 percent. The high concentration of the sample in these age groups indicates that the age composition of respondents in Karbala is relatively younger than in Najaf, which could be due to recent migration to the city, especially economic and religious migration. The share of the age groups 15-25 years and 50 years and above in both cities is approximately similar, at about 15 and 10 percent. This indicates that the research sample, in addition to the middle age groups, also has a good representation of the younger and older age groups. The existence of this age diversity allows for the examination of health differences at different stages of the life cycle. Overall, the age distribution of respondents in both cities is relatively balanced, with a primary focus on the working-age population. This feature increases the validity of the research results in analyzing the impact of marginalization on health, as the greatest pressures from residential, economic, and environmental conditions usually fall on these age groups. Also, the low non-response rate (less than one percent) indicates adequate cooperation from respondents and acceptable quality of the data collected.

Table 4-3-Distribution of marital status

	Najaf		Karbala	
Marriage	Abundance	Percentage	Abundance	Percentage
Married	179	59.5	161	62.6
Single	95	31.5	65	25.3
Divorced	24	8.0	30	11.7
Total respondents	298	99.0	256	99.6
No answer	3	1.0	1	0.4
Total	301	100.0	257	100.0

The above table shows the distribution of marital status of the respondents of the study, separated by the cities of Najaf and Karbala. The study of this demographic indicator is important because marital status can play a significant role as one of the social factors affecting the physical and mental health of individuals, especially in marginalized areas.

According to the results obtained, in both cities, married people accounted for the largest share of respondents. In the city of Najaf, 59.5 percent of respondents were married, while in the city of Karbala this proportion reached 62.6 percent. The predominance of the married population in the research sample indicates the importance of family structure in both cities and indicates that a significant portion of respondents have family and livelihood responsibilities; factors that can affect the health level of individuals in interaction with marginalized living conditions. In contrast, the proportion of single individuals in Najaf is 31.5 percent and in Karbala is 25.3 percent. This difference

indicates that the proportion of single individuals in the Najaf sample is higher than in Karbala, which could be related to differences in the population structure, migration patterns, or social conditions of the two cities. The significant presence of single individuals, especially in working age, provides the opportunity to examine health differences between married and single individuals in the framework of subsequent analyses. Also, the proportion of divorced people in Karbala city is higher at 11.7 percent than in Najaf city (8.0 percent). This could indicate a more fragile family structure in Karbala or higher socio-economic pressures in this city. From a social and mental health perspective, this group of respondents may be more vulnerable.

Overall, the distribution of marital status in both cities is well-diversified, allowing for the analysis of the role of this variable as a moderating or controlling factor in examining the impact of marginalization on health. Also, the low non-response rate (less than one percent) indicates the appropriate quality of the data collected and the favorable cooperation of the respondents.

4-4-2-Investigating the physical and structural factors of the urban environment and facilities

The table below shows the frequency distribution of the types of cooling and heating systems used in the residential units of respondents in the cities of Najaf and Karbala. The study of this indicator is important because the type of cooling system, as one of the basic components of housing quality and physical conditions of the living environment, plays a direct role in the thermal comfort, physical health, and mental health of residents, especially in the hot and dry climate of these regions.

Table 4-4-Distribution of urban facilities and equipment

Type	Cooling system				Type	Heating system			
	Najaf (Abundance)	Najaf (percent age)	Karbala (Abundance)	Karbala (percent age)		Najaf (Abundance)	Najaf (percent age)	Karbala (Abundance)	Karbala (percent age)
Cooler	240	79.7	250	80.65	Heater	233	77.4	240	80.0
Fan	6	2.0	4	1.29	Heating	32	10.6	38	13.0
Split	18	6.0	15	4.84	Split	0	0.0	1	0.0
Total respondents	264	87.7	270	87.10	Total respondents	265	88.0	270	90.0
No answer	37	12.3	40	12.90	No answer	36	12.0	30	10.0
Total	301	100.0	310	100.0	Total	301	100.0	300	100.0

The results show that in both cities, air conditioners are the most common cooling device. In Najaf, 79.7 percent and in Karbala, 80.65 percent of respondents use air conditioners. This high usage rate indicates the strong dependence of households on cooling systems in the face of high seasonal temperatures and indicates that providing cooling is one of the basic housing needs in these cities. In contrast, fan use is very limited in both cities, with only 2% of respondents in Najaf and 1.29% in Karbala using this device. This could indicate the ineffectiveness of fans in the hot and very hot climates of these regions and indicate that this option is mainly used among households with economic constraints or less access to appropriate infrastructure.

Also, the share of split system usage in both cities is relatively low. In Najaf, 6 percent and in Karbala, 4.84 percent of respondents have access to this type of system. The low usage of split systems can be related to factors such as high purchase and maintenance costs, higher electricity consumption, and limited economic capacity of households, especially in marginalized areas.

Another noteworthy point is the relatively high non-response rate (around 12%) in both cities. This could be due to the lack of a specific cooling system, the use of temporary and non-standard methods, or the hesitation of respondents to provide accurate information. From the perspective of the analysis of living conditions, this group could be at higher vulnerability in terms of thermal comfort and health.

Overall, the results of this table show that although a large portion of residents of Najaf and Karbala have access to cooling systems, the type and quality of this equipment are not the same among households. This inequality in access to cooling facilities, especially in marginalized areas, can be considered as one of the channels through which the physical and structural conditions of the urban environment affect the physical and mental health of residents and, in subsequent research analyses, play an important role in explaining the effect of marginalization on health.

The results show that in both Najaf and Karbala, boilers are the most commonly used heating system. In Najaf, 77.4% and in Karbala, 80% of respondents use boilers to heat their residential space. This high dependence on boilers may reflect limited access to central and more advanced heating systems, especially in rural areas. The widespread use of boilers can also have consequences such as increased safety risks, indoor air pollution, and negative impacts on respiratory health. In contrast, the use of heating in both cities has a relatively lower share. In Najaf, 10.6 percent and in Karbala, 13 percent of respondents benefit from this system. The higher share of heating in Karbala compared to Najaf could indicate a better state of some building infrastructure or relatively more favorable economic conditions in some of the residential units in this city.

