**Deanship of Graduate Studies**

**Al-Quds University**

# The effect of urbanization on Bedouin women's health in Jericho Governorate: A comparative study.

**Weam K. J. Alqaderi**

**M.Sc. Thesis**

**Jerusalem – Palestine**

**1441 – 2020**

# The effect of urbanization on Bedouin women health in Jericho Governorate: A comparative study.

**Prepared by:**

**Weam K. J. Alqaderi**

**B. Sc. In Medical Imaging –Al Quds University/ Palestine**

**Supervisor: Dr.Nuha ElSharif**

Thesis submitted in partial fulfillment of the requirements for the degree of Masters of Public Health/School of Public Health/ Al-Quds University.

**1441\2020**

**Al-Quds University**

**Deanship of Graduate Studies**

**Public Health**

## Thesis Approval

## The effect of urbanization on Bedouin women's health in Jericho Governorate: A comparative study.

**Prepared By: Weam K. J. Alqaderi**

**Registration No: - 21610750**

**Supervisor: Dr. Nuha El Sharif**

Master's thesis submitted and accepted: 20 January 2020

The names and signatures of the examining committee members are as follows:

1- Head of the committee: Dr. Nuha El Sharif Signature

2- Internal examiner: Dr. Muna Hmeid Signature

3- External examiner: Dr. Hamzah Al Zabadi Signature

Jerusalem-Palestine

1441\2020

# Dedications

*To:*

*My great, amazing, parents (Khamis and Layali) who were my strength, gave me faith, believed in me, support me always. You are my everything.*

*My greatest sister (Salam) and coolest brother (Mohammed),*

*To my lovely (Nai) and (Lour).*

*My beloved husband (Majdi),*

*My family and friends,*

*My country, Palestine,*

*To all refugees in this world and I am one of them,*

*To all minorities who deserve a good life and love,*

*To all of them, I dedicate this work with love.*

Weam K J Alqaderi

**Declaration:**

I certify that this thesis submitted for the degree of Master, is the result of my research, except where otherwise acknowledged, and that this study (or any part of the same) has not been submitted for a higher degree to any other university or institution.

Signed..

Weam K J Alqaderi

Date: 20\01\2020

## Acknowledgments

As a start, I would like to thank God who gave me strength, patience, motivation to complete this work.

To all, my supervisor, Dr. Nuha ElSharif, who was always there, available whenever I needed her, and put me in the right direction; my family; my friends, for their continuous support and endless encouragement. They were always there to help as needed through all my study years.

Special thanks to the experts who were involved in the validation of the questionnaire content: Mr.Bayhas Maharmeh and Dr. Amira Amro. To the governorate of Jericho for their help and support, especially Mr. Khamis AlQaderi who gave me all the information that I needed in my study. To all Mukhtars for their help and priceless assistance in the field.

I would like to thank everyone at the School of Public Health Department at Al-Quds University, my teachers, the school staff, my colleagues, with whom I spent unforgettable moments. The last be not least, we thank the Higher Ministry of Education for funding the thesis.

To all, thank you from the bottom of my heart

Weam K J Alqaderi

.

## Abstract

**Background:** Adaption of Bedouins to an urbanized lifestyle entailed changes in both diet and levels of physical activity, Bedouins who reside in towns are eating a diet that is higher in calories and fats than their traditional diet, and they have greatly reduced levels of physical activity.

**Study problem:** There is no published health assessment of Bedouin women's health in Palestine. No study has investigated the effect of urbanization on Bedouin women's health, in particular, the lifestyle and environmental determinants.

**Aim:** To determine the health effect of adapting an urbanized lifestyle on health among Bedouin women living in Jericho governorate.

**Study conceptual framework:** We developed a study conceptual framework to answer the study objectives. The model consists of lifestyle factors, socioeconomic factors, environmental and occupational factors and how these factors affect health outcomes of Bedouin women.

**Study methodology:** A cross-sectional comparative study household survey was done. 160 women living in tents "traditional women" and 160 women living in urbanized areas (houses) "urbanized women" were interviewed. The study was conducted at the Jericho governorate in the West Bank. The data was collected using an interview questionnaire that contains questions related to each studied objective; i.e. socioeconomic characteristics, living environment, lifestyle factors (diet, physical activity, and smoking habits), in addition to health assessments questionnaire.

**Ethical Considerations:** The project was ethically approved by the institutional review board, the Al Quds University Research Ethical Approval committee (REC). Also, the governorate of Jericho approved the study to be conducted and asked the Mukhtar of the Bedouins to help us conduct the study. Furthermore, participants signed a consent form that confirmed their willingness to be included, after they were informed about the study objectives.

**Statistical and data analysis:** Data was coded, then entered and analyzed using the statistical package for the social sciences version 23 (SPSS). Descriptive statistics were represented to show frequencies, percentages for categorical variables, and means and standard deviation for continuous variables. Chi-square test and T-test were used as needed to calculate the differences between urbanized and traditional Bedouins regarding all variables in the study. A P-value $<0.05$ was considered statistically significant.

**Results**: The total study diagnosed that asthma prevalence was (8.8%), with significantly higher rates in urbanized women (13.1%) compared to (4.4%) in traditional women ($p<0.05$). In total, Bedouin women reported relatively high prevalence rates of allergies in general, allergic skin diseases were 3.4% in total with significantly higher rates in urbanized women

(6.3%) compared to (0.6%) in traditional women. Flu symptoms such as runny nose showed a significant difference between urbanized women (47.5%) and traditional women (31.3%), with (39.4%) in total ($p<0.05$). Moreover, eye allergy or eye itchiness was (9.1%) in total with higher rates in urbanized women. (13%) women reported having hypertension, which was significantly higher in urbanized women (21.3%) compared to traditional women (5%) ($p<0.05$). Women reported lower rates of diabetes (8.8%) at a very low rate in traditional women. However, women reported a very low rate of heart diseases and only six urbanized women reported having breast cancer (3.8%). Factors that determine health diseases were reported to be different in the two study groups and also varied in the various diseases. In general, Bedouin women who did not have an animal to care for, nor a job; exposure to smoke; high sweet consumption; and had low levels of physical activity reported to have more asthma diagnosed, eczema and eczemas like symptoms, diabetes, and hypertension.

**Conclusion:** Urbanization is an issue increasing concern worldwide that affects all aspects of life and health. The transition of Bedouin women from traditional and semi-traditional to urbanized lifestyles; has a profound effect on socially, economically, environmentally, in addition to their level of physical activity and diet, which can lead to an increased rate of diseases especially chronic diseases. In general, Bedouin women who did not have an animal to care for, having a job, exposed to smoking, consuming more sweets, and had low levels of physical activity level reported to have asthma diagnosed, eczema and eczemas like symptoms, diabetes, and hypertension. Further studies needed to investigate Bedouin women's health. Also, health efforts need to be invested in the Bedouin health and general welfare of this community.

**العنوان: أثر التحضر على صحة المرأة البدوية في محافظة أريحا: دراسة مقارنة**

**اعداد: وئام خميس جبريل القادري.**

**اشراف: الدكتورة نهى الشريف.**

**ملخص**

**خلفية البحث:** استتبع تكيف البدو مع نمط الحياة المتحضر تغييرات في كل من النظام الغذائي ومستويات النشاط البدني ، البدو في المدن يتناولون نظامًا غذائيًا أعلى في السعرات الحرارية والدهون من النظام الغذائي التقليدي ، وقد قللوا إلى حد كبير مستويات النشاط البدني.

**المشكلة البحثية:** لا يوجد تقييم صحي منشور لصحة المرأة البدوية في فلسطين. لم تبحث أي دراسة درجة تأثير التحضر على صحة المرأة البدوية، ولا سيما نمط الحياة والمحددات البيئية.

**هدف الدراسة:** تحديد الأثر الصحي للتكيف على نمط الحياة الحضرية للنساء البدويات اللائي يعشن في محافظة أريحا.

**دراسة الإطار المفاهيمي:** قمنا بتطوير إطار الدراسة المفاهيمي للإجابة على أهداف الدراسة. يتكون النموذج من عوامل نمط الحياة والعوامل الاجتماعية والاقتصادية والعوامل البيئية والمهنية وكيف تؤثر هذه العوامل على النتائج الصحية للنساء البدويات.

**منهجية الدراسة:** تم إجراء دراسة استقصائية مقارنة للأسر المعيشية. تمت مقابلة 160 امرأة تعيش في خيام "نساء تقليديات" و160 امرأة يعشن في مناطق حضرية (منازل) "نساء متحضرات". أجريت الدراسة في محافظة أريحا بالضفة الغربية. تم جمع البيانات باستخدام استبيان مقابلة يحتوي على أسئلة تتعلق بكل أهداف الدراسة؛ الخصائص الاجتماعية والاقتصادية وبيئة المعيشة وعوامل نمط الحياة (النظام الغذائي والنشاط البدني وعادات التدخين) ، بالإضافة إلى استبيان التقييمات الصحية.

**الاعتبارات الأخلاقية:** تم تقديم مقترح الدراسة الى لجنة أبحاث جامعة القدس للعلوم الاجتماعية، تمت الموافقة على المشروع أخلاقيا من قبل مجلس المراجعة، لجنة الموافقة الأخلاقية البحثية لجامعة القدس (REC). بالإضافة إلى ذلك، وافقت محافظة أريحا على إجراء الدراسة وطلبت من مختار البدو مساعدتنا في إجراء الدراسة. علاوة على ذلك، وقّع المشاركون على استمارة موافقة تؤكد استعدادهم للتضمين، بعد إبلاغهم بأهداف الدراسة.

**التحليل الاحصائي:** تم ادخال البيانات باستخدام برنامج (الحزم الإحصائية للعلوم الاجتماعية) استخدم التحليل احادي المتغير وكانت النتائج ذو ندرة إحصائية عند درجة ندرة 0.05.

**النتائج:** النساء البدويات اللواتي يعشن حياة متحضرة يعانون من الامراض بنسبة أكبر من اللواتي يعشن في الخيم، بشكل عام نسبة الإصابة بالربو بين النساء البدويات كانت8.8% و للبدويات المتحضرين كانت 13.1% و للبدويات اللواتي يعشن في الخيم كانت 4.4%. ايضا، فان نسبة البدويات اللواتي يعانون من الحساسيات والامراض الجلدية كانت 3.4% وكانت بين نساء البدو بشكل عام بينما كانت عند نساء البدو المتحضرون 6.1% وكانت .6% عند نساء البدو في الخيم. ارتفاع ضغط الدم كانت نسبته 13% عند نساء البدو في المجمل بنسبة 21% عند نساء البدو المتمدنين و5% عند نساء البدو في الخيم. كانت نسبة مرض السكري قليلة عند نساء البدو 8.8% وكانت نسبته قليلة جدا عند نساء البدو في الخيم. بشكل عام نسبة نساء البدو التي يعانون من امراض قلب وسرطانات كانت قليلة جدا.

**الخلاصة:** التمدن والتحضر قضية عالمية احتلت جميع دول العالم، البدو اليوم يعيشون تطورات أدت الي تغيير حياتهم من حياة خيم وحياة بسيطة تعتمد في الغالب على حياة زراعية وتربية حيوانات الى حياة متمدنة أدت الى تغير بطبيعة قضاياهم الاجتماعية و البيئية و الصحية هذا بحد ذاته كلن له اثر كبير على زيادة العوامل المؤثرة للإصابة بالأمراض عند البدو بشكل عام و النساء البدويات بشكل خاص و خاصة الامراض المزمن

# Table of Contents

## List of Figures

**No. Figure Title Page No.**

## List of Tables

**No.** **Table Title** **Page No.**

## List of Appendices

## List of abbreviations

| | |
|---|---|
| **UNDP** | United Nations Development Programme |
| **PDHO** | Beersheba District Health Office |
| **WHO** | World Health Organization |
| **SPSS** | Statistic Package for Social Science |
| **SD** | Standard deviation |
| **CI** | Confidence Interval |
| **SES** | Socio Economic Status |

# Chapter One

## Background and Significance

### 1.1. Introduction

The word ‘Bedouin’, is derived from the Arabic terms “Badawi” or “Badu”, and these words describe people with nomadic or semi-nomadic pastoral lifestyles, who live in “badiya” (Ibn Khaldun,1969). Arab Bedouin tribes have inhabited parts of the Middle East and North Africa they lived in Saudi Arabia, Iraq, Oman, Yemen, Jordan, Syria, occupied Palestine/Palestine, Egypt, Algeria and Morocco (Suwaed, 2008). Before 1948, the Bedouin population of the Negev was estimated, 65,000 to 100,000 individuals (Falah, 1989). during the war of 1948 large number of Bedouin Arabs were expelled and became refugees in the surrounding Arab countries/territories (e.g., the Gaza Strip, the West Bank, Jordan, Egypt) (Marx, 1967).

The Bedouins living in the West Bank today were originally transferred, pre-1948 Mandate Palestine, from the Negev Desert in the south areas to the West Bank areas like Jericho governorate and the Jordan valley and now they are considered as Palestinian refugees. These

livestock-dependent Bedouins are facing nowadays new plans that are imposed by the Occupational Civil Administration to transfer them again into centralized semi-urban settings. This transformation from a traditional rural society to an urban society may affect Bedouin's psychosocial and health outcomes.

There are around 5,000 Bedouin families in Palestine as well as 5,000 Bedouin, herder families, and around 27,500 herders of which half of them are Bedouins living in Area ‘C’ of the West Bank (UNRWA/BIMKOM, 2012).

In Jericho, Bedouins live in different areas A and C, and many problems affect them. A comprehensive assessment that was done by the United Nations Development Programme (UNDP) on Bedouins mainly with traditional lifestyles showed that nearly 80% of Bedouins are without electricity. Similarly, about 50% are without access to water and face food security issues with a high poverty rate, the most challenging problem is that of political restrictions. Subsequently, they can't afford the cost of transportation to access education. (United Nations Development Programme,2013) To date though, no assessment is available for Bedouins living in areas with urbanized lifestyles. Furthermore, a limited number of studies are available on Palestinian Bedouins.

In general, Bedouins faces challenges with diseases related to hygiene and the environment, as well as addiction and smoking, lice, and others. Also, there are some social difficulties related to the social changes they were facing due to their special society structure such as consanguinity, early marriage, women's ignorance, murder and others (Mordechai,2013).

Nowadays, Bedouins demand their development and they are faced with challenges in their lifestyle, traditions, and customs. Despite some Bedouins holding onto traditional lifestyles, there are still Bedouins who are actively adapting to a new urbanized lifestyle.

30 years ago the prevalence of chronic diseases e.g. diabetes and cardiovascular diseases in the Bedouin population was low. However, nowadays, the risk of chronic diseases is increasing in line with a rise in urbanization. Urbanization affects all aspects of life especially lifestyle factors which are the main risk factors of chronic diseases. Urbanized Bedouins have a higher calorie intake and are generally less physically active. (Thompson and Gifford, 2000).

### 1.2. Study Justification

An urbanized lifestyle equates to changes in both diet and levels of physical activity. Bedouins living in towns are shown to engage in diets that are higher in calories and fats compared to their traditional diet. For example, the introduction of electricity into towns also had a major effect on how Bedouins cook and therefore affects their traditional way of food preparation. Also, and due to their new way of living, many of the tasks they were doing, like

animal breeding and farming, changed to a new way of living which leads to lower levels of physical activity. Also, 67% of urban Bedouin households had televisions that directly affect their children's lifestyles and lead to reduced levels of physical activity, especially among children (Aharonovitz, 1999).

Most of the research that was done on Bedouins investigated those living in the Negev region, but research on Bedouins living in the West Bank is very limited. However, no assessment of Bedouin's circumstances in areas A and C has been completed. In addition to this, no study has been performed to investigate how urbanization and changes in the Bedouin lifestyle affect all aspects of their life, especially health.

### 1.3. Problem Statement

Nowadays, the Bedouin lifestyle is not only considered as Bedouins living in tents but also Bedouins living in towns and settlements. The rapid movement of Bedouins from a traditional to an urbanized lifestyle affects the risk factors for many diseases. These factors include daily life activities, type of work, many habits like smoking, food preparation, diet content, level of physical activity, and others.

There is limited research data available on Bedouin health in Palestine. Urbanization itself is very well known in literature in that it affects the health status of populations. Therefore, in this study, we want to examine urbanization and its impact on Bedouin women's health.

### 1.4. Aim:

To determine the effect of urbanized lifestyle factors on Bedouin women's health among those living within the Jericho Governorate.

### 1.5. Objectives

1- To assess the relationship between Bedouin's socio-economic and demographic factors with health outcomes in Bedouin women.

2- To identify the relationship between Bedouin's homes/tents environment and health outcome in Bedouin women.

3- To assess the relationship between occupational factors and health outcomes in Bedouin women.

4-to assess the association between lifestyle factors (diet, smoking, and physical activity) and health outcomes in Bedouin women.

**1.6. Study expected outcome:**

This is the first study of its kind in Palestine. It is a baseline assessment of women Bedouin's health outcomes related to the adaptation of urbanized lifestyle in the West Bank. This data will help set a health education program to assist Bedouin women in understanding their new lifestyle choices on their health outcomes. Moreover, this data will help policymakers in providing the necessary services to the Bedouin community in general.

**1.7. Thesis structure**

This thesis will be presented in six chapters as follows:

Chapter one: contains the background of the study, problem statement, study justification, study aim, and objectives.

Chapter two: includes related data (literature review) of conducted international, regional and-countryy studies and research.

Chapter three: includes the study conceptual framework.

Chapter four: includes the study area, study methods, populations, sampling methods, sample size. Ethical considerations, data collection, processing and analyzing.

Chapter five: presents the results.

Chapter six: includes discussion, study limitations, conclusions and recommendations.

# Chapter 2

# Literature review

## 2.1 Introduction

In this chapter, the literature related to the study objectives will be presented. Firstly, in a worldwide context, and secondly, about Gypsies, and finally, investigating the Bedouin perspective.

## 2.2 Socioeconomic and demographic status on health

Literature shows that socioeconomic and demographic factors are associated with the health status of populations. There are no studies directly showing the socioeconomic and demographic status effect on Bedouin's health, however, studies exist that highlight the relationship between the two.

### 2.2.1 Income

Many studies show that there are associations between income and health outcomes. The strong effect of socioeconomic status appears more in minority groups such as with African Americans. Studies on mortality causes among these populations show that there are strong associations between income level and mortality. The US National Longitudinal Mortality Study shows black men with lower income have higher mortality rates with relative risk=1.49 (Anderson et al, 1997) see (Table2.1). Robert, (1998) from Americans' Changing Lives study

shows that education, family income, and family assets are significant predictors of the number of chronic conditions and self-reported health see (Table2.1). Waitzman and Smith, (1998) from the US National Health and Nutrition Examination show the effect of education and income on health outcomes in adults with relative risk = 1.78 for all-cause mortality see (Table2.1).

### 2.2.2 Education

Many aspects of the research have relied on cross-sectional data to document the strong relation and correlation between health and education. Lleras and Muney, (2006) use a national health interview survey to document the correlation between education and health see (Table2.2). Bopp and Minder, (2003) explore the correlation between mortality in Switzerland speaking Germany and education between the years (1990- 1997), the results based on multiple logistics regression show that there are considerable mortality gradients by education for all study population. House et al. (1994) in the United States, by using data from the United States survey, conclude that education is a significant teller of functional status. Also, the 1950 comprehensive school reform used by Spasojevic, (2003) concludes that people with higher education show a better health status see (Table2.2).

### 2.2.3 Poverty

Haan et al, (1987) study included 1811 residents of Alameda County, California, assess the effect of poverty using income, education, and employment status. The results show relative risks from 1.46–1.53 for residence in the poverty area, adjusting for race, sex, age, health, and single measures of individual socioeconomic status see (table2.3).

### 2.2.4 Employment status

European social survey used by Bambra and Eikemo, (2009) from the year 2002 to 2004 within (Anglo-Saxon, Scandinavian, Southern and Eastern Bismarckian), examine the correlation between unemployment status and self-reported health by applying analysis against the risks of morbidity and mortality. Survey results showed that all unemployed participants had higher risk rates of mortality. Also, unemployed participants documented higher rates of bad health compared to those in employment, see (table2.4).

## 2.3 Lifestyle factors

### 2.3.1 Physical activity

A significant amount of research has used prospective cohort studies data to report the association between physical activity and health. Garg et al, (2006) results show that people with lower rates of physical activity had more cardiovascular events see (table2.5). Robinson-Cohen et al, (2009) findings report that the two groups with more physical activity rates were associated with a lower risk of the rapid decline of kidney function by 28% than the two groups with less physical activity rates see (table5). Gurwitz et al, (1994) using a statistical model with adjustments of the influence of age, blood pressure, sex, and self-reported diabetes, find the independence of the risk associated with obesity and high body mass (adjusted odds ratio = 2.41, 95% CI = (1.3–4.4), old people with lesser level of physical activity (adjusted odds ratio = 1.51, 95% CI = (1.0–2.1) were significantly more likely to have type 2 diabetics. Findings show that there is a significant association between diabetes type 2 and low physical activity level see (table2.5).

### 2.3.2 Diet

Many research studies have reported the relationship between health and diet. Cross et al., (2007) documented that higher intakes of energy from fat will increase the risk of breast cancer. Moreover, increased intake of processed meat red meat will increase the risk of colorectal cancer see (table2.6). Thiebaut et al., (2007) by using General Population Nutrition Intervention Trial examined the four vitamin-mineral combinations efficacy and concluded that combining vitamin E, selenium, and beta-carotene can significantly decline mortality from total cancers and especially gastric cancers see (table2.6). Abu Saad et al., (2001) has published a study on the effect of westernization and diet on Bedouin health and the result shows dramatic increases in the prevalence of diabetes among urbanized Bedouins with increasing cases of hospitalization due to cardiovascular conditions see (table2.6).

### 2.3.3 Smoking

Many studies show that there are associations between smoking and health outcomes. Bjartveit and Tverdal, (2005) highlight the risk of both sexes who smoke 1 to 4 cigarettes a day from long term health issues leading to death or diseases by other causes, adjusted relative risk comparing smokers of 1 to 4 cigarettes\day with non-smokers group show that dying from ischemic heart disease was2.940 (1.75 to 4.95) in women and 2.740 (2.07 to 3.61) in men. 1.08 (0.78 to 1.49) for all cancer see (table2.7). Monto and Ross, (1978) led a follow-up study documenting the association between <1 pack per day smokers and respiratory tract infections. The results showed a relative risk: 1.5 in men; relative risk: 1.13 in women of lower respiratory tract infections see(table2.7).

## 2.4. Internal and external environment

### 2.4.1 Housing condition

Having homes is associated with a healthier and better life. Wheezing, difficulty breathing, cough, respiratory infection, respiratory diseases, and asthma are associated with overcrowding and poor housing conditions (Environmental Epidemiology Unit, 1999). Many studies clarify the association between housing conditions and health outcomes see (table2.8). Howden-Chapman and Wilson (2000) showed an association between health and overcrowding housing conditions in New Zealand. The results showed that crowded housing is linked with significantly poorer self-reported physical and mental health and significant increases in the prevalence of asthma see (table 2.8). Evans et al. (2000) demonstrated a strong association between bad health and cold houses, although the authors proposed that there is a relationship between cold and humid housing, see (table 2.8).

### 2.4.2 Access to infrastructure

#### 2.4.2.2 Access to water and sanitation

Availability and accessibility to water in good quantity and quality with affordable prices is a right for all individuals around the world. However, a large proportion of the developing world suffers from the burden of water sanitation and supply problems, where every day almost 5000 children die globally as a result of inadequate access to safe water (Moe and Rheingans, 2006) (Doe and Khan, 2004). Furthermore, in developing countries, death due to water attributable diseases reach around 3.4 million deaths per annum. A longitudinal cohort study in Brazil, by (Barreto et al, 2007) reported an increase in sanitation coverage to 80% resulting in a reduction of 22% prevalence of diarrhea in children; the prevalence rate of diarrhea fell by 43% after the coverage of sanitation see(table2.9).

### 2.4.3 Access to electricity

Data at the national level from demographic and health surveys indicate that access to electricity is independent of income. Access to electricity has an independent effect on mortality also. Likewise, it is a factor that can aid a deeper understanding of mortality (Liming wang, 2012) see (table2.9).

## 2.5. Studies on gypsies

In 2010, Skodova et al examined differences in health-related quality of life (HRQL) and physiological conditions between two study groups (non-Romany and Romany). The results suggest that Roma patients suffer from poorer health-related quality of life, less physiological wellbeing, and are less healthy in general compared to non Roma patients, the authors link the results to differences in socioeconomic status. Sabeva, (2010) who performed a study in Bulgaria concluded that Roma Gypsies afflicted with poverty, low education, inadequate nutrition, smoking, and alcohol intake are more likely to suffer from diseases and reduced life spans, see (table2.10). Parry et al., (2007) by using standardized instruments to compare Gypsies with British non-gypsies residents, documented that Gypsies generally have poorer health, higher morbidity rates, higher physiological disorders, respiratory diseases, chest pain and bone and muscles pain see (table2.10). In 2006, Zajc et al, performed an anthropometrical study examining the nutritional status of the Bayash, which are Roma population living and traveling in eastern Croatia (Baranya), and compared them to the non-Roma of eastern Croatia. Results show the incidence of under-weight cases of Bayash people is 8% (BMI<18.5) compared to 1% of non Bayash. Also, Bayash women have higher rates of being underweight. Unhealthy diets, low socio-economic status, low education level, and unemployment status which lead to poorer health of these population groups, see (table2.10).

## 2.6 Bedouins literature

In this section, literature related to study objectives on Bedouins will be presented.

Yulia and Roni, (2014) presented results of their review paper showing that women Bedouins in the Negev suffer from bad health reflected by low socioeconomic levels, prenatal morbidity and mortality, pregnancy course, and chronic and acute diseases see (table2.11). Amalia et al., (1997) by using computerized hospitalization records from Soroka university for below 15 years' children test the differences in morbidity between (1989 to 1991), find that Bedouins have significantly higher hospitalization rates for acute, infectious diseases, and diarrhea compared to other populations. The conclusion suggests relating to the lower socioeconomic status of Bedouins and environmental hazards see (table2.11).

Bedouin populations now adapting to Western eating patterns and representing a modern way of eating and cooking are associated with increased obesity. Fraser et al., (2008) compared the eating patterns of Jews and Bedouins, and found that Bedouins had a higher body mass index (BMI). Moreover, the rate of obesity was higher among Bedouins with 27.9% compared to Jews 20% see (table2.11). Abdulrahman et al., (2011) concluded in their review that unhealthy dietary habits and inadequate intake of nutrients in Arab Bedouins are associated with nutrition-related diseases see (table2.11). Idilbi et al., (2012) mentions that smoking, unhealthy diet, and physical inactivity are the main risk factors causing diabetes and cancer according to their review of recent publications of official health statistics of Bedouins and Jews, see (table2.11). Karakis et al., (2008) examined the association between mortality and distance to the industrial park and suggest that there is an association between living near the park and increase mortality rate in Bedouins see (table2.11). Jonathan et al., (2018) documented the prevalence of diabetes in Bedouins compared to the non-Arab population and found that Bedouin cases of diabetes were 12.3% compared to 8.2%. However, Bedouin women had a higher prevalence of diabetes 12.5% compared to 12% of men. Muhsen, K et al., (2018) concluded that mortality due to cardiovascular and heart diseases and diabetes had a higher incidence among Arab Bedouins compared to Jews. However, smoking, health inequalities, and socioeconomic status are suggested to be indicators of diseases see (table2.11).

An assessment by the United Nations on Bedouins living in area C with traditional lifestyles found that Bedouins typically consume a fifth of the recommended daily water intake, barely reaching twenty liters/capita day/per day as prescribed by the World Health Organization (WHO). Whilst, Bedouins residing in area C face many problems relating to electricity supply, to compound this issue, Bedouins typically live in unrecognized villages, where nearly 80% of Bedouins in these areas are living without access to electricity. However, political restrictions and attacks from Israeli soldiers, in addition to inadequate external assistance is also a major problem they face daily. Moreover, Bedouins suffering from water and food insecurities, only 50 % had access to water. Poverty with low education levels is also a primary problem affecting Bedouins. (UNDP, 2013). The INFOCUS report of Bedouins living in area C showed that 41% of Bedouin families do not have electricity access either by way of grid electricity or renewables. Moreover, Bedouin communities have limited access to sewage networks and waste disposal municipal services. (UNDP,2013). Water, sanitation, and health (WASH) survey reported a less than adequate level of education among Bedouins. 18.1% of them are not educated, while only 4.8% study after secondary education, whilst those completing primary and secondary education were 45.8% and 31.3% respectively (WASH REPORT, 2014). UNICEF Palestine provides a monthly update (April 2010) and concluded that Bedouins living in Area C have higher rates of poverty and diseases compared to the rest of the West Bank population. Children in Area C suffer from poor hygiene and poor nutrition which are the main risk factors of the disease, they are four times more often to have diseases. 44% of studied children in Area C suffered from diarrhea while only 11.5% of children had diarrhea in the wider West Bank. Furthermore, a high percentage of acute respiratory infection (ARI) cases were observed in Bedouin populations, the statistics indicating that 48% of Bedouin children in Area C are afflicted with this condition.

Out of 40,000 Palestinians Bedouins living in Area C, about 35,000 suffer from social indicators and denial from political administration. This population is more likely to include farmers and herders, usual travelers with low public service provision (health care, education, electricity, water, and sanitation) and inadequate infrastructure. (FAO/WFP, 2009). To conclude, municipal services in Area A and B are generally of a higher standard than Area C, with many improvements made in the last few years.

According to WASH survey data relating to water service provision delivered to Bedouin communities in the Jericho Governorate and Ramallah areas, the outputs highlight the socioeconomic and sanitation status of those Bedouins, the results of this survey indicated have a high rate of (unemployment) status (72.3%) and 7.2% of them are working in low skill professions such as guards, whilst 7.2 % are farmers and finally, 13.3 % are unskilled workers. (WASH REPORT, 2014).

Livestock herding, which is the main source of income of the households interviewed, is defined as a routine activity, and not classified as a "job". (WASH REPORT,2014). The majority of the families' monthly income is less than 1000 NIS (95.2%) and only 1.2% of the families have a steady monthly income above 2000 NIS, whereas 3.6% of the families have a monthly income ranging from 1000 to 2000 NIS (WASH REPORT, 2014). About 55% of the Bedouins in Area C suffer from food insecurity and live under the poverty line (INFOCUS,2013). UNICEF Palestine Monthly Update in April 2010 reported that Bedouins in those areas live on less than 4.7$\ per adult\ per day (Unicef,2010). According to PCBS data, the poverty line and deep poverty line for the reference household (two adults and three children) stood at a monthly income of 2,237 NIS (609 US$) and 1,783 NIS (478 US$) respectively (PCBS,2013). About 25% of those living in area C reside in tents compared to 96% living in the West Bank who live in modern accommodation such as houses or apartments. Almost all West Bank families have kitchens, electricity access, and a piped water supply. However, only 20% of Area C residents have access to a piped water network and unfortunately, 41% of them have no electricity. INFOCUS reports suggest that the rate of educated Bedouins is very low and they have high school drop-out rates. (INFOCUS,2013).

**Table (2.1): Summary of published studies in the world for socioeconomic factors and health outcomes: income**

| Authors, Publication date | Types of study | sample | Objectives | Main findings |
|---|---|---|---|---|
| Anderson et al, 1997 | US National Longitudinal Mortality Study | 233 600 black or white adults over age 25 | to study All-cause mortality related to Annual family income | Among whites: RR of low v high income = 1.26 for men, 1.16 for women Among blacks: RR = 1.49 for men |
| Robert, 1998 | Cross sectional study | 3617 adults, over 25 years from Americans' Changing Lives study | To assess number of chronic conditions, functional limitations, self-reported health related to education, family income, family assets | economic disadvantage is a significant predictor of number of chronic conditions, households receiving public assistance is a significant teller of self-reported health |
| Weitzman and Smith, 1998 | Longitudinal study | 10 161 black or white adults from US National Health and Nutrition Examination Study | To study all-cause mortality and chronic conditions associate with income and education and living in poverty area | In adults, 25–54 years, RR = 1.78 for all-cause mortality, 1.9 for cardiovascular mortality, 1.95 for cancer mortality |

**Table (2.2): Summary of published studies in the world for socioeconomic factors and health outcomes: education**

| References | Type of study | Sample | Objectives | Main Findings |
|---|---|---|---|---|
| Lleras-Muney's, 2006 | Cross-sectional study | Population-based on National Health Interview Survey, | to document the correlation between education and health | They document the correlation between education and health safe habits will be done by more educated people, no smoking, healthy diet, more physical activity as a result of that less chronic condition and heart diseases. |
| Bopp and Minder, 2003 | Swiss National Cohort | German Speaking Switzerland, 1990-1997 | study the correlation between mortality in Switzerland speaking Germany and education | the results analyzed using multiple logistics regression show that there is considerable mortality by education for all study populations. |
| House et al. 1994 | Longitudinal study | Americans' Changing Lives: 1986 & 1986-1989 data | To examine the association between the functional status of health and education. | conclude that education is a significant teller of the functional status of health. |
| Spasojevic, 2003 | Longitudinal cohort study | 1950 school reform to evaluate the effects of education on poor health | to evaluate the effects of education on an index of poor health | Results show that people with higher education show a better health status. |

**Table (2.3): Summary of published studies in the world for socioeconomic factors and health outcomes: poverty**

| References | Type of study | Sample | Objectives | Main findings |
|---|---|---|---|---|
| Haan et al, 1987 | Longitudinal | 1811 residents of Alameda County, California | To study the effect of poverty using income, education, employment status. | Result RRs from 1.46–1.53 for residence in the poverty area |

**Table (2.4): Summary of published studies in the world for socioeconomic factors and health outcomes: employment status**

| References | Type of study | Sample | Objectives | Main findings |
|---|---|---|---|---|
| Bambra and Eikemo, 2009 | Social Survey a comparative study | European social survey (2002 to 2004) within (Anglo-Saxon, Scandinavian, Southern and Eastern Bismarckian), | to examine the correlation between unemployment status and self-reported health | Survey results show that all participants with unemployment status had higher rates of mortality. Also, unemployed participant documented higher rates of bad health compared to those employed |

**Table (2.5): Summary of published studies in the world of Lifestyle factors and health outcomes: physical activity.**

| references | Type of study | sample | objectives | Main findings |
|---|---|---|---|---|
| Garg et al 2006 | prospective cohort study | 460 American older men and women (aged between 64 and 81 years) with peripheral arterial disease | Study effect of physical activity on the progressiveness of cardiovascular diseases and mortality related to cardiovascular diseases | people who were less physically active and reported fewer flights of stairs climbed in an average week had a higher number of cardiovascular events and Garg also reported findings from this study on cardiovascular disease mortality |
| Robinson-Cohen et al 2009 | prospective cohort study | 4011 older men and women in the US | Study the association between physical activity and kidney function | highest physical activity groups were associated with a 28% lower risk of rapid decline in kidney function than the two lowest physical activity groups |

| | | | | |
|---|---|---|---|---|
| Gurwitz et al 1994 | prospective cohort study | with 2737 older American men and women, followed over three years | investigated the association between physical inactivity and other factors with type 2 diabetes | Independent of the risk associated with high body mass (adjusted odds ratio = 2.4, 95% CI = 1.3–4.4), older people with a low physical activity level (adjusted odds ratio = 1.5, 95% CI = 1.0–2.1) were significantly more likely to become type 2 diabetics. These results suggest the positive correlation between low physical activity level and the development of type 2 diabetes in older people. |