The use of split systems for heating is almost negligible, with only one case reported in the city of Karbala. This indicates that modern dual cooling-heating systems are not common among the households studied, and that there is significant development potential from the perspective of urban policy-making and improving housing quality.

Also, the non-response rate is significant in both cities, with 12 percent in Najaf and 10 percent in Karbala not answering this question. This could be due to the lack of a permanent heating system, the use of temporary or non-standard methods, or the respondents' hesitation in stating the real situation. This group of households is likely to be more vulnerable in terms of thermal comfort and health.

Overall, the results of this table show that the dominant heating pattern in the cities of Najaf and Karbala is based on simple and traditional systems, and access to safe and efficient heating systems is not the same among all households. This inequality in access to heating facilities, especially in marginalized areas, can be one of the important channels for the impact of the physical and structural conditions of the urban environment on the physical and mental health of residents, and in subsequent research analyses, it can play a significant role in explaining the effect of marginalization on health.

4-4-3-Economic indicators

The table below shows the distribution of monthly household income. Respondents in the cities of Najaf and Karbala. Examining economic indicators, especially household income levels, is of great importance because economic status is one of the main determinants of health and can affect individuals' physical and mental health through access to health services, quality of housing, nutrition, and lifestyle.

Table 4-5-Distribution of income status

Monthly household income	Najaf		Karbala	
	Abundance	Percentage	Abundance	Percentage
Less than 5000 dinars	22	7.3	4	1.3
Between 5,000 and 10,000	22	7.3	27	9.1
Between 10,000 and 15,000	28	9.3	29	9.7

More than 15,000	225	74.8	237	79.5
Total respondents	297	98.7	297	99.7
No answer	4	1.3	1	0.3
Total	301	100.0	298	100.0

The results show that in both cities, the majority of respondents are in the income group above 15,000 dinars per month. In Najaf, 74.8 percent and in Karbala, 79.5 percent of households are in this income group. The high share of this group indicates that a significant portion of respondents have a relatively adequate income level, which can be considered a protective factor against some of the negative health consequences of marginalization.

In contrast, the share of households with an income below 10,000 dinars per month in Najaf city is 14.6 percent (less than 5,000 and between 5,000 and 10,000) and in Karbala city is 10.4 percent. This finding indicates that although the majority of respondents are in higher income groups, a significant portion of households still face economic constraints. These groups, especially in marginalized areas, may have less access to health services, proper nutrition, and decent housing conditions, which can put their health at risk.

Also, the income group between 10,000 and 15,000 dinars has a close share in both cities; 9.3 percent in Najaf and 9.7 percent in Karbala are in this range. This similarity indicates a relatively similar economic structure among a portion of households in the two cities.

Overall, the comparison of income distribution shows that although household income levels in Karbala are relatively higher than in Najaf, income inequality exists in both cities. This inequality could act as one of the main mechanisms of the impact of marginalization on health and highlights the need to pay attention to economic variables in subsequent research analyses. Also, the low non-response rate in both cities (less than two percent) indicates the appropriate quality of the data collected and the favorable cooperation of the respondents.

4-4-4-Social Issues Index

In this part of the research, the social issues index is examined as one of the important dimensions of health determinants. Social factors play a fundamental role in shaping behavioral patterns, lifestyles, and the extent to which individuals benefit from health and medical services, and can directly or indirectly affect the physical and mental health of residents, especially in marginalized areas.

In the present study, the social factors index was operationalized in the form of a health behaviors dimension. This dimension includes components such as the number of visits to clinics and hospitals, patterns of use of health centers, high-risk behaviors such as risky sexual behavior, smoking, drug and alcohol use, physical activity and daily walking, as well as workplace conditions. Each of these components, as a reflection of social conditions and lifestyles of individuals, can have different consequences for health status.

In the following section, descriptive statistics related to the frequency and percentage of each of the aforementioned components are presented and analyzed separately. These analyses, while providing a clear picture of the status of health behaviors among respondents, provide the necessary background for examining the differences between different groups, especially residents of marginal and non-marginal areas of the cities of Najaf and Karbala, and serve as a basis for subsequent inferential analyses of the research.

Table 4-6-Frequency distribution of substance use

Substance use	Najaf		Karbala	
	Abundance	Percentage	Abundance	Percentage
Cigarette	65	21.6	21	8.2
Hookah	44	14.6	36	14.0

Drugs	20	6.6	0	0
Alcoholic beverages	15	5.0	1	0.4
Total respondents	144	47.8	58	22.6
No answer	157	52.2	199	77.4
Total	301	100.0	257	100.0

Table 4-6 shows the frequency distribution of substance use, including cigarettes, hookah, drugs, and alcohol, among respondents in the cities of Najaf and Karbala. Examining this index as part of the Social Issues and Health Behaviors Index is of particular importance because substance use is considered a high-risk social behavior that can have significant consequences for individuals' physical, mental, and social health. According to the results of the table, in Najaf, the highest consumption rate is related to cigarettes with 21.6 percent of respondents. After that, hookah is in second place with 14.6 percent. Also, 6.6 percent of respondents reported drug use and 5 percent reported alcohol consumption. This pattern shows that in Najaf, behaviors related to drug use, especially cigarette and hookah use, are significantly prevalent among a part of the urban population and can be considered as one of the factors threatening public health, especially in marginalized areas.

In contrast, a different pattern is observed in the city of Karbala. Cigarette use is reported at 8.2 percent and hookah use at 14 percent. In this city, no cases of drug use are reported and alcohol consumption is also very low at 0.4 percent. This difference could be due to cultural, religious and social factors prevailing in the city of Karbala, or differences in response patterns and willingness to honestly express risky behaviors.