**Table (2.6): Summary of published studies in the world of Lifestyle factors and health outcomes: diet.**

| References | Type of study | sample | objectives | Main findings |
|---|---|---|---|---|
| Cross et al., 2007 | prospective cohort | 500,000 from both sexes | To explore the relationship between red and processed meat intake and risk of cancer | More intake of energy from total fat will increase the risk of breast cancer. Moreover, increase intake of processed meat red meat will increase the risk of colorectal cancer. |
| Thiebaut et al., 2007 | prospective cohort | 29,594 adults | examined the four vitamin-mineral combinations efficacy and observed that combined vitamin E, selenium, and beta-carotene and protecting gastric cancer | that combined vitamin E, selenium, and beta-carotene significantly declined mortality from total cancers and especially gastric cancers |
| Abu Saad et al., 2001 | Assessment study | South Israel Bedouins | study on the effect of westernization, diet on Bedouins health | The result shows a dramatically increase in the prevalence of diabetes among urbanized Bedouin with increasing hospitalization of cardiovascular conditions |

**Table (2.7): Summary of published studies in the world of lifestyles factors and health outcomes: smoking**

| references | Type of study | Sample | Objectives | Main findings |
|---|---|---|---|---|
| Bjartveit and Tverdal, 2005 | prospective cohort | taking 23 521 men and 19 201 women, aged 35–49 years | high light the risk of both sexes who smoke 1 to 4 cigarettes \day of dying from diseases caused by smoking or diseases by other causes | adjustment relative risk comparing smokers of 1 to 4 cigarettes\day with non-smokers group show that dying from ischemic heart disease was2.940 (1.75 to 4.95) in women and 2.740 (2.07 to 3.61) in men. For all cancer were 1.08 (0.78 to 1.49) |
| Monto and Ross, 1978 | prospective cohort | - | document the association between less than one pack per day smokers and respiratory tract infections | the result shows RR: 1.5 in men; RR: 1.13 in women of lower respiratory tract infections |

**Table (2.8): Summary of published studies in the world for environmental factors and health outcomes: housing condition.**

| References | Type of study | sample | Objectives | Main findings |
|---|---|---|---|---|
| Howden-Chapman and Wilson, 2000 | Health survey | - | examined the association between crowded housing and health in New Zealand | The results show crowded housing was linked with significantly poorer self-reported physical and mental health, and significantly increase the prevalence of asthma |
| Evans et al, 2000 | - | - | To assess the relationship between cold and damp houses and ill health. | The study demonstrates a strong association between bad health cold houses. Although the authors propose that there is a relationship between cold and humid housing |

**Table (2.9): Summary of published studies in the world for environmental factors and health outcomes: access to infrastructure.**

| References | Type of study | Sample | Objectives | Main findings |
|---|---|---|---|---|
| Barreto et al, 2007 | Prospective cohort | - | To assess the effectiveness of safe water and sewage coverage in preventing diarrhea prevalence. | report an increase in sanitation coverage to 80% result in a reduction of 22% prevalence of diarrhea in children; the prevalence rate of diarrhea fell by 43% |
| Liming wang, 2012 | Survey | - | To assess the independent relationship between access to electricity and mortality. | Not only has access to electricity an independent effect on mortality, but it is also a key underlying factor explaining mortality and access to electricity is likely to be independent of incomes |

**Table (2.10): Studies and surveys on gypsies that are related to study objectives**

| References | Type of study | Sample | Objectives | Main findings |
|---|---|---|---|---|
| Sodovoka et al. 2010 | Comparative study | 138 patients. 46 Roma, all with low SES (socio-economic status), 46 non-Roma with low SES, and 46 non-Roma with high SES. | examines differences in health-related quality of life (HRQL) and physiological conditions and between two study groups between non-Roma and coronary diseases. | The results suggest that Roma patients are poorer health-related quality of life and less physiological wellbeing and less healthy in general compared to non Roma patients, the authors link the differences in both study groups to socio-economic status differences |
| Sabeva,2010 | Report | Bulgaria gypsies | To explore the main causes of poor health, morbidity, mortality and other health conditions. | conclude that Roma poverty, low education, unhealthy lifestyles due to inappropriate nutrition, smoking and alcohol intake are more likely to have diseases and to shorten their life. |
| parry et al.,2007 | Comparative study | Using standardized instruments. Gypsies and Travelers (n = 293) comparison sample (n = 260); non-Gypsies or Travellers | To compare health status between Gypsies and UK residents. | the sample document that Gypsies documented poorer health, higher morbidity rate, higher physiological disorders, respiratory diseases, chest pain, and bone and muscles pain |
| Zajc et al.,2006 | multidisciplinary anthropological and epidemiological survey | 277 Bayash sample size. | anthropometrically study examines the nutritional status of the Bayash | . The result shows under the weight of Bayash is 8% (BMI<18.5) compared to 1% of non Bayash. Women have high rates of underweight. Unhealthy diets, low socioeconomic status, low education level, unemployment status lead to poor health of those group of population. |

**Table (2.11): Studies and surveys on Bedouins related to study objectives**

| References | Type of study | Sample | Objectives | Findings |
|---|---|---|---|---|
| Yulia and Roni,2014 | Review study | Bedouin women in south Israel, based on a paper published over the past 20 years | To describe the health and morbidity characteristics of Bedouin women in southern Israel. | Poor socioeconomic status is reflected in the health aspects of life.g.e. mental illness, pregnancy course, perinatal mortality and morbidity, and chronic and acute diseases |
| Amalia et al ., 1997 | Retrospective study | using computerized hospitalization records from Soroka university of under 15 children | To tests the differences in morbidity between (1989 to 1991) | find that Bedouins are significantly higher hospitalization rates for acute, infectious diseases, and diarrhea compared to other populations. the conclusion suggests that difference to the lower socioeconomic status of Bedouins and forced of environmental hazards. |
| Fraser. 2008 | Survey | 1998 – 2003 survey included data of (793) Jews and (169) Bedouins. | To compare eating patterns of Jews and Muslim Bedouins and investigate possible dietary causes for the discrepancy in obesity rates | find that Bedouins had a higher body mass index (0.3). Moreover, the rate of obesity higher among Bedouins with 27.9% compared to Jews 20%. |

| | | | | |
|---|---|---|---|---|
| Abdulrahman et al., 2011 | Review study | Google Scholar for articles related to nutrition-related diseases from 90-2011. | To highlight Arab nutrition diseases and factors associated with diseases | conclusion of their review said that unhealthy dietary habits and inadequate intake of nutrients in Arab Bedouins are associated with nutrition-related diseases |
| Idilbi et al., 2012 | Review study | recent publications and official health statistics on expression differences between diabetes mellitus and cancer between Israeli Jews and Arabs | To study the differences between diabetes mellitus and cancer between Israeli Jews and Arabs | mention that smoking, unhealthy diet and physically inactive are the main risk factors of diabetes and cancer according to review recent publications of official health statistics of Bedouins and Jews |
| Karakis et al., 2008 | Ecological study | 1995–2001 Central Bureau of Statistics mortality. measurement of exposure (residential distance) to the IP (with 20 km radius as a cut-of-point) | To examine whether mortality in the Bedouin population in the southern part of Israel is associated with the residential distance to the industrial park | The study results suggest an association between residential proximity to the regional IP and increased mortality rates in the Negev Bedouin population. |
| Jonathan et al., 2018 | Cross-sectional study | Clalit Health Services database. | To update the prevalence of diabetes among Bedouins in the Negev | document the prevalence of diabetes in Bedouins compared to the non-Arab population and find that Bedouin's diabetes was 12.3% compared to 8.2%. Bedouins women had a higher prevalence of |

| | | | | |
|---|---|---|---|---|
| | | | | diabetes 12.5% compared to 12% of men. |
| Muhsen, K et al., 2018 | Review study | advanced health system and universal health-care insurance database. Between 1975 and 2014. | To explore the differences in mortality, morbidity and risk factors of diseases. | conclude that mortality because of cardiovascular and heart diseases and diabetes higher in incidence among Arabs Bedouins compared to Jews. However, smoking and health inequalities and socioeconomic status are suggested to indicators of diseases |

# Chapter 3

## Conceptual Framework

### 3.1 Introduction

In this chapter, the mechanism that describes the association between health status and urbanization lifestyle, socio-demographic, economic status, environmental factors will be presented. The study model will be shown and explained too.

### 3.2 Study context

Bedouins who undergo a lifestyle shift to urban living can be described as a move or a shift from their original rural setting to another place. Furthermore, many aspects of their life will be affected by this transition such as a change in cultural values, mentality, and belief, potentially leading to an identity crisis (Kuan-Min,2007). The rapid transition of Bedouin Arabs from a traditionally semi-nomadic and agrarian lifestyle to an urbanized lifestyle entailed changes in both diet and levels of physical activity. Traditional Bedouins previously relied on planting and harvesting, those activities that have a great deal with physical activity, but now Bedouins have become more sedentary with a reduced need for physical activity. (Al-Nuaim et al.,1997)

### 3.4 Socio-demographic, economic, environmental factors and health status of Bedouins

Health is determined by several factors including general external environment (such as the quality and quantity of water, and housing conditions) which is meaning a surrounding

environment. Moreover, a growing body of research has documented associations between social and cultural factors and health e.g. income, education, family relationships and others determinates (Berkman and Kawachi, 2000; Marmot and Wilkinson, 2006). In addition to hygiene which defined by WHO as conditions and practices that help to maintain health and prevent the spread of diseases (WHO, 2014).

### 3.5 Study Conceptual framework (figure 3.1)

An ideal population health outcome metric has to reflect a population's dynamic state of all aspects of their well-being e.g., mental, physical, and social well-being. Positive health outcomes include being active and alive; functioning well mentally, doing good physically, and socially; also having a sense of well-being. Negative outcomes include death, loss of function, and lack of well-being (Parrish, 2010). Major's health outcomes that will be studied in the current study are NCDs e.g. cardiovascular disease, diabetes and cancer. To assess the health outcomes of Bedouins, this thesis includes a model that has been derived from the literature review, consisting of Urbanized Lifestyle factors, socio-economic status, and environmental factors.

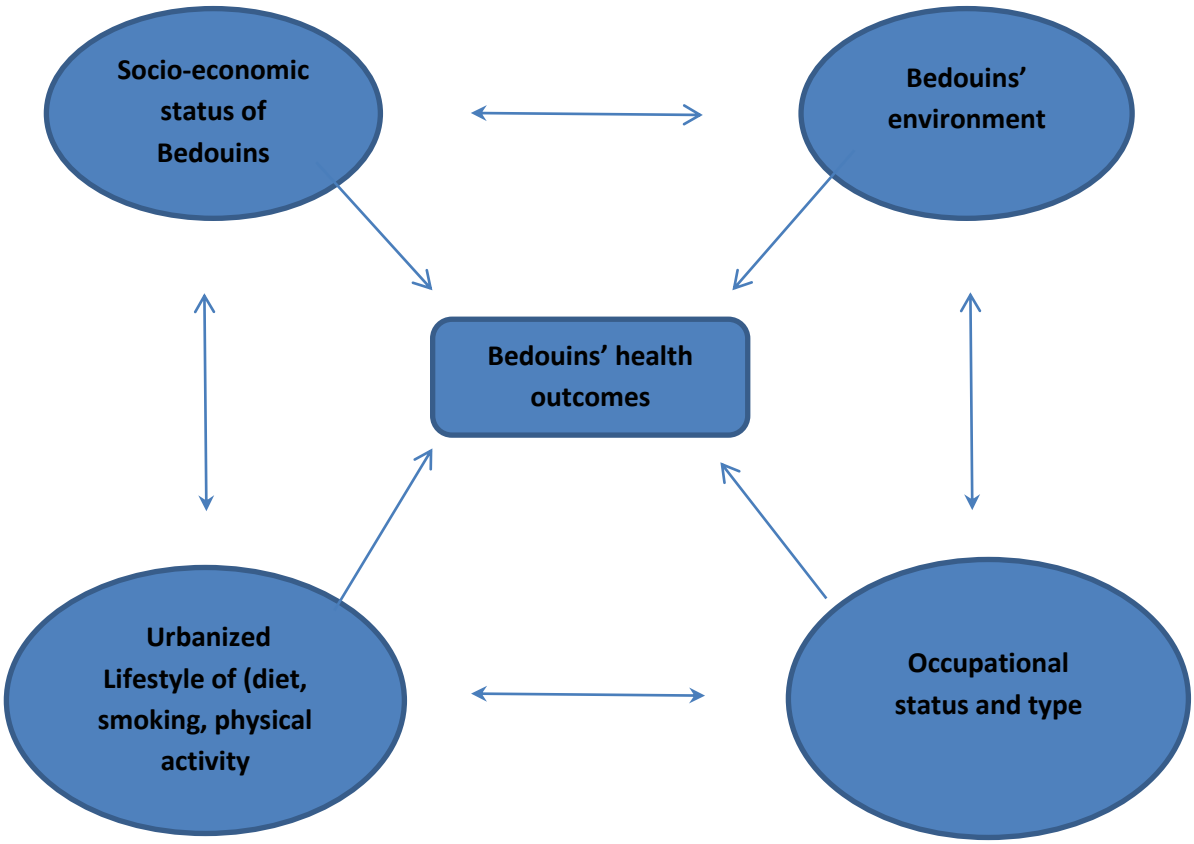



**Figure (3.1):** Study of the conceptual framework

### 3.6 Definitions

•Urbanization of Bedouins means moving or transitioning or shifting from the main basic place to another place. Furthermore, it exposes the migrant to new and different political affiliations, thinking mentalities, belief systems, cultural values and practices, and identity. In summary, it is a new way of life (Kuan-Min,2007).

•Urbanized Lifestyle factors: change in Bedouin's diet (the type of food they eat), types of Bedouin's physical activities (the type of physical activities they perform: agriculture and herding activity), smoking.

•Socio-economic status: income, poverty, education, employment status.

• Environment: access to infrastructure: (quality and quantity of water, sewage system). Housing condition: (the type of house, house environment), environmental hazards.

# Chapter 4

# Study Methodology

In this chapter, the study population and study area, study design, sample frame, sampling methods, and sample size are presented. Included the study tools and statistical analyses utilized during the project.

## 4.1 Study population

Most Bedouins in Palestine originate from the Negev Deseret. In 1948, the Israeli occupation displaced them from their original land. Nearly, 40,000 Bedouin individuals now live either a traditional lifestyle or have chosen to live in towns and settlements. Subsequently adopting an urbanized lifestyle. Most Bedouins, however, are still considered as refugees that fled out from their land and settled as tribes around Jerusalem, Bethlehem, Jericho, and Hebron, (Figure 4.1) (UNDP, 2013).

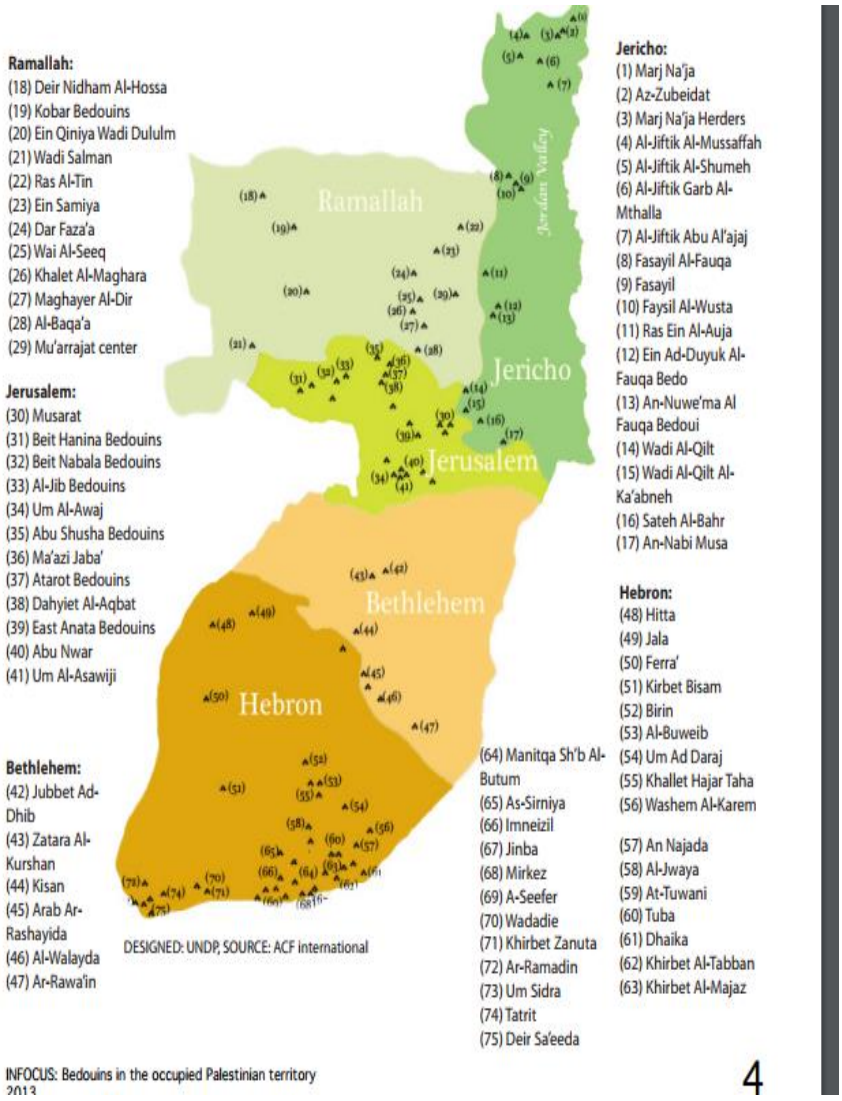



**Figure (4.1) Bedouins in the occupied Palestinian territories**

(Source: United Nations Development Programme.2013. INFOCUS: Bedouins in occupied Palestinian territory)

## 4.2 Study area

The study has been conducted within the Jericho Governorate, located in the West Bank, which includes Bedouins living in Jericho city, Jericho refugee camps (Aqbat Jaber camp and Ein As-Sultan camp), and Beduins living in villages (An-Nuway'imah, ad-Duyuk, alAuja, Fasayil, al-Jiftlik, az-Zubaidat, Wadi Al-Qilt, and Industrial Zone).

Traditional values are a metric included in the study. A classification of tent and house numbers according to each area, is shown below.

| Jericho Governorate | | Houses (160) | Tents (160) |
|---|---|---|---|
| Area of living | al-Jiftlik | 15 | 4 |
| | Fasayil | 15 | 4 |
| | An-Nuway'imah, | 21 | 14 |
| | alAuja | 33 | 15 |
| | Ein As-Sultan camp | 7 | 10 |
| | az-Zubaidat | 51 | 0 |
| | Aqbat Jaber camp | 12 | 19 |
| | Wadi AlQilt | 0 | 12 |
| | ad-Duyuk | 0 | 20 |
| | AlMu'arajat | 0 | 26 |
| | Industrial Zone | 0 | 36 |
| | Maraj Na'ja | 6 | 0 |

### 4.3 Study design

A comparative cross-sectional study household survey.

### 4.4 Sampling unit

The sample frame will include households or tents of Bedouins living in the specified study area. Therefore, the study unit can be defined as 'the household' or 'tent'.

### 4.5 Sample Size and sampling method

Unfortunately, neither the municipality records nor the Palestinian Central Bureau of Statistics (PCBS) has a mapping system or any demographic data relating to Bedouin communities who are living in the study area.

The only reference database that could be obtained to calculate the study population sample size was that derived from the Jericho governorate, one limitation, however, was that the dataset identified was ten years old. Nowadays, many Bedouins have left their traditional housing methods such as tents and are living in houses. These Bedouins have started to have a modern lifestyle rather than their traditional lifestyle and we are increasingly seeing the trend of those living in mixed communities, that is, a semi-traditional, urban way of living.

As a pilot, to confirm how this research sample was compiled, we visited all Bedouin villages in the study area and those residing in the refugee camps to have an idea of how to develop our database. We contacted the Bedouins (Mukhtars) or (sheik) of the villages and the refugee camps, which is a tribal leader of those areas, to estimate the most appropriate numbers of Bedouins' household and tents. We were able to know an approximate number of the urbanized Bedouins households and an approximate number of the Bedouins living in traditional tents and we estimated the number of houses and tents that will be included in each area. After that, we drew a map for each area with the assistance of the leaders of the respective areas.

To calculate the study sample size, we reviewed similar Bedouin studies to estimate the prevalence of the major study health outcomes, i.e. diabetes and cardiovascular diseases. Rates of Bedouins living in the Negev desert areas south of Palestine were used. These Bedouins studies showed that the prevalence of cardiovascular diseases was about 10% and diabetes ranges from 10-20% depending on the age group (see table 4.1and 4.2 ). Depending on that, we calculated the average of these diseases on urbanized as 15% and 5% in traditional Bedouins to calculate our sample size.

**Table (4.1): age-adjusted for acute myocardial infarction and cardiovascular diseases among Negev Bedouins and Jews**

Age-adjusted rates (per thousand) of hospitalizations for acute myocardial infarction (AMI) and cerebrovascular disease (CVD) among Negev Bedouin and Israeli Jews by gender, ethnicity and community type, 1994-1998

| | Males | | | Females | | |
|---|---|---|---|---|---|---|
| | Bedouin | Rural Jews | Urban Jews | Bedouin | Rural Jews | Urban Jews |
| AMI | 9.37 | 5.47 | 8.55 | 6.92 | 1.99 | 3.96 |
| CVD | 9.13 | 3.10 | 9.86 | 10.43 | 2.34 | 8.21 |

(Source: Abu Saad, K. et al, 2001).

**Table (4.2) prevalence of diabetes among urban Jews and bedouins**

Prevalence of diabetes (percent) among urban Israeli Jews and Bedouin

| Age category | Jews | Bedouin |
|---|---|---|
| 35-44 | 0.9* | 3.4 |
| 45-54 | 5.6 | 10.0 |
| 55-64 | 12.8 | 20.0 |
| >65 | 11.7 | 18.1 |

* Age 30-44

(Source: Abu Saad, et al, 2001).

Therefore, we decided to have a convenient sample of 160 houses and 160 tents after using software called epi to calculates the sample size required and detect a statistically significant difference between two proportions with specified levels of confidence and power.

**Epi software calculation:**

| | |
|---|---|
| Proportion 1 | 0.05 |
| Proportion 2 | 0.15 |
| Confidence level | 0.95 |
| Power | 0.8 |
| The ratio of sample sizes (n2/n1) | 1 |
| Tails | 2 |

**Result:**

| | **Sample size** |
|---|---|
| Sample size 1 (n1): | 160 |
| Sample size 2 (n2): | 160 |
| Total sample size (both groups): | 320 |

**Inclusion criteria:**

Households and tents in which a woman resided were selected. If there was more than one woman in the unit, I asked them to choose one woman to answer the questionnaire.

**Exclusion criteria:**

- Household and tents with no inhabitants.
- Household and tents with no woman

### 4.6 Study tools

Visiting of Bedouins tents and household has done while I was writing the literature review.

We emailed Abu Sa'ad K who helped me to build the meals and physical activity parts of the questionnaire according to her experiences in the field of Bedouins in the Negev.

A questionnaire, quantitative tool, used to collect information related to factors present of the conceptual framework. The questionnaire was built on a previously validated questionnaire (WHO, 2014; WHO, 2010). The questionnaire was administered through a face-to-face interview with the study participants.

The study has two parts as follows:

- The first part was concerned with women Bedouins' lifestyle, environmental conditions. **T**he questionnaire consisted of 55 questions that asked women about their life, categorized into three main parts see (Appendix). Each part of the questionnaire contained a group of the main factors that might affect the health status of Bedouin
- The second part was concerned with women's health. It consisted of 52 questions about health outcomes and diseases. Each part of the first questionnaire contained determinants of the health effect of the adaption-urbanized lifestyle among Bedouin living in Jericho. Including the following:

Part1: socio-demographic and economic factors, (Question 1 to Question 23).

Part 2: life style factors, (Question 24 to Question 46).

Part 3: Environmental factors, (Question 47 to Question 55)

The second questionnaire about health outcomes of Bedouins women consisted of 52 diseases' questions.

### 4.7. Questionnaire validation

An Epidemiologist, statistical arbitrator, and nutritionist validated the questionnaire. They evaluated the contents of the questionnaire according to the study objectives and modifications were done as requested.

### 4.7Data collection

Interview questionnaire: the questionnaires were administered face to face by visiting the households and tents and interviewing women by asking them the questions that related to each objective of the conceptual framework (the socioeconomic, occupation, environmental, and urbanized lifestyle of Bedouins and how these factors affect health outcomes of them).

### 4.8 Ethical Considerations

The project was ethically approved by the institutional review board (IRB) committee of Al-Quds University. Also, the governorate of Jericho approvals confirmed as the study was conducted in their setting. Furthermore, participants signed a consent form that confirmed their willingness to be included, after they were informed about the aim of the study. See Annex 1 for the ethical approval letter and the consent form.

### 4.9 Statistical and data analysis

Data were coded, then entered and analyzed using the statistical package for the social sciences version 23 (SPSS). Descriptive statistics were represented to show frequencies, percentages for categorical variables, and means and standard deviation for continuous variables. Chi-square test and T-test were used as needed to calculate the differences between urbanized and traditional Bedouins regarding all variables in the study. A P-value $<0.05$ was considered statistically significant.

# Chapter 5

# Results

In this chapter, results are presented. The descriptive analysis will be presented in the first part (Part I). Differences among Bedouins' women living in urbanized residency "urbanized women" versus women living in traditional Bedouin settlements "traditional women" are tested for the various demographic, environmental, and lifestyle factors. In Part II, health indicator differences between the two study groups will also be shown. Besides, possible determinants for these differences will be presented too.

## Part I: Descriptive analysis

Our study consisted of 320 households/tents. Including, 160 urbanized women and 160 traditional women who were interviewed and are included in the study analysis.

### 5.1 Demographic characteristics.

Family size was shown to be significantly different between both study groups. Where urbanized families had a smaller family (mean 7.2 person SD±1.5) compared to those living in their traditional residences (mean=9.6 person SD±2.31) ($p<0.05$). Also, urbanized women were significantly more educated compared to traditional women; 71.3% of urbanized women joined university and postgraduate studies compared to 14.4% of traditional women. However, the school drop-out rate was high for tent dwellers, equating to 33.8% ($p< 0.05$). Urbanized women seem older compared to traditional women ($p<0.05$) (see figure 5.1).

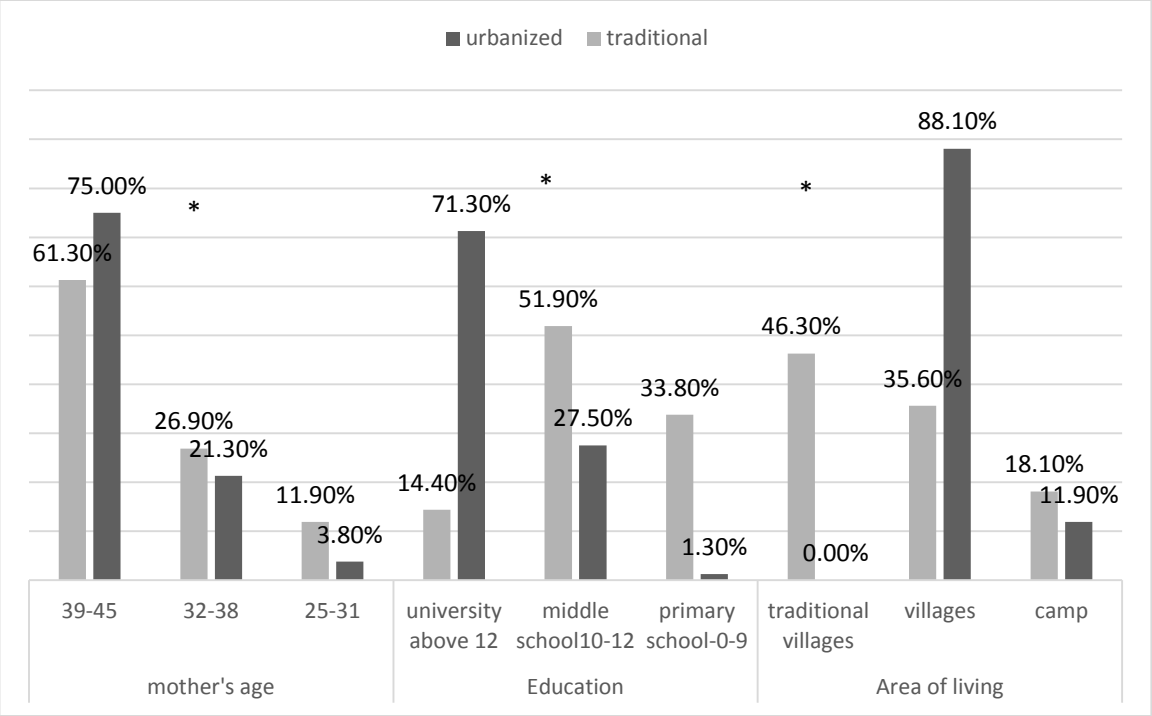



**Figure 5.1**: **Distribution of study population by their demographic characteristics.**

***(p< 0.05).**

**5.2 Economic characteristics:**

In general, women reported moderate income levels (2000-3000 NIS monthly), although urbanized women reported higher income compared to traditional women's income. Urbanized women had jobs and worked in farming as sources for their income (48.2%, 39.3%, respectively), while traditional women depend on animal husbandry and work in farming too (88.1%, 7.5%, respectively). Interestingly, all women, regardless of the place of living had health insurance coverage. (see figure 5.2)

5**.3 Dwelling and housing amenities characteristics**

Almost all urbanized Bedouins were connected to the water network (93.8%) compared to 21.3% in traditional living families who depend on water tanks as a water source($p<0.05$). Water quality was reported by the women to be of "bad quality" and they reported suffering

from water shortages in urbanized areas (93.6%). However, traditional Bedouins reported suffering from a lack of water supply and a high purchase price (see figure 5.3).

48.1% of traditional women were reported as having no electricity compared to (6.3%) of urbanized residencies ($p<0.05$). As a source of fuel for cooking and heating, traditional women reported using animal's dander as a source of fuel (70.1%) compared to (73.6%) urbanized women who used natural gas for cooking and heating. ($p<0.05$) (see figure 5.3).

Electricity consumption from appliances such as televisions, satellites, radios, cooking stoves and ovens, washing machines, solar heaters, refrigerators, radios, and telephone use was significantly different between both groups (see figure 5.4). Almost all urbanized Bedouins were seen to have gas ovens, refrigerators, and televisions with satellite channels compared to 52.5%, 90%, 29.4% and 26.3% of traditional Bedouins respectively.