A notable point in both cities is the high proportion of non-responses to questions related to substance use; in Najaf, 52.2 percent and in Karbala, 77.4 percent of respondents did not answer this section. This high rate of non-response could reflect the social and cultural sensitivity of this issue, fear of social judgment, or ethical and religious considerations in expressing such behaviors. Therefore, the results of this table should be interpreted with caution and the possibility of underestimating the actual amount of substance use among respondents should be considered. Overall, the findings of this table show that substance use, especially cigarettes and hookah, is more prevalent in Najaf than in Karbala, and this could be one of the channels through which social and environmental conditions affect the health of residents, especially in marginalized areas. These results emphasize the need for policymakers and urban planners to pay attention to educational, preventive, and supportive interventions in the area of high-risk social behaviors, as part of an urban health promotion strategy.

Table 4-7-Distribution of frequency of visits to the doctor and the number of visits to the doctor

Frequency distribution of doctor visits				
	Najaf		Karbala	
See a doctor	Abundance	Percentage	Abundance	Percentage
No	124	41.2	99	38.5
Yes	150	49.8	149	58.0
Total respondents	274	91.0	248	96.5
No answer	27	9.0	9	3.5
Total	301	100.0	257	100.0
Frequency distribution of doctor visits				

Doctor visit rate	Najaf		Karbala	
How many times	Abundance	Percentage	Abundance	Percentage
Less than 5 times	94	31.2	93	44
5 to 10 times	23	7.7	23	9
11 to 15 times	4	1.3	5	1.9
16 to 20 times	4	1.3	2	0.8
More than 20 times	3	0.9	0	0
Total respondents	128	42.5	143	55.6
No answer	173	57.5	114	44.4
Total	301	100	257	100

Table 4-7 shows the status of physician visits over the past year and the number of visits among respondents in the two cities of Najaf and Karbala. This indicator is important as one of the main components of health behaviors, because the rate of physician visits, in addition to being a reflection of individuals' physical health status, is also dependent on other factors such as access to health services, level of health awareness, household economic capacity, and the severity of vulnerability due to residential conditions. According to the first part of the table, in the city of Najaf, 2/41 Percentage of respondents stated that they had not visited a doctor in the past year, while 49.8 Percentage of people who reported visiting a doctor. In the city of Karbala, the share of people who reported not visiting a doctor was 38.5 It is a percentage and the share of those who have visited is 0.58. This finding indicates that the proportion of visits to a doctor in Karbala is higher than in Najaf and could indicate better access to health services, higher need for treatment, or greater attention to following up on health issues among Karbala respondents. Also, the non-response rate in Najaf is 0.9. percent and in Karbala 3.5 The percentage indicates that the quality of response in Karbala is higher and the data related to this variable in that city is more complete.

The second part of the table presents the distribution of the number of visits to the doctor. The results show that in both cities, the highest frequency is related to the group of less than 5 visits per year; so that in Najaf 2.31 percent and in Karbala 44 percent of the total sample are in this group. This indicates that the predominant pattern of referrals in both cities is limited and ad hoc, and a large portion of the population did not report frequent medical visits.

Group 5 Up to 10 visits have a relatively similar share in both cities (Najaf 7.7 Percentage and Karbala 9 percentage). At higher levels, the share of referrals is 11. Up to 15 times in Najaf 1/3 percent and in Karbala 1.9 It is a percentage and the references are 16. Up to 20 times in Najaf 1/3 Percentage and in Karbala 0.8 Percentage reported. Also, visits more than 20 times were only in Najaf (with a share of 0.9 percentage) was observed and not reported in Karbala. This pattern suggests that very high referrals (which could be related to chronic diseases, serious health problems, or long-term treatment follow-up) are very low in prevalence in the study sample.

Table 4-8-Frequency distribution of exercise intensity

	Najaf	Karbala
--	-------	---------

How much exercise do you do, walking? You are walking, running, and physically active.	Abundance	Percentage	Abundance	Percentage
Very little	106	35.2	99	38.5
Once a month	45	15.0	47	18.3
Once a week	57	18.9	33	12.8
Three times a week	38	12.6	36	14.0
Every day	49	16.3	34	13.2
Total respondents	295	98.0	249	96.9
No answer	6	2.0	8	3.1
Total	301	100.0	257	100.0

Table 4-8 shows the status of the amount of exercise, walking, jogging, and physical activity of respondents in the cities of Najaf and Karbala. It is important to examine this indicator as one of the important components of health behaviors, because regular physical activity plays an effective role in preventing chronic diseases, improving mental health, and enhancing the quality of life. In contrast, inactivity can be considered as one of the health risk factors, especially in marginalized areas.

The results show that in both cities, a significant proportion of respondents have low levels of physical activity. In Najaf, 2.35 percent and in the city of Karbala, 38.5 Percentage of respondents reported their physical activity levels as very low. This finding indicates a high prevalence of physical inactivity in both cities, which can have multiple negative consequences for the physical and mental health of residents. At the next level, physical activity is limited to once a month in Najaf 15. percent and in Karbala 18.3 The combination of these two groups (very little and once a month) shows that more than half of the respondents in both cities are insufficiently active. This situation can be caused by factors such as poor urban environment, lack of sports and recreational spaces, economic and occupational pressures, or sedentary lifestyles in suburban areas. In contrast, the share of people who engage in more regular physical activity is lower. In Najaf, 18/9 Percentage of respondents who engage in physical activity once a week: 12.6 Percentage of activity three times a week and 16.3 They have reported the percentage of daily activity. In the city of Karbala, these values are 12.8, respectively. Percentage, 14 Percentage and 13.2 These results indicate that the level of regular physical activity in Najaf is slightly higher than in Karbala, although in both cities the proportion of daily activity remains relatively limited. Also, the non-response rate in both cities is low, at around 2%. Percentage in Najaf and 1.3 The percentage in Karbala indicates adequate cooperation from respondents and acceptable quality of the data collected.

Overall, the findings in Table 4-8 indicate that physical inactivity and insufficient physical activity are major health challenges in the cities of Najaf and Karbala. This situation, in interaction with other social and economic factors, especially in marginalized areas, can increase the risk of chronic diseases, mental disorders, and reduced quality of life. Therefore, the results of this section emphasize the need for urban policymakers and the health sector to pay attention to developing appropriate public spaces, promoting a culture of physical activity, and designing targeted interventions to increase physical activity among residents.

Table 4-9-Distribution of sexual partner frequency

No answer	Total respondents	No	Yes			
68	233	189	44	Abundance	Do you have any sexual partners other than your spouse?	N a j
22.6	77.4	62.8	14.6	Percentage		

191	110	60	50	Abundance	If the answer to the previous question is yes, do you use a condom?	a f
63.5	36.5	19.9	16.6	Percentage		
57	200	187	13	Abundance	Do you have any sexual partners other than your spouse?	K a r b a l a
22.2	77.8	72.8	5.1	Percentage		
218	39	28	11	Abundance	If the answer to the previous question is yes, do you use a condom?	
84.8	15.2	10.9	4.3	Percentage		

Table 4-9 examines one of the most sensitive components of health behaviors and social issues, namely the presence of a sexual partner outside of marriage and the rate of condom use, among respondents in the cities of Najaf and Karbala. This indicator is of great importance from a public health and social health perspective, because high-risk sexual behaviors can lead to the occurrence of sexually transmitted diseases, mental health problems, and widespread social consequences. According to the results of the table, in the city of Najaf, 6/14 Percentage of respondents stated that they had had a sexual partner other than their spouse, while 62.8 Percentage rejected this issue. Total respondents to this question 77.4 It was 22.6 percent. Percentage of people did not answer this question. In the city of Karbala, the share of people who reported having a sexual partner other than their spouse was significantly lower, at 1.5. percent, while 72.8 The percentage of respondents gave a negative answer. The non-response rate in Karbala was also 2.22. The percentage is almost the same as Najaf. This significant difference between the two cities could be due to cultural, religious, social differences, or different patterns of responding to sensitive questions. The second part of the table examines condom use among people who reported having a sexual partner other than their spouse. In Najaf, only 16.6% Percentage of respondents approved of condom use, while 19.9 Percentage of respondents who reported not using condoms. Total respondents to this question 36.5 It was 63.5 percent. Percentage did not answer this question. A similar situation is observed in the city of Karbala, with only 3/4 Percentage of respondents reported using condoms, and 9.10 They have stated the percentage of non-use. The non-response rate in this section is very high and equal to 84.8 The percentage indicates the high sensitivity of this issue among respondents.

A notable point in this table is the high level of non-response in both cities, especially for the question on condom use. This raises the possibility of underreporting of risky sexual behaviors and suggests that the results in this section should be interpreted with caution. Cultural, religious, and social norms considerations can play an important role in respondents' reluctance to openly state such behaviors.

Overall, the results of Table 4-9 show that the reported prevalence of risky sexual behaviors is higher in Najaf than in Karbala, but in both cities, the use of preventive methods such as condoms is low and the level of non-response is very high. These findings indicate the potential vulnerability in the area of sexual health and the need for health policymakers and social planners to pay attention to targeted, confidential, and culturally sensitive education, especially in marginalized areas.

Table 4-10-Distribution of the frequency of disease types (communicable and non-communicable) in the cities of Najaf and Karbala

Najaf						
No answer	Total respondents	No	Yes		Type of disease	
2	299	267	32	Abundance	Heart disease	N o n - c o m m
0.7	99.3	88.7	10.6	Percentage		
2	299	263	36	Abundance	Diabetes	

Najaf						
No answer	Total respondents	No	Yes		Type of disease	
0.7	99.3	87.4	12.0	Percentage		un ic ab le di se as es
1	300	269	31	Abundance	Blood pressure	
0.3	99.7	89.4	10.3	Percentage		
1	300	290	10	Abundance	Thyroid	In fe cti ou s di se as es
0.3	99.7	96.3	3.3	Percentage		
1	300	299	1	Abundance	Cancer	
0.3	99.7	99.3	0.3	Percentage		
2	299	291	8	Abundance	Stroke	
0.7	99.3	96.7	2.7	Percentage		
1	300	291	9	Abundance	Nerves and spirits	
0.3	99.7	96.7	3.0	Percentage		
3	298	297	1	Abundance	tuberculosis	
1.0	99.0	98.7	0.3	Percentage		
2	299	296	3	Abundance	AIDS	
0.7	99.3	98.3	1.0	Percentage		
2	299	294	5	Abundance	Hepatitis	
0.7	99.3	97.7	1.7	Percentage		
Karbala						
No answer	Total respondents	No	Yes		Type of disease	
1	256	237	19	Abundance	Heart disease	Non- com muni cable diseas es
0.4	99.6	92.2	7.4	Percentage		
2	255	245	10	Abundance	Diabetes	
0.8	99.2	95.3	3.9	Percentage		
1	256	230	26	Abundance	Blood pressure	
0.4	99.6	89.5	10.1	Percentage		
1	256	234	22	Abundance	Thyroid	

Najaf						
No answer	Total respondents	No	Yes		Type of disease	
0.4	99.6	91.1	8.6	Percentage	Cancer	Infectious diseases
2	255	252	3	Abundance		
0.8	99.2	98.1	1.2	Percentage		
2	255	254	1	Abundance	Stroke	
0.8	99.2	98.8	0.4	Percentage		
1	256	242	14	Abundance	Nerves and spirits	
0.4	99.6	94.2	5.4	Percentage		
2	255	252	3	Abundance	tuberculosis	
0.8	99.2	98.1	1.2	Percentage		
1	256	255	1	Abundance	AIDS	
0.4	99.6	99.2	0.4	Percentage		
2	255	254	1	Abundance	Hepatitis	
0.8	99.2	98.8	0.4	Percentage		

Table 4-10 shows the physical health status of respondents by examining the prevalence of non-communicable and communicable diseases in the cities of Najaf and Karbala. Examining these indicators is important because the pattern of diseases can be a reflection of living conditions, lifestyle, socio-economic status, quality of the residential environment, and access to health and medical services; factors that play a more prominent role in the formation of health inequalities in marginalized areas. In Najaf city, the highest prevalence among non-communicable diseases is related to diabetes with 12 Percentage and heart diseases with 10.6 percent. After that, blood pressure is 10.3 The prevalence of thyroid diseases (3.3%) is (percentage), neurological and mental disorders (3) Percentage) and stroke (2.7) (percentage) is reported at a lower level. Cancer with a share of 0.3 The lowest prevalence rate was found among respondents in Najaf. This pattern indicates that chronic diseases related to lifestyle and socio-economic conditions account for a greater share of physical health problems in Najaf.