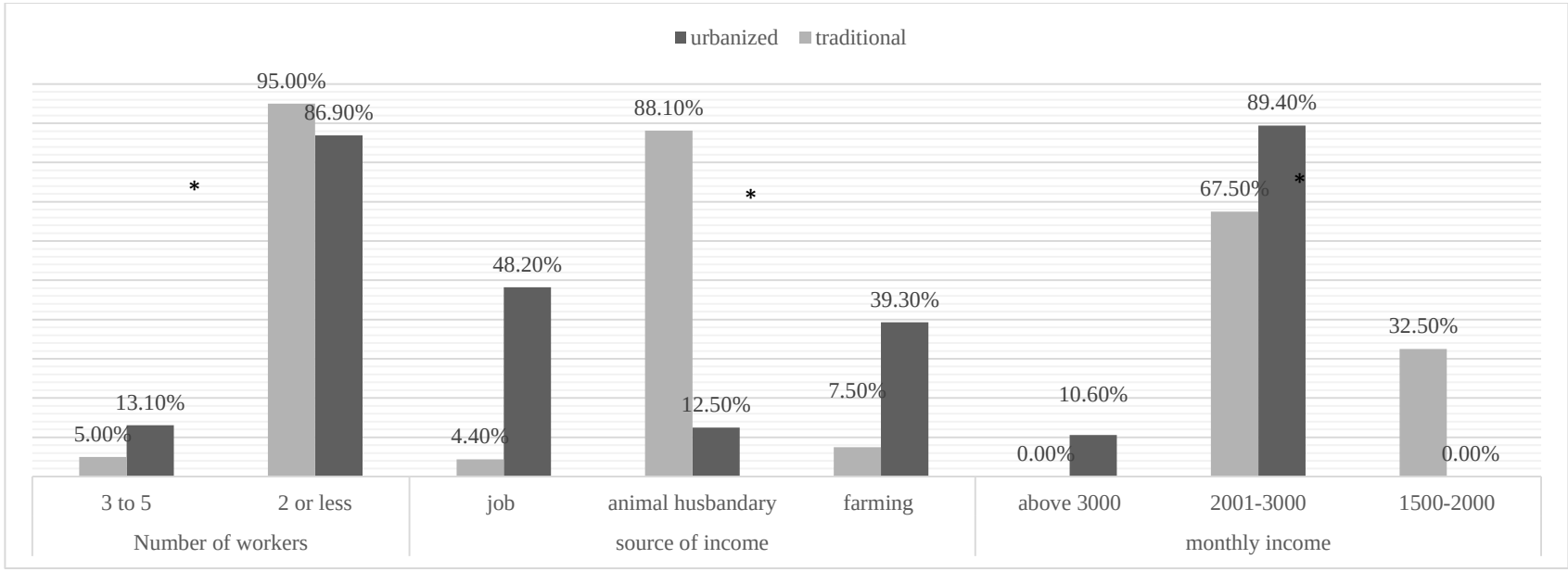



**Figure (5.2): Distribution of study population by their economic status*(p<0.05)**

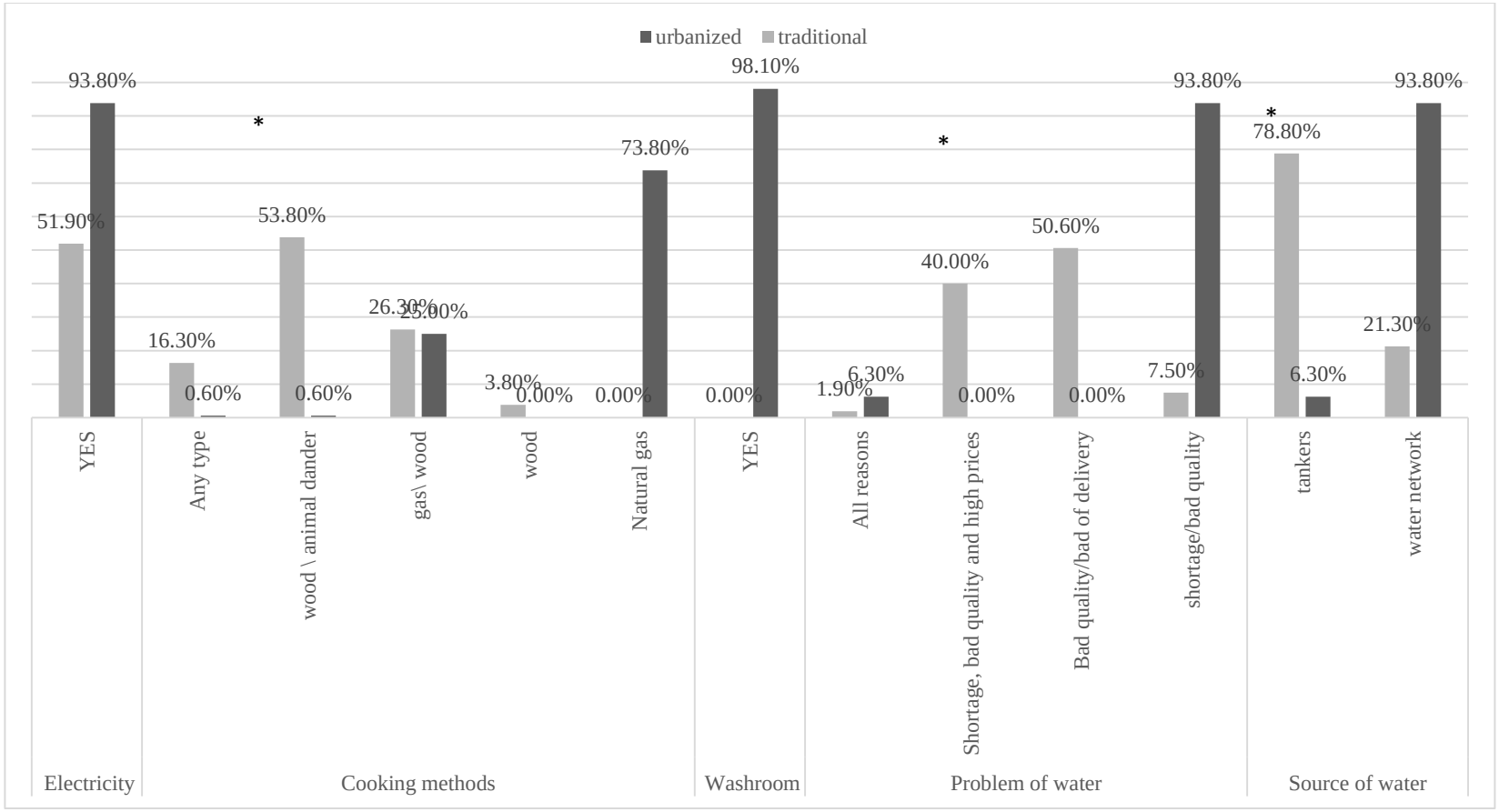



**Figure (1.3): Distribution of study population by their dwelling characteristic*(p< 0.05)**

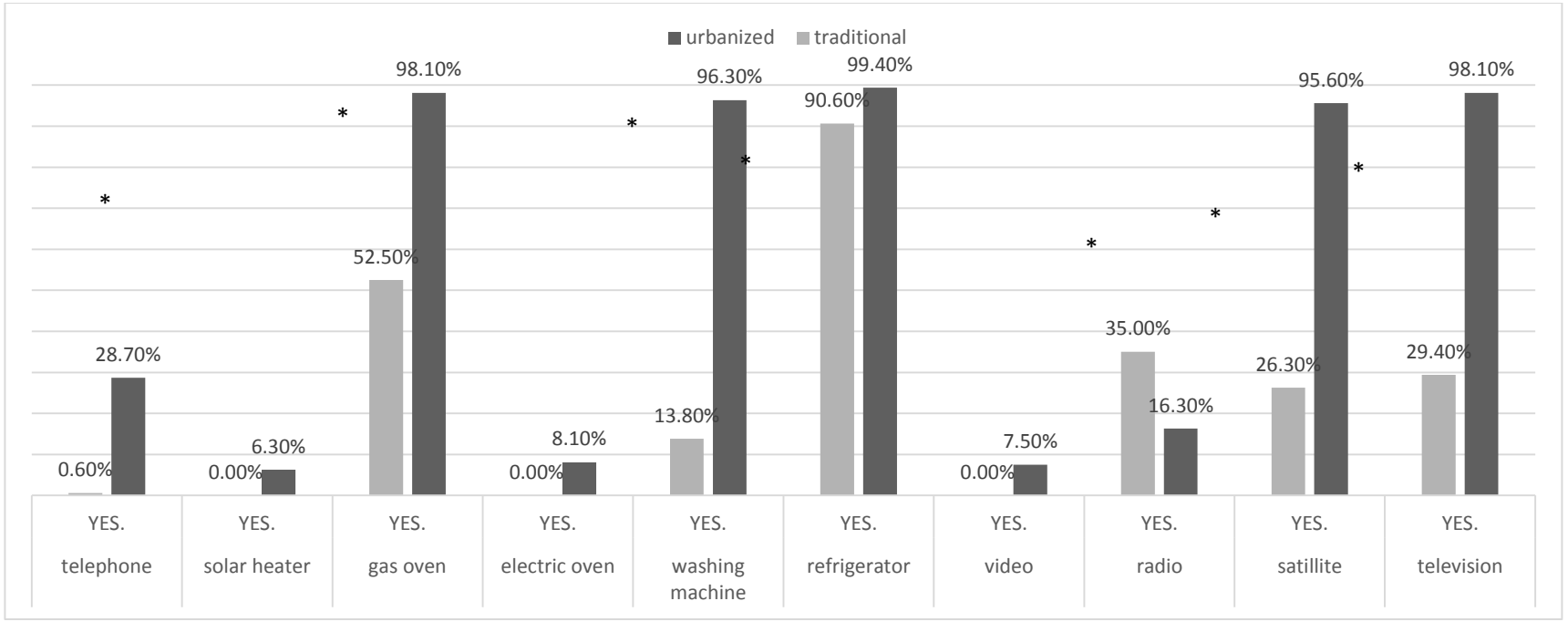


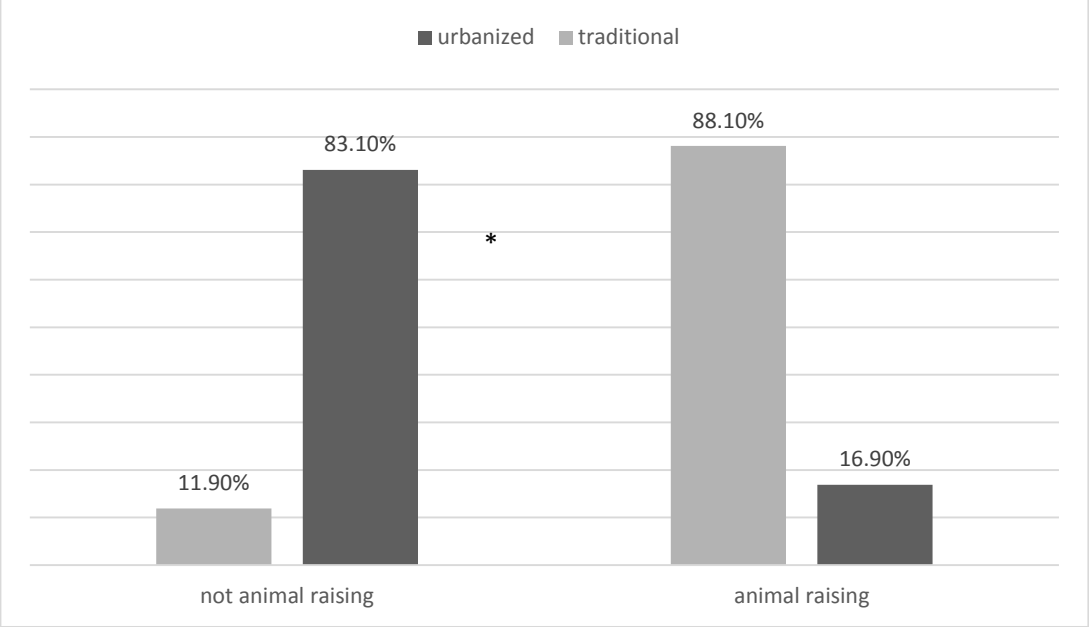

**Figure (5.4): Distribution of study population by their houses amenities*(p< 0.05).**

### 5.4 Animal husbandry and farming characteristics

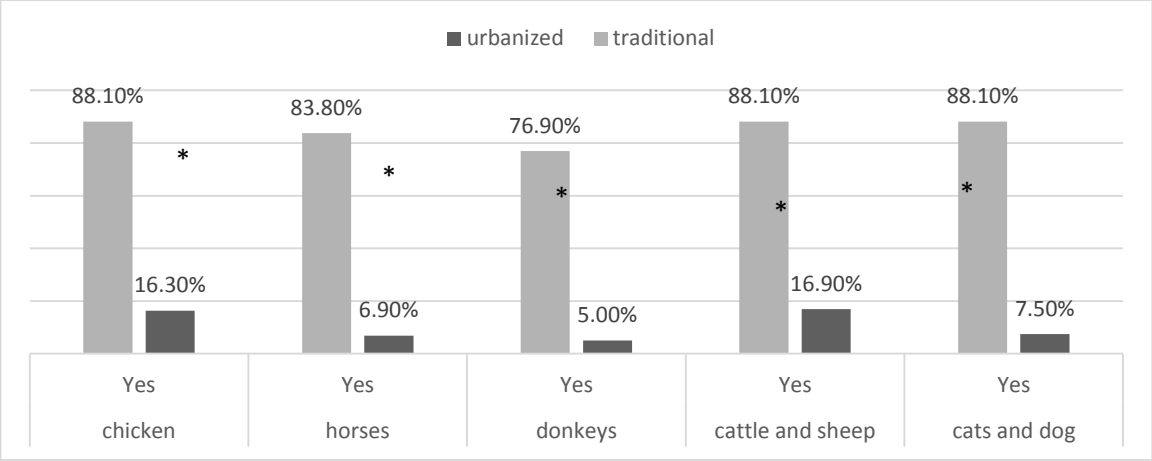
As shown in figure 7, 88% of traditional Bedouins have and/or raise animals. These Bedouins typically own pets (cats and dogs), cattle and sheep, donkeys, horses and chicken, and this habit is significantly higher among those living in traditional Bedouin residences (tents) ($p < 0.05$). (see figure 5.6).

40% of those living in urbanized areas practice farming as the main source of income (figure 5.7).

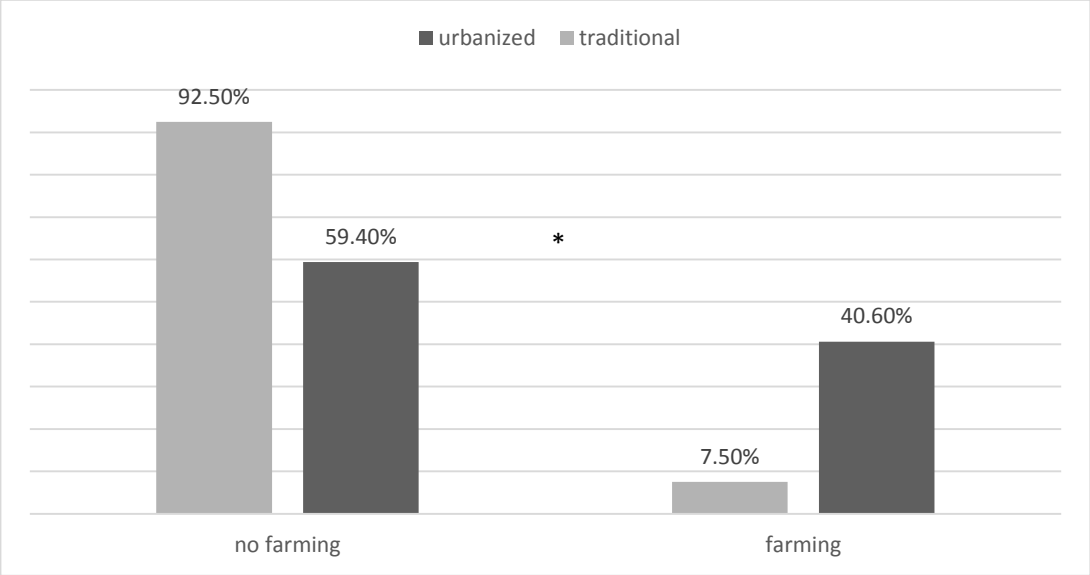
The method of plant cultivation (wild plants and herbs) was significantly different between both study groups) ($p < 0.05$). In general, urbanized Bedouins seemed to utilize fertilizer more than traditional Bedouins ($p<0.05$). The use of fertilizers and also the types of fertilizer used was significantly different between those living in urban contexts compared to those living in traditional Bedouins residency (tents) ($p < 0.05$) (table 12).




**Figure(5.5): Distribution of the study population by their occupation of animal husbandry*($p < 0.05$)**




**Figure(5.6): Distribution of the study population by their animal husbandry *(p< 0.05)**




**Figure(5.7): Distribution of the study population by their occupation by farming.*(p< 0.05)**

**Table (5.1): Distribution of the study population by their planting and fertilizers used**

| | | type of housing | | | | Chi-square |
|---|---|---|---|---|---|---|
| | | urbanized | | traditional | | |
| | | N | % | N | % | P value |
| vegetables | NO | 95 | 59.4 | 148 | 92.5 | .00 |
| | YES | 65 | 40.6 | 12 | 7.5 | |
| citrus fruits | NO | 96 | 60.0 | 160 | 100 | .00 |
| | YES | 64 | 40.0 | 0 | 0.0 | |
| wild plants | NO | 129 | 80.6 | 148 | 92.5 | .00 |
| | YES | 31 | 19.4 | 12 | 7.5 | |
| planting herbs | NO | 127 | 79.4 | 148 | 92.5 | .00 |
| | YES | 33 | 20.6 | 12 | 7.5 | |
| fertilizers using | No | 95 | 59.4 | 148 | 92.5 | .00 |
| | Yes | 65 | 40.6 | 12 | 7.5 | |
| Organic fertilizer | No | 118 | 73.8 | 148 | 92.5 | .00 |
| | Yes | 42 | 26.3 | 12 | 7.5 | |
| Compound fertilizer | No | 97 | 60.6 | 148 | 92.5 | .00 |
| | Yes | 63 | 39.4 | 12 | 7.5 | |
| Nitrogen | No | 127 | 79.4 | 160 | 100 | -- |
| | Yes | 33 | 20.6 | 0 | 0.0 | |
| Phosphate | No | 160 | 100 | 160 | 100 | -- |
| | Yes | 0 | 0.0 | 0 | 0.0 | |
| Integrated fertilizer | yes | 65 | 40.6 | 12 | 7.5 | .00 |
| | No | 95 | 59.4 | 148 | 92.5 | |

## 5.5 Lifestyle factors

### 5.5.1 Diet factors:

"traditional Bedouins' meals" versus "urbanized meals"

The frequency of eating certain types of food differed between both study groups ($p < 0.05$). In tables (5.3) and table (5.4), differences in consumption of the "traditional Bedouin meals" and "urbanized meals" are presented.

We can categorize the meals to include staple traditional Bedouin meals such as mallow, hedge mustard, boiled potatoes with olive oil, cooked yogurt with rice, bread and meat, bread and butter, fried cauliflower with yogurt and rice, rice and lentils with fried onion, and lentil soup.

Urbanized meals can be considered as fried vegetables such as cauliflower and eggplant cooked with fried chicken, fried vegetables, vegetables stuffed with rice and meat, grills (chicken and vegetables) bread with fried chicken and onion*, baked-Pasta, rice, fried chicken with chickpeas pizza, and burgers. In table (5.3), we can see that there are significant differences in the frequent consumption of most of the traditional meals.

**Table (5.2): Distribution of study population by their consumption of traditional Bedouins' meals**

| | | Urbanized women N=160 | | Traditional women N=160 | | Chi-Square P-value |
|---|---|---|---|---|---|---|
| | | N | % | N | % | Significance |
| Mallow* | <once a month | 154 | 96.3 | 32 | 20.0 | 0.00 |
| | 1-3 a month | 6 | 3.8 | 128 | 80.0 | |
| Hedge mustard | <once a month | 135 | 84.4 | 2 | 1.3 | 0.00 |
| | 1-3 a month | 25 | 15.6 | 158 | 98.8 | |
| Boiled potatoes with olive oil | <once a month | 111 | 69.4 | 2 | 1.3 | 0.00 |
| | 1-3 a month | 49 | 30.6 | 158 | 98.8 | |
| Cooked Laban(yogurt) with rice, bread and meat* | <once a month | 25 | 15.6 | 2 | 1.3 | 0.00 |
| | 1-3 a month | 135 | 84.4 | 158 | 98.8 | |
| bread and butter | <once a month | 155 | 96.9 | 3 | 1.9 | 0.00 |
| | 5-6 times a week | 5 | 3.1 | 157 | 98.1 | |
| Fried cauliflower with Laban (yogurt) and rice* | <once a month | 159 | 99.4 | 77 | 48.1 | 0.00 |
| | one a week | 1 | 0.6 | 83 | 51.9 | |
| Rice an lentil with fried onion* | 1-3 a month | 157 | 98.1 | 18 | 11.3 | 0.00 |
| | one a week | 3 | 1.9 | 142 | 88.8 | |
| Lentil soup | 1-3 a month | 156 | 97.5 | 14 | 8.8 | 0.00 |
| | one a week | 4 | 2.5 | 146 | 91.3 | |
| Fried vegetables | 1-3 a month | 24 | 15.0 | 42 | 26.3 | 0.00 |
| | one a week | 136 | 85.0 | 118 | 73.8 | |
| vegetables stuffed with rice and meat | <once a month | 56 | 35.0 | 5 | 3.1 | 0.00 |
| | 1-3 a month | 104 | 65.0 | 155 | 96.9 | |
| Grills(chicken and vegetables) | <once a month | 31 | 19.4 | 22 | 13.8 | 0.00 |
| | 1-3 a month | 129 | 80.6 | 138 | 86.3 | |
| bread with fried chicken and onion* | <once a month | 125 | 78.1 | 58 | 36.3 | 0.00 |
| | 1-3 a month | 35 | 21.9 | 102 | 63.7 | |

- Mallow **(**Khobeizeh)*: it is cooked with onion and olive oil. It is rich in vitamins.

- Fried cauliflower with Laban (yogurt) and rice (Mushawata)*is a traditional Bedouins' meal consisting of Laban (yogurt) soup, rice, and cauliflower.
- Cooked Laban(yogurt) with rice, bread and meat (Mansaf)* is a very popular dish that is usually served during important events, such as a traditional wedding, engagement, funeral, baptism, and circumcision. It is a dish incorporating all the elements of Palestinian land, such as bread, Laban (yogurt) soup, rice, nuts (pine nuts), parsley and lamb. (Nabil Aho,2015).
- Rice and lentil with fried onion (Mujadara)* is a traditional meal consisting of cooked lentils together with groats, generally rice, and garnished with sautéed onions known to be consumed by a low socioeconomic status layer.