In the city of Karbala, non-communicable diseases also have the dominant share, but the prevalence pattern is somewhat different. Blood pressure is 1/10. It has the highest prevalence percentage, followed by thyroid diseases with 6.8%. Percentage and heart diseases with 7.4 Percentage of people who have diabetes in Karbala (3/9) Percentage) It is significantly lower than Najaf. Also, the share of mental disorders in Karbala (4/5) Percentage) It was higher than Najaf, which could indicate the specific psychological and social pressures of this city. Stroke prevalence (0.4) Percentage) and cancer (1/2) Percentage) It is located at a lower level. A comparison of the two cities shows that although noncommunicable diseases account for the majority of physical health problems in both cities, diabetes and heart disease are more prevalent in Najaf, and hypertension, thyroid disorders, and mental health disorders are more prevalent in Karbala. These differences may be related to differences in lifestyle, nutrition, working conditions, social stress, and quality of living environment.

The prevalence of infectious diseases in both cities is reported to be relatively low. In Najaf, hepatitis is reported at 1.7 Percentage, AIDS with 1 Percentage and TB with 0.3 The prevalence of tuberculosis in the city of Karbala is 1.2 percent. Percentage, AIDS 0.4 Percentage and hepatitis 0.4 These findings indicate that infectious diseases have a

limited prevalence in the study sample, although the presence of even low percentages is important from a public health and prevention perspective.

Overall, the results of Table 4-10 show that the main burden of physical health problems in the cities of Najaf and Karbala is caused by non-communicable diseases; diseases that are closely related to lifestyle, socio-economic conditions, and the quality of the residential environment. The relatively higher prevalence of some chronic diseases in Najaf and mental and thyroid disorders in Karbala emphasize the need for health policymakers to pay attention to preventive interventions, improve living conditions in marginalized areas, and enhance primary health care services. These findings are an important basis for subsequent research analyses to examine the impact of marginalization on the physical health of residents.

Table 4-1 1-Frequency distribution of mental status of the studied samples in the cities of Karbala and Najaf

Najaf			Karbala	
Mental state	Abundance	Percentage	Abundance	Percentage
Depressed	46	15.28	41	15.95
Border	111	36.88	95	36.96
Normal	143	47.51	121	47.08
Total respondents	300	99.63	-	-
No answer	1	0.33	-	-
Total	301	100.0	257	100.0

Table 4-1 shows the mental health status of the research respondents in the cities of Najaf and Karbala. Investigating mental health as one of the basic dimensions of health is of particular importance, especially in studies related to marginalization, because unfavorable economic, social, and environmental conditions can lead to the emergence of mental disorders, feelings of insecurity, and a decrease in the quality of life of residents. According to the results of the table, in the city of Najaf, 47/51 Percentage of respondents are in a normal mental state. However, a significant portion of the sample is in vulnerable situations; 36.88 Percentage in borderline condition and 28.15 Percentage reported being in a depressed state. This distribution shows that more than half of the respondents in Najaf are in states other than normal, which could indicate significant psychological and social pressures among the residents of this city.

A similar pattern is observed in the city of Karbala. 47/08 Percentage of respondents had normal mental status, while 96.36 Percentage in borderline condition and 15.95 Percentage are in a depressed state. The very close similarity of the percentages in the two cities indicates that the mental health status of residents of Najaf and Karbala follows an almost identical pattern and that mental problems are a pervasive issue in both cities. It is noteworthy that the share of people with borderline status in both cities is relatively high, close to 37%. This group is in a precarious state in terms of mental health and may be pushed towards depression and more severe mental disorders if social, economic and environmental pressures persist, especially in marginalized areas. Hence, this finding can be considered as a wake-up call for health policy makers and urban planners.

Also, the depression rate in both cities is around 15%. This is a significant percentage and can have far-reaching consequences for individual performance, social relationships, and physical health. The low non-response rate in Najaf (0.33) Percentage) also indicates the appropriate quality of data and the desired cooperation of respondents.

Overall, the results of Table 4-1 1 show that although about half of the respondents in both Najaf and Karbala have normal mental status, a significant portion of the population is in borderline and depressed states. These findings indicate significant mental health vulnerability among residents of these cities and highlight the need for special attention to social, psychological, and supportive interventions, especially in marginalized areas.

Table 4-1 2-Frequency distribution of social status of the studied samples in the cities of Najaf and Karbala

	Karbala		Najaf	
Social status	Abundance	Percentage	Abundance	Percentage
Down	18	5.98	22	8.56
Medium	102	33.89	76	29.57
Top	181	60.13	159	61.87
Total	301	100.0	257	100.0

Table 4-1 2 shows the social status of the respondents in the cities of Najaf and Karbala. Investigating social status, as one of the important dimensions of social health, plays a fundamental role in explaining the quality of life, the level of social cohesion, the level of satisfaction with family and social relationships, and ultimately the mental and physical health of individuals. This indicator is especially important in studies related to marginalization, because social inequalities and limited access to social resources can have numerous negative consequences.

Based on the results of the table, in the city of Karbala, the largest share of respondents are in a high social status; 13/60 percent of the sample were classified in this group. In contrast, 33.89 The percentage in the average social status is only 5.98 Percentage are in low social status. This distribution shows that a significant portion of Karbala respondents enjoy a good level of social relationships, social support, and satisfaction with their social status, although there is still a group of people in medium and low status who may be exposed to greater social vulnerability. A similar pattern is observed in the city of Najaf. 61/87 The percentage of respondents are in a high social status, which is slightly higher than in the city of Karbala. In contrast, 29.57 Percentage in average social status and 8.56 Percentage are in low social status. The higher share of low social status in Najaf compared to Karbala could indicate the existence of greater social inequalities or a higher concentration of socially vulnerable groups in some areas of the city.

A comparison of the two cities shows that although in both cities the majority of respondents reported high social status, Najaf has a higher proportion of people with low social status and Karbala has a higher proportion of people with medium social status. These relative differences could be related to differences in population structure, migration patterns, socio-economic conditions and residential characteristics, especially in marginalized areas.

Overall, the results of Table 4-1 2 show that the social status of respondents in both Najaf and Karbala is generally at a relatively favorable level, but the existence of groups with medium and low social status indicates hidden social inequalities in these cities. These inequalities can interact with other economic, environmental, and behavioral factors to affect the physical and mental health of residents, and therefore, paying attention to strengthening social capital, social support, and reducing social deprivation, especially in marginalized areas, is of particular importance.

Table 4-12--Frequency distribution of self-reported health status

	Karbala		Najaf	
Self-declaration of health	Abundance	Percentage	Abundance	Percentage
Excellent	43	14.3	62	24.1
Very good	82	27.2	79	30.7
Good	97	32.2	82	31.9
Medium	60	19.9	19	7.4
I don't know.	11	3.7	11	4.3
Total respondents	293	97.3	253	98.4
No answer	8	2.7	4	1.6

Total	301	100.0	257	100.0
-------	-----	-------	-----	-------

Table 4-12 shows the self-reported health status of the study respondents in the cities of Karbala and Najaf. The self-reported health index is one of the most common and valid indicators in social and urban health studies, because in addition to the objective state of physical health, it also reflects individuals' subjective perception of their health, level of life satisfaction, psychological state, and their lived experience of social and environmental conditions.

Based on the results of the table, in the city of Karbala, the largest share of respondents rated their health status as good. They have estimated that it is equivalent to 2.32 percent. After that, 27.2 Percentage of people who rate their health as very good and 3/14 Percentage of it Excellent have reported. In contrast, 9/19 Percentage of respondents who rated their health as good Medium They have evaluated and 3.7 Percentage is also an option in response to this question. I don't know. This distribution shows that although the majority of Karbala respondents have a positive perception of their health status, nearly one-fifth of them rated their health as average, which could be a sign of hidden physical or mental problems. In the city of Najaf, self-reported health status is reported to be relatively more favorable than in Karbala. 30/7 Percentage of respondents who reported their health status Very good and 9/31 Percentage of it Good Also, the share of people who assess their health status Excellent They have known, with 1/24 The percentage is significantly higher than in the city of Karbala. In contrast, only 7.4 Percentage of Najaf respondents who rated their health as good Medium This difference indicates that the subjective perception of health in the city of Najaf is more positive than in Karbala.

The comparison of the two cities shows that in Karbala the share of average health assessments (9.19) Percentage (many times higher than Najaf) 7.4), while in Najaf the share of excellent and very good assessments is higher. This difference could be related to factors such as differences in socio-economic conditions, quality of the residential environment, level of access to health and medical services, or the intensity of psychological and social pressures in these two cities; factors that can play a more decisive role in marginalized areas. Also, the non-response rate in both cities was low, less than 3. It is a percentage (2.7) Percentage in Karbala and 1.6 percentage in Najaf), which indicates the appropriate quality of the data and the desired cooperation of the respondents.

Overall, the results of Table 4-12 show that although the majority of respondents in both Karbala and Najaf rated their health status as good, very good, or excellent, the proportion of individuals with average health ratings is significantly higher in Karbala. This finding could indicate a higher relative health vulnerability among a portion of Karbala's residents and highlights the need to pay attention to the social, economic, and environmental factors affecting health, especially in marginalized areas.

Descriptive findings showed that a significant portion of the sample is young and of working age, and the age pattern is similar in both cities. Marital status, household composition, and demographic characteristics indicate significant economic and social pressures on households. From a health perspective, although a significant portion of respondents rated their health as good or very good, a significant proportion of individuals, especially in marginalized areas, reported moderate or poor health. Also, the prevalence of noncommunicable diseases (such as high blood pressure, diabetes, and heart problems) has been reported to be higher than that of communicable diseases, indicating a changing pattern of diseases in these areas.

5. Conclusions and suggestions

The present study was conducted with the aim of comparing the health status and economic, social, and physical characteristics of residents of marginalized and urban areas in the two cities of Najaf and Karbala. Considering the determining role of social, economic, and environmental factors in health, an attempt was made to present a comprehensive picture of the status of residents of these two cities and the differences in indicators related to their health and quality of life. For this purpose, the required data were collected from 684 residents of the two cities and analyzed using appropriate statistical methods.

The descriptive results of the study showed that a significant portion of the statistical sample is in the age group of 26 to 35 years; such that about 42 percent of the respondents in Najaf and more than 45 percent in Karbala are in

this age group. Also, the largest share of respondents in both cities is made up of married individuals, which indicates the dominance of households with stable family structures in the studied society. This demographic characteristic can play an important role in explaining the health status, patterns of health service consumption, and economic conditions of households.

In examining physical characteristics, the findings showed that air conditioners are the most common cooling device in both cities, and about 80 percent of households use them. Also, heaters are the most common heating device, and more than three-quarters of respondents use this device to heat their homes. In contrast, the use of more modern heating and cooling systems, such as radiators and split systems, has a relatively limited share. These results show that although a large portion of households have access to basic heating and cooling facilities, the quality of the equipment used and the level of use of appropriate infrastructure are not the same among households. These differences, especially in marginal areas, can affect thermal comfort, the quality of the living environment, and ultimately the physical and mental health of residents.