**Table (5.3): Distribution of study population by their modern meals**

| | | Urbanized women n=160 | | Traditional women N=160 | | Chi-Square P-value |
|---|---|---|---|---|---|---|
| | | N | % | N | % | Significance |
| Fried vegetables like cauliflower and eggplant cooked with fried chicken* | 1-3 a month | 2 | 1.3 | 4 | 2.5 | 0.00 |
| | one a week | 158 | 98.8 | 156 | 97.5 | |
| Baking-Pasta | <once a month | 5 | 3.1 | 149 | 93.1 | 0.00 |
| | one a week | 155 | 96.9 | 11 | 6.9 | |
| Rice, fried chicken with chickpeas* | <once a month | 27 | 16.9 | 126 | 78.8 | 0.00 |
| | 1-3 a month | 133 | 83.1 | 34 | 21.3 | |
| Pizza | > once a month | 14 | 8.8 | 138 | 86.3 | 0.00 |
| | 1-3 times a month | 146 | 91.3 | 22 | 13.8 | |
| Burger | > once a month | 139 | 86.9 | 158 | 98.8 | 0.00 |
| | 1-3 times a month | 21 | 13.1 | 2 | 1.3 | |

- (Maqluba)* is a dish made with meat, fried vegetables, and rice. The dish is cooked with the meat at the bottom of a large pot and then layered with fried vegetables, such as potatoes, carrots, cauliflower, and eggplant. Rice then added to the dish as it completes cooking. (Haddad, Laila.2006). Nabil Aho,2015).
- Rice, fried chicken with chickpeas(Qidreh)* a Traditional Palestinian food especially in (Hebron) consisting of meat, rice and chickpeas. (Nabil Aho,2015

- bread with fried chicken and onion (Musakhan)* a widely popular Palestinian dish composed of roasted chicken, with fried onions, sumac, allspice, saffron and pine nuts atop one or more “taboons”. (Institute for Middle East Understanding,2006).
-

### 5.2.1.2 Food frequency analysis

#### 5.2.1.2.1 Sweets, bread and soda consumption

In table (5.4), we calculated the sum of all foods that are considered **sweets** like “hetaliya” which is a dessert consisting of milk, water, sugar and corn-starch; cakes, biscuits and sweets which is made of mixing rice and milk. Soda: represents any food that contains any beverage that contains soda such as cola (diet or not), sprite, Fanta and others.

According to table (5.4), the differences in sweet consumption and soda were significant when comparing the two groups. The frequency of consuming sweets, white bread and soda were significantly higher among those living in urbanized areas (84%, 96% respectively) compared to those living in tents. However, urbanized women reported higher consumption of white bread, with consumption at 96% 3 times a day. Also, urbanized women reported higher consumption of sweets with 84% 3-4 times a week.

**Table (5.4): Distribution of study population by their consumption of sweets carbohydrates and soda.**

| | | Urbanized women n=160 | | Traditional women N=160 | | Chi-Square P value |
|---|---|---|---|---|---|---|
| | | N | % | N | % | Significance |
| Sweet* | 1-3 times a month | 26 | 16.3% | 88 | 55.0% | 0.00 |
| | 3-4 times a week | 134 | **83.8%** | 72 | 45.0% | |
| White bread | <once a month | 7 | 4.4% | 157 | 98.1% | 0.00 |
| | 2-3 times a day | 153 | **95.6%** | 3 | 1.9% | |
| Wheat bread | < once a month | 135 | 84.4% | 3 | 1.9% | 0.00 |
| | 2-3 times a day | 25 | 15.6% | 157 | **98.1%** | |
| popcorn | <once a month | 124 | 77.5% | 155 | 96.9% | 0.00 |
| | 1-3 times a month | 36 | 22.5% | 5 | 3.1% | |

*Sweets include (Hetaliya consists of consisting of milk, water, sugar, and corn-starch), cake, biscuits, and rice and milk.

**Any beverage that contains soda such as cola (diet or not), Sprite, Fanta and others

### 5.2.1.2.2 Meat, cheese, and dairy consumption

In table (5.5), the frequency of consuming fish and chicken was higher in the urbanized Bedouin group compared to traditional Bedouins living in tents. On the other hand, dairy intake and egg consumption tended to be higher for those Bedouins living in tents.

**Table (5.5): Distribution of study population by their consumption of Meats, dairy, and protein.**

| | | Urbanized women n=160 | | Traditional women N=160 | | Chi-Square P-value |
|---|---|---|---|---|---|---|
| | | N | % | N | % | Significance |
| Fish | < once a month | 6 | 3.8% | 15 | 9.4% | 0.00 |
| | 1-3 times a month | 134 | 83.8% | 143 | 89.4% | |
| | once a week | 20 | 12.5% | 2 | 1.3% | |
| chicken | once a week | 4 | 2.5% | 5 | 3.1% | .928 |
| | 2-4 times in week | 96 | 60.0% | 97 | 60.6% | |
| | 5-6 times in week | 60 | 37.5% | 58 | 36.3% | |
| Milk | once a week | 22 | 13.8% | 15 | 9.4% | 0.00 |
| | 2-4 times in week | 85 | 53.1% | 3 | 1.9% | |
| | 5-6 times in week | 53 | 33.1% | 142 | 88.8% | |
| cheese | once a week | 17 | 10.6% | 20 | 12.5% | 0.00 |
| | 2-4 times in week | 136 | 85.0% | 108 | 67.5% | |
| | 5-6 times in week | 7 | 4.4% | 32 | 20.0% | |
| Eggs | once a week | 18 | 11.3% | 21 | 13.1% | 0.00 |
| | 2-4 times in week | 133 | 83.1% | 67 | 41.9% | |
| | 5-6 times in week | 9 | 5.6% | 72 | 45.0% | |
| Nuts | > once a month | 84 | 52.5% | 146 | 91.3% | 0.00 |
| | 1-3 times a month | 76 | 47.5% | 14 | 8.8% | |

### 5.2.1.2.3 Fruits and vegetable consumption

In table (5.6), the frequency of vegetable and fruit consumption was significantly higher in Bedouins living a traditional lifestyle. Regarding fruit consumption, and intake frequency of 3-4 times a week was reported by traditional women. Whilst for Bedouins was 24.4% compared to 14.4% in urbanized women. However, the percentage was lower in both groups. The consumption frequency of vegetables was higher in Bedouin women living in tents with 75.7% compared to 40% in urbanized women. ($p<0.05$). (see table 5.6).

**Table (5.6): Distribution of study population by their consumption of vegetables and fruits**

| | | Urbanized women n=160 | | Traditional women N=160 | | Chi-Square P value |
|---|---|---|---|---|---|---|
| | | N | % | N | % | Significance |
| fruits | <once a month | 26 | 16.3 | 4 | 2. | 0.00 |
| | 1-3 a month | 5 | 3.1 | 16 | 10.0 | |
| | once a week | 106 | 66.3 | 101 | 63.1 | |
| | 3-4 times a week | 23 | 14.4 | 39 | 24.4 | |
| Potatoes and vegetables (boiled) | 1-3 times a month | 7 | 4.4 | 13 | 8.1 | .255 |
| | once a week | 89 | 55.6 | 93 | 58.1 | |
| | 2-4 times in week | 64 | 40.0 | 54 | 33.8 | |
| Salad (vegetables) | 2-4 times in week | 96 | 60.0 | 39 | 24.4 | 0.00 |
| | 5-6 times in week | 64 | 40 | 121 | 75.7 | |

### 5.5.2 Smoking habits

Regarding smoking profiles, they are shown in table (5.7), there was a significant difference between Bedouin women living in an urbanized lifestyle in houses compared to those living in traditional Bedouin residency (tents) ($p< 0.05$).

**Table (5.7): Distribution of study smoking and non-smoking population**

| | | Urbanized women N=160 | | Traditional women N=160 | | Chi-Square P-value |
|---|---|---|---|---|---|---|
| | | N | % | N | % | Significance |
| smoking | No | 16 | 10.0 | 69 | 43.1 | 0.00 |
| | Yes | 144 | 90.0 | 91 | 56.9 | |

### 5.5.3 Physical activity

As shown in table (5.8), a significant difference can be seen between urbanized and traditional Bedouin lifestyle in the sense of total weekly activity; traditional Bedouins seemed to be more physically active ($p<0.05$), also there were significant differences regarding the minutes of rest per day among both group; urbanized Bedouins seemed to have a more sedentary lifestyle ($p<0.05$). Also, only 16.9% of urbanized women practiced regular moderate to vigorous physical activity compared to 50% of traditional Bedouin women ($p<0.005$).

**Table (5.8): daily activity characteristics of study subjects**

| Variable | Category | Urbanized women n=160 | Traditional women N=160 | T-test P-value |
|---|---|---|---|---|
| Total score of physical activity per week*(MET) | Mean<br>(SD) | 423<br>(238) | 795.5000<br>(514) | .000 |
| Number of rest minutes per day | Mean<br>(SD) | 246.7500<br>(36) | 168.7500<br>(39.9) | .000 |
| MET | ≥600<br>n (%) | 27 (16.9%) | 80 (50%) | .000 |
| | <600<br>n (%) | 133 (83.1%) | 80 (50%) | |

*An equivalent combination of moderate –and vigorous-intensity physical activity achieving at least 600 MET-minutes. -derived from the WHO (World Health Organization, 2010).

*MET Metabolic Equivalents are commonly used to express the intensity of physical activities.

## Part II: Health outcomes of Bedouins

### 5.6 Comparison of women's health diseases/disorders in the two study groups

In this part of the questionnaire, we summed questions related to similar diseases together with the help of a physician. new categories include:

- Asthma diagnosed
- Eczema and eczema-like symptoms: allergic skin disease, itching, and rash.
- Rhinitis and rhinitis's like symptoms: running nose, nasal congestion, nose bleeding, and eye allergies.
- Bone and muscle pain: neck pain, joint pain, lower back pain, and muscle spasm and pain.
- Gastrointestinal symptoms and disorders of women: loss of appetite, the restlessness of stomach, vomiting, diarrhea, constipation, bowel puffiness and heartburn.
- Kidney stones
- Heart problem.
- Hypertension.
- Diabetes diagnosed

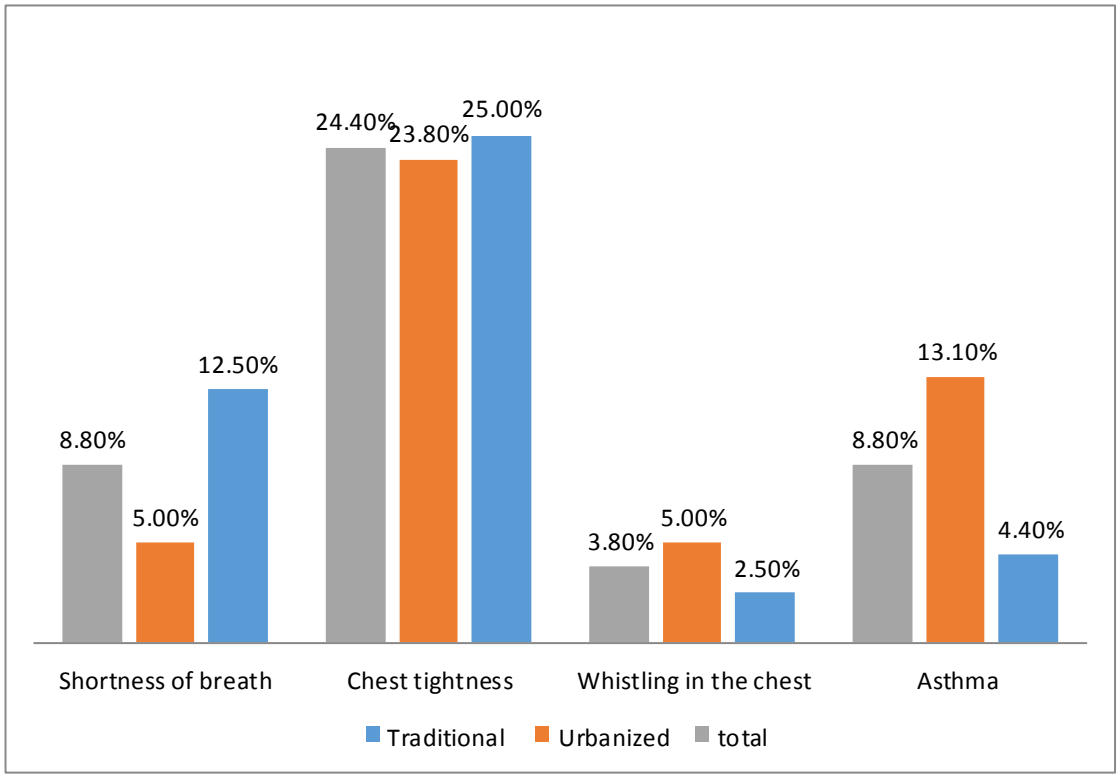
In this section we will present the results, as follows:

1- Differences in disease groups, between the two study groups.
2- Associations between each disease groups and the study determinants that are presented in the previous sections between the two study groups, and
3- General association between study determinants of the various diseases.

### 5.6.1 Asthma and asthma-like symptoms:

The total study diagnosed asthma prevalence as 8.8%, with significantly higher rates in urbanized women ($p<0.05$). Also, chest wheeziness in the past 12 months was significantly higher in urbanized women too (5%), but chest tightness was shown to be reported more by traditional women (12.5%). However, chest tightness might represent an undiagnosed symptom of asthma not in a separate condition but was reported more by women (figure 5.8).

When asking women about if they had sought medical care for these symptoms in the past 12 months, none of the women in both groups has sought medical care or received treatment for their symptoms.

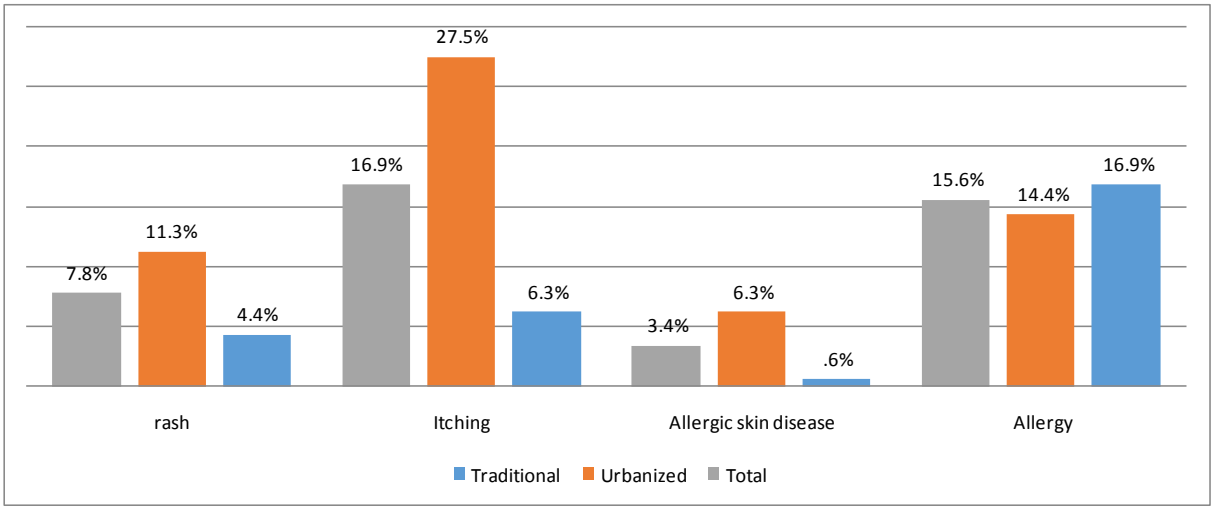



**Figure(5.8): Distribution of asthma and asthma-like symptoms reporting in both study groups.**

### 5.6.2Allergy diseases and symptoms:

In total, Bedouin women reported having relatively high allergy prevalence rates in general, in particular being prone to itching symptoms. However, women reported much lower rates of skin allergies and rash conditions. In most allergies, reports of symptoms were significantly higher for urbanized women (P<0.05) (figure 5.9)

None of the women with allergy symptoms, itching or having rash sought medical care in the past 12 months or reported medication use for these reported symptoms.




**Figure(5.9): Distribution of Allergy diseases and symptoms in the two study groups**

### 5.6.3Rhinitis like symptoms:

The number of people suffering from runny nose symptoms varied significantly between urbanized women (47.5%) and traditional women (31.3%), with 39.4% in total ($p<0.05$). Moreover, eye allergy or itching eyes was (9.1%) in total with higher rates in urbanized women. However, symptoms of nose bleeding and congestion showed lower rates (figure 5.10). All women reported not visiting a doctor or taking any medications for these symptoms.