The economic situation also indicates that although the majority of respondents in both cities reported an income of more than 15,000 dinars per month, a group of households still have low income levels, which can limit their access to medical services, proper nutrition, standard housing, and other welfare facilities. On the other hand, the differences observed in household income levels indicate the existence of economic inequality between different groups in society, which is one of the most important factors shaping health inequalities.

In the field of health-related behaviors, the results showed that cigarette smoking is much higher in Najaf than in Karbala; more than one-fifth of Najafi respondents reported smoking, while this proportion is less than 10 percent in Karbala. Also, drug and alcohol consumption is almost exclusive to Najaf and has a very low prevalence in Karbala. These differences can be attributed to the cultural, social, and religious differences between the two cities. Since risky behaviors are considered one of the most important factors threatening health, these findings highlight the need for greater attention to educational, preventive, and health promotion programs, especially in vulnerable areas.

Findings related to the use of health services also showed that more than half of the respondents in Karbala and about half of the residents of Najaf had visited a doctor during the period under study. In both cities, the highest frequency of visits was among people who visited a doctor less than five times a year. On the one hand, these results could indicate the relative access of residents to health services, and on the other hand, the difference in the rate of visits may be influenced by economic status, level of awareness, health conditions of individuals, and the level of access to health centers.

In general, the results of the study show that although the cities of Najaf and Karbala have similarities in many demographic indicators and some urban facilities, significant differences are observed between them in the context of some economic indicators, health-related behaviors, and patterns of benefiting from medical services. The findings also indicate that physical conditions, the economic status of households, access to welfare facilities, and health-related behavioral patterns are among the most important factors affecting the quality of life and health status of residents. These factors can be more severe in marginalized areas due to poor infrastructure, limited economic resources, and social deprivation, and can lead to health inequalities.

Overall, the results of this study emphasize the importance of simultaneously paying attention to economic, social, physical, and health dimensions in urban development planning. Reducing the gap between suburban areas and the city center, improving the quality of urban infrastructure, improving housing conditions, increasing equitable access to health services, implementing programs to prevent high-risk behaviors, and supporting low-income households can play an important role in promoting public health and reducing social inequalities in the cities of Najaf and Karbala. The findings of this study can also provide a suitable basis for policymakers, urban managers, and health officials in designing targeted programs to improve the quality of life of residents, especially in suburban areas.

According to the findings of the study, it is suggested that urban planners and health officials consider the development and improvement of infrastructure in marginalized areas as one of their main priorities. Improving the

quality of housing, expanding access to health and medical services, improving infrastructure and welfare facilities, increasing sustainable employment opportunities, and supporting low-income households can play an effective role in reducing health inequalities between residents of marginalized areas and the city. Also, implementing educational programs in the field of promoting health literacy, preventing tobacco use, and other high-risk behaviors, especially among vulnerable groups, seems essential. On the other hand, it is suggested that future research, using a larger sample size and covering other cities in Iraq, will increase the generalizability of the results. Also, using advanced statistical methods such as structural equation modeling or multilevel models to simultaneously examine the direct and indirect relationships between economic, social, and physical factors and health can provide a more accurate understanding of the mechanisms by which marginalization affects health. In addition, conducting longitudinal and comparative studies over different time periods will allow for the assessment of trends in health status and the effectiveness of intervention policies and programs.

References

1. Ebrahimzadeh, Isa, Barimani, Faramarz, Nasiri, Yousef. (2004). Marginalization; Urban anomalies and solutions for its correction: a case study; Karimabad, Zahedan, Quarterly Journal of Geography and Development, Volume 2, Issue 3, pp. 121-146.
2. Ahmadipour, Zahra. (1991). Shed dwelling in the central part of Karaj. Master's thesis, Tarbiat Madrasah University, Faculty of Social Sciences, Department of Geography.
3. Ahmadi, Sajjad. Sabourikhah, Hamid. Darvish, Hedayatallah and Habib Jabbari. (2014). Spatial analysis of the health indicators of Iranian provinces. Quarterly Journal of Regional Planning, Year 4, Issue 14, pp. 31-44.
4. Jafari, Mohammad Hossein, Heydari Noshahr, Mehri, Parsa, Elahe (2018), The role of providing urban services in creating marginal neighborhoods in Yazd city based on citizenship rights, Quarterly Journal of Biological Ethics, Year 8, No. 28, pp. 83-94;
5. Hatami, Ali, Ahmadi, Bakhtiar, Esmaceli, Ata (2015), Investigation of factors related to the level of citizens' sense of social security (case study: women in Kermanshah city), Iranian Journal of Strategic Research on Social Issues, serial 11, pp. 103-121;
6. Rabbani Rasoul, Haqiqitman Mansour, Nazari Javad, Ghasemi Maryam. (2011), Sociological study of marginalization and its impact on the mental health of marginalized people (case study of Erznan and Dark) Zeinbieh Isfahan. Specialized Quarterly Journal of Social Sciences, Islamic Azad University-Shushtar Branch, Year 5, Issue 14, pp. 126-95
7. Rabbani, Rasoul. Warsi, Hamid Reza. Arezi, Forough Sadat and Mohammad Reza Hosseini. (2006). Study of factors affecting the formation of the problem of marginalization and its social consequences in the city of Ahvaz. Journal of Geography and Development, pp. 89-114.
8. Shaterian, Mohsen, Heydari Sureshjani, Rasoul, Dolatyarian, Kamran (2019), Modeling and the impact of social dimensions of marginalization on crime incidence (Case study: marginalized areas of Kashan city), Journal of Human Settlement Planning Studies, No. 50, pp. 249-265;
9. Sheikhi, Mohammad (2003), Car settlements, transition from marginal settlements to a pattern of settlements around Iranian cities, Collection of articles on marginal settlements and informal settlements (Volume 2), Tehran, University of Welfare and Rehabilitation Sciences
10. Sajjadi, Humaira and Jalal Sadr-Sadat (2005), Social Health Indicators, Political-Economic Quarterly, No. 208-207, pp. 244-253
11. Sadeghi, Sarcheshmeh. (2014). Social factors affecting the social health of young people in Yazd. Master's thesis, Faculty of Social Sciences, Allameh Tabatabaei University.
12. Ghasemi-Siani. M. (2009). Consequences of rural-urban migration of the young rural generation. Tehran, Youth Culture and Society Research Publications, No. 2
13. Ghasemi, Yar Mohammad, Qeysarian, Eshaq (2008), Child mortality and social deprivation (empirical example: Ilam province), Quarterly Journal of Social Sciences, Volume 10, Issue 40, pp. 27-51;
14. Aqbaei, Hesam, Nabibidhani, Gholamreza, Mahmoudzadeh, Amir (2019), Strategies for Promoting Crisis Management in Informal Settlements in the Tehran Metropolitan Area, Quarterly Journal of Crisis Prevention and Management Knowledge, Year 10, Issue 2, pp. 187-199;
15. Moghadam Tabrizi, Fatemeh, Sheikhi, Naser, Najafi, Soheila (2019), Study of the status of health-promoting behaviors and their relationship with self-efficacy and social support in women-headed households in the outskirts of Urmia city, Ibn Sina Journal of Obstetrics and Midwifery Care, Year 27, Issue 6, pp. 394-404;
16. Aldrin, H., & North, P. (2007). Migrant youth in marginal settlements: Social challenges and identity issues. European Journal of Migration and Law, 9(2), 123-145.
17. Dyson, Tim, (2011), The role of the demographic transition in the process of urbanization, population and development review 37
18. Clinard, Marshal. B, (1966). Slum and community development. The Free Press, New York