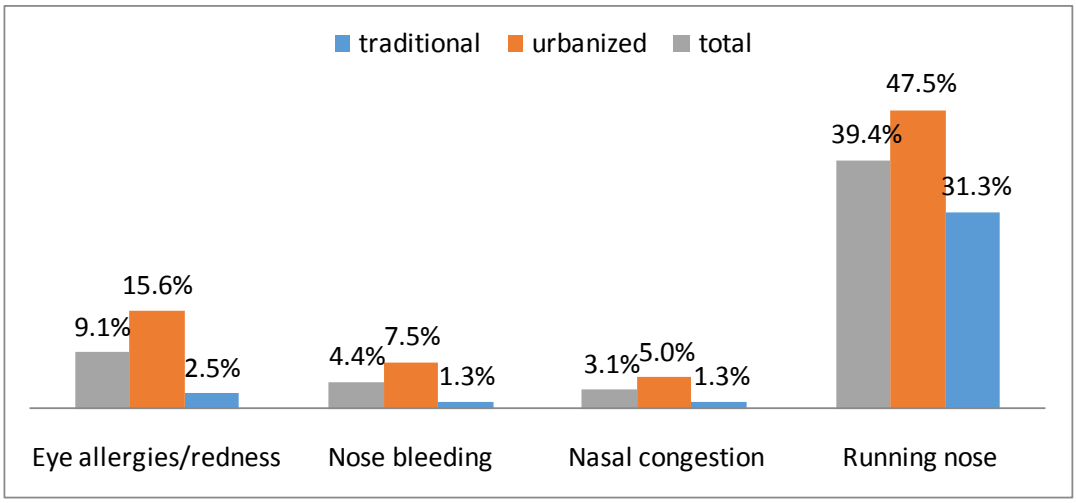



**Figure (5.10) Distribution of rhinitis like symptoms in two study groups ($p<0.05$)**

### 5.6.4Gastro- intestinal symptoms:

Those living in tents showed a higher percentage of diarrhea (40.6%) compared to 10% of urbanized women ($p<0.05$). Sufferers of heartburn were at a higher percentage in urbanized women 43.8%, with no symptoms in traditional women. Stomach gases were higher in urbanized women 56.3% compared to 1.3% in traditional women ($p<0.05$) (figure 5.11). According to the responses collected, none of the women identified sought medical care or used medications for these symptoms.

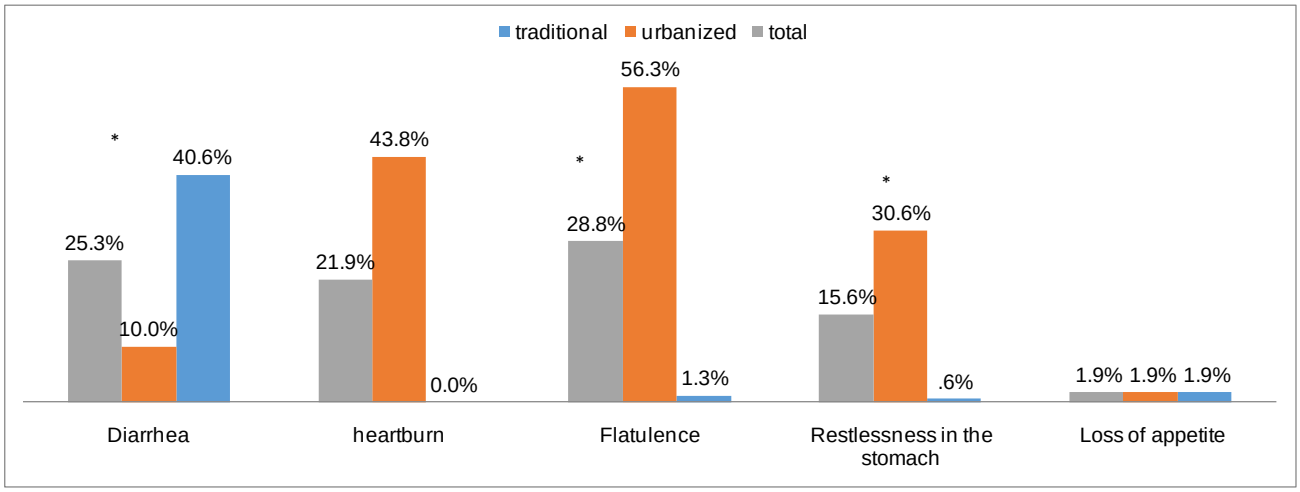



**Figure (5.11): Distributions of Gastrointestinal symptoms in both groups($p<0.05$)***

### 5.6.5 Bone and muscles pain:

Low back pain (LBP) was shown to be significantly higher in urbanized women 34.4% compared to 3.1% in traditional women ($p<0.05$). Lower rates were seen for joint pain, which was also significantly higher in urbanized women (6.9%) ($p<0.05$). Other symptoms didn't show any significant difference (figure 5.12). Interestingly, women did not seek medical assistance for the symptoms identified nor did they take any medication for pain relief.

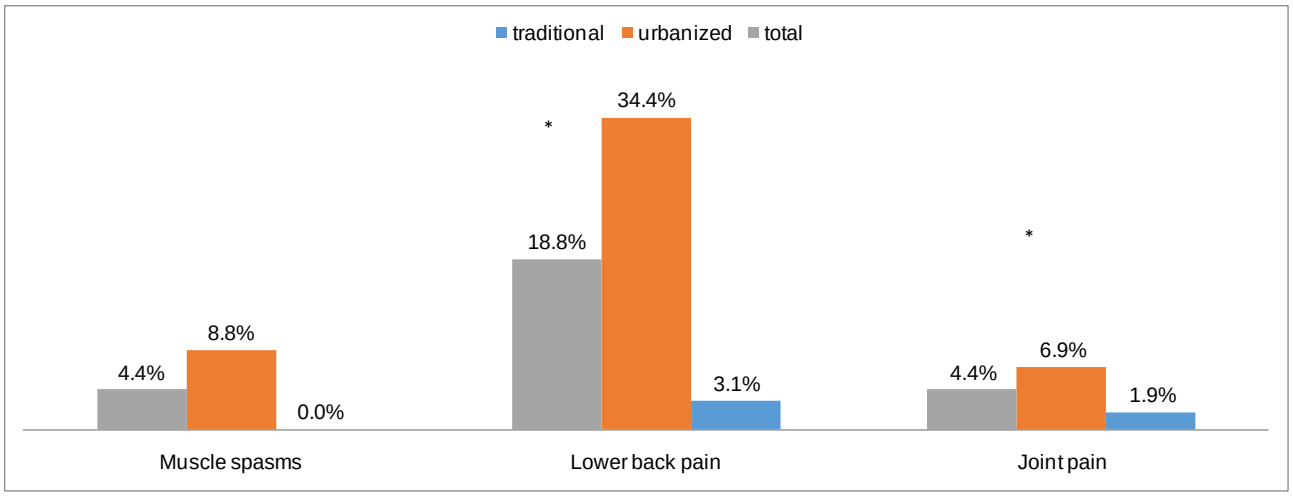



**Figure (5.12): Distribution of bone and muscle pains in the two study groups($p<0.05$)*.**

### 5.6.6 Chronic diseases:

(13%) of women reported having hypertension, which was significantly higher in urbanized women 21.3% compared to traditional women (5%) ($p<0.05$). Furthermore, (22%) reported having kidney stone ailments.

Women reported lower rates of diabetes (8.8%) with very low rates for the traditional women surveyed. However, women reported very low rates of heart disease and only 6 urbanized women reported having breast cancer (3.8%). (figure 5.13)

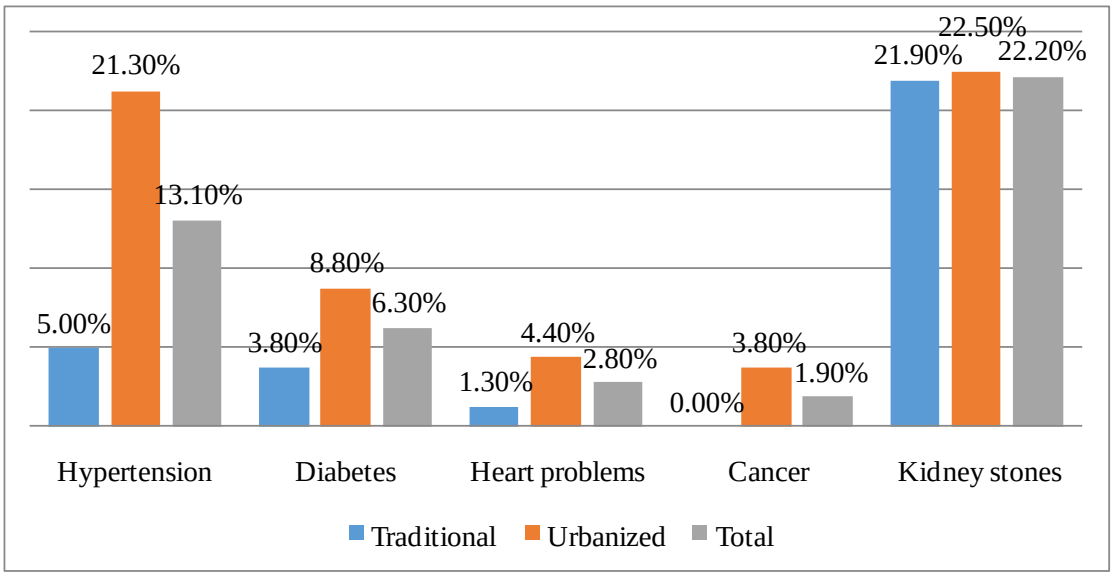



**Figure (5.13): Distribution of chronic diseases in the two study groups($p<0.05$)*.**

Interestingly, women with chronic disease conditions visited doctors and took medication for their condition. Traditional women with hypertension visited health clinics and doctors in the last year, the prescription intake of the population was (87.5%) compared to (44.1%) of urbanized women. All diabetic traditional women visited the doctor in the last year and took their medications compared to only (71.4%) of urbanized women. All breast cancer cases were treated.

### 5.7 Association between the various study exposures and health outcomes

In this section, we only looked at the major diagnosed disease determinants, i.e. asthma diagnosis, eczema and rhinitis symptoms, hypertension, diabetes, and heart problems. We could not find any association with cancer due to the very low number of cases. Other symptoms like bone pains were only reported symptoms and not diagnosed by a medical professional (see annex for their results).

#### 5.7.1 Asthma diagnosed determinants

In total, Bedouin women with middle education, middle income, no farming, and no animal husbandry, tended to have more asthma. On the other hand, Bedouin women in employment, with access to electricity, who smoked, and consumed more sweets had higher risk probability for asthma diagnosis, but the results were not a significant variation from the norm. A lower physical activity rate showed a significant association with a higher rate of asthma diagnosis. ($p<0.05$).(see table 5.9).

**Table(5.9) Associations between asthma diagnosis and the study determinants between the two study groups.**

| | | Asthma diagnosed | | | | | | Chi-square |
|---|---|---|---|---|---|---|---|---|
| | | Traditional N=160 | | Urbanized N=160 | | Total | | |
| | | N | % | N | % | N | % | P value |
| Education | 0-9 | 1 | 14.3 | 0 | 0.0 | 1 | 3.6 | - |
| | 10-12 | 5 | 71.4 | 9 | 42.9 | 14 | 50.0 | |
| | above 12 | 1 | 14.3 | 12 | 57. | 13 | 46.4 | |
| Income | 1500-2000 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | -- |
| | 2001-3000 | 7 | 100 | 19 | 90.5 | 26 | 92.9 | |
| | above 3000 | 0 | 0.0 | 2 | 9.5 | 2 | 7.1 | |
| Farming | No | 7 | 100 | 18 | 85.7 | 25 | 89.3 | -- |
| | Yes | 0 | 0.0 | 3 | 14.3 | 3 | 10.7 | |
| Animal husbandries | No | 2 | 28.6 | 18 | 85.7 | 20 | 71.4 | .054 |
| | Yes | 5 | 71.4 | 3 | 14.3 | 8 | 28.6 | |
| Job | No | 5 | 71.4 | 0 | 0.0 | 5 | 17.9 | -- |
| | Yes | 2 | 28.6 | 21 | 100 | 23 | 82.1 | |
| Electricity | NO | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | -- |
| | YES. | 7 | 100 | 21 | 100 | 28 | 100 | |
| Smoking | No | 5 | 71.4 | 7 | 33.3 | 12 | 42.9 | 0.78 |
| | Yes | 2 | 28.6 | 14 | 66.7 | 16 | 57.1 | |
| Sweets | 1-3 a month | 0 | 0.0 | 3 | 14.3 | 3 | 10.7 | -- |
| | 3-4 a week | 7 | 100 | 18 | 85.7 | 25 | 89.3 | |
| Physical activity | no | 2 | 28.6 | 19 | 90.5 | 21 | 75.0 | 0.01 |
| | yes | 5 | 71.4 | 2 | 9.5 | 7 | 25.0 | |

### 5.7.2 Eczema and eczema-like symptoms determinants

In total, Bedouin women with high education levels, with a middle-class income, and who are not involved in farming activities tended to have more eczema and eczema-like symptoms, but the results were not significantly different. On another hand those no animal husbandry, having a job, having electricity, smoking habits, consuming more sweets, and low level of physical activity showed a significant association with more eczema and eczema-like symptoms. ($p<0.05$).(see table5.10).

**Table (5.10): Associations between eczema and eczema-like symptoms and the study determinants between the two study groups**

| | | Eczema and like eczema symptoms | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Traditional N= 160 | | Urbanized N=160 | | Total | | Chi square |
| | | N | % | N | % | N | % | P value |
| Education | 0-9 | 2 | 12.5 | 0 | 0.0 | 2 | 3.1 | -- |
| | 10-12 | 13 | 81.3 | 11 | 22.9 | 24 | 37.5 | |
| | above 12 | 1 | 6.3 | 37 | 77.1 | 38 | 59.4 | |
| Income | 1500-2000 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | -- |
| | 2001-3000 | 16 | 100 | 44 | 91.7 | 60 | 93.8 | |
| | above 3000 | 0 | 0.0 | 4 | 8.3 | 4 | 6.3 | |
| Farming | No | 14 | 87.5 | 30 | 62.5 | 44 | 68.8 | 0.06 |
| | Yes | 2 | 12.5 | 18 | 37.5 | 20 | 31.3 | |
| Animal husbandries | No | 1 | 6.3 | 40 | 83.3 | 41 | 64.1 | 0.04 |
| | Yes | 15 | 93.8 | 8 | 16.7 | 23 | 35.9 | |
| Job | No | 13 | 81.3 | 3 | 6.3 | 16 | 25.0 | 0.00 |
| | Yes | 3 | 18.8 | 45 | 93.8 | 48 | 75.0 | |
| Electricity | NO | 12 | 75.0 | 2 | 4.2 | 14 | 21.9 | 0.00 |
| | YES. | 4 | 25.0 | 46 | 95.8 | 50 | 78.1 | |
| Smoking | No | 6 | 37.5 | 7 | 14.6 | 13 | 20.3 | 0.04 |
| | Yes | 10 | 62.5 | 41 | 85.4 | 51 | 79.7 | |
| Sweets | 1-3 times a month | 8 | 50.0 | 6 | 12.5 | 14 | 21.9 | 0.04 |
| | 3-4 times a week | 8 | 50.0 | 42 | 87.5 | 50 | 78.1 | |
| Physical activity | no | 1 | 6.3 | 43 | 89.6 | 44 | 68.8 | 0.00 |
| | yes | 15 | 93.8 | 5 | 10.4 | 20 | 31.3 | |

### 5.7.3 Rhinitis and like rhinitis symptoms determinants

In total, Bedouin women with high education level, middle income, no animal husbandry, no farming, having a job, having electricity, have smoking habits, consuming more sweets, and finally, have a low rate of physical activity had more rhinitis and rhinitis like symptoms, but the associations were not significant. (see table 5.11).

**Table (5.11): Associations between rhinitis and rhinitis like symptoms and the study determinants between the two study groups.**

| | | Rhinitis and like rhinitis symptoms | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Traditional N=160 | | Urbanized N=160 | | Total | | Chi square |
| | | N | % | N | % | N | % | P value |
| Education | 0-9 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | -- |
| | 10-12 | 2 | 100 | 6 | 37.5 | 8 | 44.4 | |
| | above 12 | 0 | 0.0 | 10 | 62.5 | 10 | 55.6 | |
| Income | 1500-2000 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | -- |
| | 2001-3000 | 2 | 100 | 14 | 87.5 | 16 | 88.9 | |
| | above 3000 | 0 | 0.0 | 2 | 12.5 | 2 | 11.1 | |
| farming | No | 2 | 100 | 10 | 62.5 | 12 | 66.7 | -- |
| | Yes | 0 | 0.0 | 6 | 37.5 | 6 | 33.3 | |
| Animal husbandries | No | 0 | 0.0 | 12 | 75.0 | 12 | 66.7 | -- |
| | Yes | 2 | 100 | 4 | 25.0 | 6 | 33.3 | |
| job | No | 1 | 50.0 | 1 | 6.3 | 2 | 11.1 | .07 |
| | Yes | 1 | 50.0 | 15 | 93.8 | 16 | 88.9 | |
| Electricity | NO | 1 | 50.0 | 2 | 12.5 | 3 | 16.7 | .18 |
| | YES. | 1 | 50.0 | 14 | 87.5 | 15 | 83.3 | |
| Smoking | No | 1 | 50.0 | 1 | 6.3 | 2 | 11.1 | ,07 |
| | Yes | 1 | 50.0 | 15 | 93.8 | 16 | 88.9 | |
| sweet | 1-3 times a month | 1 | 50.0 | 3 | 18.8 | 4 | 22.2 | .31 |
| | 3-4 times a week | 1 | 50.0 | 13 | 81.3 | 14 | 77.8 | |
| Physical activity | no | 0 | 0.0 | 12 | 75.0 | 12 | 66.7 | -- |
| | yes | 2 | 100 | 4 | 25.0 | 6 | 33.3 | |

### 5.7.4 Diabetes determinants

In total, Bedouin women with high education levels, middle income, having a job, no farming, and smoking tended to have more diabetes, but the associations were not significant. On the other hand, no animal husbandry, having electricity, consuming more sweets, and a low level of physical activity showed a significant association with more diabetes. ($p<0.05$).(see table 5.12).