19. Gizelis, TI, & Karim, SM (2024). How epidemics affect marginalized communities in war-torn countries: Ebola, securitization, and public opinion about the security forces in Liberia. *World Development*, 179, 106587. <https://doi.org/10.1016/j.worlddev.2024.106587>
20. Katukiza, AY, M. Ronteltap, A. Oleju, CB Niwagaba, F. Kansime, PNL Lens (2010). Selection of sustainable sanitation technologies for urban slum, A case of Bawise in Kamapala, Uyand, 52-62
21. Knights, F., Carter, J., Deal, A., Crawshaw, A., Bouaddi, O., Sanchez-Clemente, N., Seedat, F., Vanderslott, S., Eagan, R., Holt, DE, Ciftci, Y., Orcutt, M., Seale, H., Severoni, S., & Hargreaves, S. (2024). Addressing migration and health inequity in Europe: Strengthening life-course immunization in migrant populations: Access, equity, and inclusion. *The Lancet Migration European Regional Hub*. <https://doi.org/10.1016/j.joclim.2024.100343>
22. Klaffaus, J., & Van Linder, M. (2012). The growth of poverty and the expansion of informal settlements in Latin America. *Journal of Urban Studies*, 39(4), 567-589.
23. Khalifa, A. (2011). Challenges of informal settlements in Egypt. *International Journal of Urban and Regional Research*, 35(3), 456-478
24. Obermann, K., Jowett, MR, Alcantara, MOO, Banzon, EP, & Bodart, C. (2006). Social health insurance in a developing country: the case of the Philippines. *Social Science & Medicine*, 62(12), 3177-3185.
25. Park, Robert E, 1937, Human migration and marginal man, *American Journal of sociology*. Vol33.
26. Pörtner I, Claus C. Su, Yu-hsuan. (2018). Differences in Child Health Across Rural, Urban, and Slum Areas: Evidence From India, *Demography* 55:223-247
27. Redman, C., & Nancy, SJ (2005). The environmental, social and health dimensions of urban expansion. *Population and Environment*, 26(6), 505–520. Riley LW, Ko AI, Unger A, et al. Slum health
28. Sejo, C., Mehta, N., Wilairat, S., Barry, M., Odden, MC, & Chang, AY (2024). Extreme heat and cardiovascular mortality among structurally marginalized populations in the United States: A scoping review. *The Journal of Climate Change and Health*, 20, 100343. <https://doi.org/10.1016/j.joclim.2024.100343>
29. sh Sheena (1995). Variations in poverty and health between slum settlements: contradictory findings from Visakhapatnam, India. *soc. science Med.* vol. 40, no. 2, pp. 177-188, 1995 copyright © 1995 Elsevier Science Ltd. Printed in Great Britain. All rights reserved 0277-9536/95 \$7.00 + 0.00.
30. Stuckey, H. (2013). Three types of interviews: Qualitative research methods in social health. *Journal of Social Health and Diabetes*, 1(2), 56-56.
31. Turok, I. (2015). Upgrade informal settlements: South Africa. *New Agenda: South African HYPERLINK "http://refhub.elsevier.com/S0264-2751(16)30231-1/rf0340" Journal of Social and Economic Policy. "http://refhub.elsevier.com/S0264-2751(16)30231-1/rf0340", 2015*
32. WHO Kobe Centre, Japan (2005) *A Billion Voices: Listening and Responding to the Health Needs of Slum Dwellers and Informal Settlers in New Urban Settings*
33. WHO. (1995). *Building. Heathy City: A Practitioners Guide Manual Prepared by the Unity of Urban Environmental Health World Organization*
34. Zulu EM, Beguy D, Ezech AC, Bocquier P, Madise NJ, Cleland J, et al. Overview of migration, poverty and health dynamics in Nairobi City's slum settlements. *J Urban Health* 2011;88(2):185e99.1 qa
35. Zulu. Eliya M Eliya M, Beguy. Donatien, Ezech. Alex C, Bocquier. Philippe, Madise. Nyovani J, Cleland. John and Jane Falkingham, (2011)." Overview of migration, poverty and health dynamics in Nairobi City's slum settlements". *Journal of Urban Health: Bulletin of the New York Academy of Medicine*, Vol. 88, pp: 185-199