**Table (5.12): Associations between diabetes and the study determinants between the two study groups.**

| | | Diabetes | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Traditional N=160 | | Urbanized N=160 | | Total | | Chi square |
| | | N | % | N | % | N | % | P value |
| Education | 0-9 | 3 | 50.0 | 0 | 0.0 | 3 | 15.0 | -- |
| | 10-12 | 3 | 50.0 | 5 | 35.7 | 8 | 40.0 | |
| | above 12 | 0 | 0.0 | 9 | 64.3 | 9 | 45.0 | |
| Income | 1500-2000 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | -- |
| | 2001-3000 | 6 | 100 | 12 | 85.7 | 18 | 90.0 | |
| | above 3000 | 0 | 0.0 | 2 | 14.3 | 2 | 10.0 | |
| farming | No | 5 | 83.3 | 10 | 71.4 | 15 | 75.0 | 0.57 |
| | Yes | 1 | 16.7 | 4 | 28.6 | 5 | 25.0 | |
| Animal husbandries | No | 1 | 16.7 | 11 | 78.6 | 12 | 60.0 | 0.00 |
| | Yes | 5 | 83.3 | 3 | 21.4 | 8 | 40.0 | |
| job | No | 6 | 100 | 0 | 0.0 | 6 | 30.0 | -- |
| | Yes | 0 | 0.0 | 14 | 100.0 | 14 | 70.0 | |
| Electricity | NO | 4 | 66.7 | 1 | 7.1 | 5 | 25.0 | 0.04 |
| | YES. | 2 | 33.3 | 13 | 92.9 | 15 | 75.0 | |
| Smoking | No | 3 | 50.0 | 0 | 0.0 | 3 | 15.0 | -- |
| | Yes | 3 | 50.0 | 14 | 100 | 17 | 85.0 | |
| Sweets | 1-3 times a month | 5 | 83.3 | 4 | 28.6 | 9 | 45.0 | 0.03 |
| | 3-4 times a week | 1 | 16.7 | 10 | 71.4 | 11 | 55.0 | |
| Physical activity | no | 2 | 33.3 | 11 | 78.6 | 13 | 65.0 | 0.05 |
| | yes | 4 | 66.7 | 3 | 21.4 | 7 | 35.0 | |

### 5.7.5 Hypertension determinants

In total, Bedouin women with high education levels, middle income, having a job, and no farming tended to have more hypertension, but the results were not significant. On the other hand, no animal husbandry, having electricity, smoking habits, consuming more sweets, and low level of physical activity showed a significant association with more hypertension. ($p<0.05$).(see table 5.13).

**Table (5.13): Associations between hypertension and the study determinants between the two study groups.**

| | | Hypertension | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Traditional N=60 | | Urbanized N=160 | | Total | | Chi square |
| | | N | % | N | % | N | % | P value |
| Education | 0-9 | 5 | 62.5 | 0 | 0.0 | 5 | 11.9 | -- |
| | 10-12 | 3 | 37.5 | 12 | 35.3 | 15 | 35.7 | |
| | above 12 | 0 | 0.0 | 22 | 64.7 | 22 | 52.4 | |
| Income | 1500-2000 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | -- |
| | 2001-3000 | 8 | 100 | 28 | 82.4 | 36 | 85.7 | |
| | above 3000 | 0 | 0.0 | 6 | 17.6 | 6 | 14.3 | |
| farming | No | 6 | 75.0 | 18 | 52.9 | 24 | 57.1 | .257 |
| | Yes | 2 | 25.0 | 16 | 47.1 | 18 | 42.9 | |
| Animal husbandries | No | 2 | 25.0 | 26 | 76.5 | 28 | 66.7 | 0.00 |
| | Yes | 6 | 75.0 | 8 | 23.5 | 14 | 33.3 | |
| job | No | 8 | 100 | 2 | 5.9 | 10 | 23.8 | -- |
| | Yes | 0 | 0.0 | 32 | 94.1 | 32 | 76.2 | |
| Electricity | NO | 6 | 75.0 | 1 | 2.9 | 7 | 16.7 | 0.00 |
| | YES. | 2 | 25.0 | 33 | 97.1 | 35 | 83.3 | |
| Smoking | No | 4 | 50.0 | 3 | 8.8 | 7 | 16.7 | 0.00 |
| | Yes | 4 | 50.0 | 31 | 91.2 | 35 | 83.3 | |
| Sweets | 1-3 times a month | 5 | 62.5 | 6 | 17.6 | 11 | 26.2 | 0.01 |
| | 3-4 times a week | 3 | 37.5 | 28 | 82.4 | 31 | 73.8 | |
| Physical activity | no | 3 | 37.5 | 27 | 79.4 | 30 | 71.4 | 0.02 |
| | yes | 5 | 62.5 | 7 | 20.6 | 12 | 28.6 | |

### 5.7.6 Heart problems determinants

In total, Bedouin women with high and middle education levels, middle income, no animal husbandry, no farming, having a job, having electricity, have smoking habits, consuming more sweets, had more heart problems, but the associations were not significant. (see table 5.14).

**Table (5.14) Associations between heart problems and the study determinants between the two study groups.**

| | | Heart problems | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Traditional N=160 | | Urbanized N=160 | | Total | | Chi square |
| | | N | % | N | % | N | % | P value |
| Education | 0-9 | 1 | 50.0 | 0 | 0.0 | 1 | 11.1 | -- |
| | 10-12 | 1 | 50.0 | 3 | 42.9 | 4 | 44.4 | |
| | above 12 | 0 | 0.0 | 4 | 57.1 | 4 | 44.4 | |
| Income | 1500-2000 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | -- |
| | 2001-3000 | 2 | 100 | 7 | 100 | 9 | 100 | |
| | above 3000 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | |
| farming | No | 1 | 50.0 | 4 | 57.1 | 5 | 55.6 | .85 |
| | Yes | 1 | 50.0 | 3 | 42.9 | 4 | 44.4 | |
| Animal husbandries | No | 1 | 50.0 | 6 | 85.7 | 7 | 77.8 | .34 |
| | Yes | 1 | 50.0 | 1 | 14.3 | 2 | 22.2 | |
| job | No | 2 | 100 | 0 | 0.0 | 2 | 22.2 | -- |
| | Yes | 0 | 0.0 | 7 | 100 | 7 | 77.8 | |
| Electricity | NO | 1 | 50.0 | 0 | 0.0 | 1 | 11.1 | |
| | YES. | 1 | 50.0 | 7 | 100 | 8 | 88.9 | |
| Smoking | No | 0 | 0.0 | 1 | 14.3 | 1 | 11.1 | -- |
| | Yes | 2 | 100 | 6 | 85.7 | 8 | 88.9 | |
| Sweets | 1-3 times a month | 0 | 0.0 | 4 | 57.1 | 4 | 44.4 | -- |
| | 3-4 times a week | 2 | 100 | 3 | 42.9 | 5 | 55.6 | |
| Physical activity | no | 0 | 0.0 | 4 | 57.1 | 4 | 44.4 | -- |
| | yes | 2 | 100 | 3 | 42.9 | 5 | 55.6 | |

### 6.7.7 Gastrointestinal symptoms determinants

In total, Bedouin women with high education levels, middle income tended to have more gastrointestinal symptoms and diseases, but the associations were not significant. Bedouins with animal husbandry, no farming, having a job, having electricity, have smoking habits, consuming more sweets, and finally have a low rate of physical activity had more gastrointestinal symptoms and diseases. ($p<0.05$)(see table 5.15).

**Table (5.15): Associations between gastrointestinal symptoms and the study determinants between the two study groups.**

| | | Gastrointestinal symptoms and diseases | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Traditional N=160 | | Urbanized N=160 | | Total | | Chi square |
| | | N | % | N | % | N | % | P value |
| Education | 0-9 | 26 | 36.6 | 0 | 0.0 | 26 | 15.0 | -- |
| | 10-12 | 37 | 52.1 | 26 | 25.5 | 63 | 36.4 | |
| | above 12 | 8 | 11.3 | 76 | 74.5 | 84 | 48.6 | |
| Income | 1500-2000 | 31 | 43.7 | 0 | 0.0 | 31 | 17.9 | -- |
| | 2001-3000 | 40 | 56.3 | 87 | 85.3 | 127 | 73.4 | |
| | above 3000 | 0 | 0.0 | 15 | 14.7 | 15 | 8.7 | |
| farming | No | 68 | 95.8 | 59 | 57.8 | 127 | 73.4 | 0.00 |
| | Yes | 3 | 4.2 | 43 | 42.2 | 46 | 26.6 | |
| Animal husbandries | No | 2 | 2.8 | 81 | 79.4 | 83 | 48.0 | 0.00 |
| | Yes | 69 | 97.2 | 21 | 20.6 | 90 | 52.0 | |
| job | No | 49 | 69.0 | 3 | 2.9 | 52 | 30.1 | 0.00 |
| | Yes | 22 | 31.0 | 99 | 97.1 | 121 | 69.9 | |
| Electricity | NO | 37 | 52.1 | 3 | 2.9 | 40 | 23.1 | 0.00 |
| | YES. | 34 | 47.9 | 99 | 97.1 | 133 | 76.9 | |
| Smoking | No | 27 | 38.0 | 11 | 10.8 | 38 | 22.0 | 0.00 |
| | Yes | 44 | 62.0 | 91 | 89.2 | 135 | 78.0 | |
| Sweets | 1-3 times a month | 37 | 52.1 | 19 | 18.6 | 56 | 32.4 | 0.00 |
| | 3-4 times a week | 34 | 47.9 | 83 | 81.4 | 117 | 67.6 | |
| Physical activity | no | 49 | 69.0 | 82 | 80.4 | 131 | 75.7 | 0.00 |
| | yes | 22 | 31.0 | 20 | 19.6 | 42 | 24.3 | |

# Chapter 6

# Discussion, conclusions, recommendations

## 6.1 Summary of study findings

In summary, the results show that urbanized women reported higher disease and disease proneness and/or symptoms or diagnosis than traditional women. Surprisingly, the utilization of health services and seeking treatment for these disorders/diseases was low in both groups.

The factors that determine health diseases were different in the two study groups and varied by the various diseases. Low numbers of cases due to under-reporting or non-diagnosed cases negated the associations initially identified for some ailments and diseases.

In general, Bedouin women who did not have an animal to care for, having a job, exposed to smoking, consuming more sweets, and had low levels of physical activity level reported to have asthma diagnosed, eczema and eczemas like symptoms, diabetes, and hypertension. No other factors were associated with other symptoms.

## 6.2 Socio- demographic and economic status

The typical Bedouin family is relatively larger in size than average in Palestine. Studies conducted amongst the Bedouins in the Negev showed that a Bedouin household can be almost 30% higher than the average among other Arab households according to 2007 data which was (6.03, 4.64 persons respectively). Also, the number of families with greater than 7 members is significantly higher among the Bedouin, as compared to the three other groups (i.e. Christians, Druze, and non-Bedouin Muslims) (Abu Bader and Gottlieb, 2009). In

Palestine, overcrowding of households in the Bedouin population is common, where families having 7 or more members constitute about 40-45% of households, in comparison to 1-10% of households in other settlements (PCBs, 1999a). In our study, the Bedouin family size was found to range from 4-10 regardless of the type of housing (the urbanized Bedouin family size was on average 7 members compared to 8 members for traditional Bedouin families.

In Palestine, the government has established more schools, making formal education much more accessible, especially to the Bedouin communities living in the government-planned towns (Abu Saad, 2005). Similar results were found in our study since urbanized Bedouin women were more educated than traditional Bedouin women. According to the Centre for Bedouin Studies and Development Approximately (2003), 60 percent of Bedouin students drop out of school before the twelfth grade. In our study, 85.7% of traditional Bedouin women dropped out of school before the $12^{th}$ grade compared to 28.8% of urbanized Bedouin women. The potential reason is that early marriage is more common among girls living in traditional Bedouin families, in addition to the lack of available transport links to schools in some villages and cities.

The economic situation of the Bedouins population shows various problems in several studies. The rate of unemployment is high (Abu-Bader and Gottlieb, 2009). In our study, only 48.8% of urbanized Bedouins had jobs compared to 6.3% of traditional Bedouins. The economic status of urban Bedouins is nearly the same as that of the average residents of Egypt, Syria, and Lebanon (Lithwick, 2001). Meanwhile, 29.2% of the Palestinians were below the poverty line in 2017 which equates to 2470 NIS for a family of 5 members (2 adults and 3 children). The study also found that 16.8% of Palestinians suffered from deep poverty in 2017, and the deep poverty line was 1974 NIS (PCBS, 2018). About 80% of our study population's income ranged between 2000-3000 NIS/month and 40 % had an income of 2000 NIS monthly which means that traditional Bedouins are facing poverty and they are under the poverty line.

Bedouin society has sustained itself in the past by heavy reliance on agriculture, herding, and growing field crops. Farming was reported to be the main source of income for 23.5% of Bedouins in Palestine and animal husbandry was the main source for 52.3% of Bedouin's income (United Nations Office for the Coordination of Humanitarian Affairs occupied

Palestinian territory, 2013). In our study, 24% of Bedouins depended on farming but 10% only relied on animal husbandry as a source for their income. This could be because the Israeli occupation in the West Bank is restricting access to water sources which makes it hard for Bedouins to work as farmers. Also, the Bedouin movement is very restricted so there is a lack of land available for cattle feeding, which limits the potential for animal husbandry to become a source of income. In the Negev, the Bedouin population is ranked at the bottom of the socioeconomic ladder, i.e. high unemployment rates combined with a low level of education. (Abu Saad, 2005).

### 6.3 Characteristics of dwelling

Traditional Bedouins live in man-made structures, tents, and shacks, taking into consideration that there is no regular supply of water or electricity. Bedouins generally get their drinking water from the Mekorot company (the Israeli National Water Carrier) a plastic pipe can be connected to the Mekorot infrastructure to convey water to households, but the main way to reach water is via tankers. Bedouins in some households are not connected to electricity supply at all, whilst others use generators that often operate only a few hours per day. In the winter, open fires usually heat homes. Food is cooked on gas or open fires. Sanitation and sewage systems are poor, in addition to there being no garbage collection service. The road is not paved and there are no landline telephones. According to the United Nations Development Programme reports, 41% of Bedouin families do not have electricity, comparing to 1% in the rest of the West Bank. Some use generators (community, neighborhood, or privately owned), although this is an economic burden many cannot afford. Our study results showed that 27.2% of Bedouins, regardless of the type of lifestyle - did not have electricity; whilst 48.1% of those were living a traditional lifestyle. Nevertheless, almost all urbanized Bedouins had access to an electricity supply. Furthermore, traditional Bedouins were burdened with purchased water tanker services to maintain an ample water provision. Applications for access to water networks are no readily available. WHO recommends the optimum water consumption is 100 Liter/per person/per day. In Israel usage of water is 165 L/person/day. However, water consumption in Palestinian areas A and B is 50 L/person/day, and 20 liters/per person/ per day in area C. (United Nations Development Programme, 2013). During the analysis of our study

results, the main problem identified in terms of water was that of shortage and poor quality in Bedouin households. Difficulties in water supply provision were experienced by 75.9% of Bedouins regardless of the type of lifestyle; meanwhile, 90.6% of those were living traditional lifestyles. The United Nations Development Programme, (2013) reported that 25.4% of traditional Bedouins did not have a washroom, whilst 14.2% of urbanized Bedouins did. Our study data did not correlate with these results since 100% of urbanized Bedouins had washroom facilities in their houses but 98.3% of traditional Bedouins did not have a washroom.

### 6.4 Lifestyle factors of Bedouins

Variations in Bedouin smoking habits were identified according to different studies. A study on Bedouins in Saudi Arabia found that 15% were active smokers in 2003 (Almas et al, 2003). A smoking prevalence of 18.3% was reported in a rural area of Egypt in 2009 (Boulos et al, 2009). Behaviors and attitudes related to smoking among a Bedouin population in rural Jordan was 46.7% (Eggert and Al-Delaimy, 2009). Another study in Jordan showed that smoking amongst traditional Bedouins was 49.1% but was 96.4% amongst urbanized Bedouins. In our study, 90% of urbanized Bedouins had family members who were smokers compared to 57% in traditional families. No study identified the prevalence of smoking as an issue among Bedouin women.

Studies showed a reduction in physical activity among Bedouin family members in Negev (Lithwick et al., 2001). Lesser physical activity was seen amongst Bedouins in urbanized areas, which might be a potential risk factor for the emerging trend of chronic diseases among urbanized Bedouins. A study by Hansen and colleagues (2015) showed a significant reduction of physical activities as a result of modernization, applicable to Bedouins when comparing to traditional Bedouins. Similar results are seen in our study. The total mean score of physical activity (MET) in urbanized Bedouin women was 7 hours weekly, but the traditional Bedouin women were much more active weekly (MET=13 hours weekly). According to WHO recommendations, 150 hours a week is needed to keep us healthy. However, only 16.9% of urbanized women were having moderate to vigorous physical

activity compared to 50% of traditional Bedouin women ($p<0.005$). This might be justified by the fact that the traditional Bedouin lifestyle exposes women to the need of more physical activity to accomplish their daily tasks compared to women living in houses with all equipment needed for housing caring.

We examined the traditional meal consumption trends for urbanized and traditional Bedouins versus meals of other origins, in particular, westernized meals like pizza, pasta, sodas, and others. We found that for the consumption of traditional meals, traditional Bedouins consume more traditional foods and although many are exposed to a westernized lifestyle, they still depend on their unique style of cooking. However, the urbanized Bedouins were consuming more westernized meals like pizza, pasta, and others, in addition to higher consumption of sweets and sodas. These westernized meals are rich in calories which might contribute to the changing disease patterns among the urbanized Bedouins compared to the traditional Bedouins. Traditional Bedouins reported consumption of unpasteurized milk and milk products, and more fruits and vegetables, while urbanized women reported higher consumption of meat and meat products. The impact of urbanization on the health and nutritional status of developing populations is an issue of concern worldwide. A study done by Abu Saad (2001) showed that changing food consumption patterns and higher food intake with ingredients rich in carbohydrates and unhealthy fats led to an increased prevalence of chronic diseases, diabetes and cardiovascular diseases among urbanized Bedouin.

### 6.5 Health conditions of the study groups

Because traditional women and families live far away from clinics may act as a restriction from visiting a doctor which might lead to non-diagnosis or delayed treatment for all diseases and ailments. Also, Bedouin societies have certain norms and social beliefs that denote signs of ill health as ‘taboo’, meaning they may hide certain ailments in inspected by a doctor. Studies and surveys though do show that Bedouins have experienced an increase in obesity and related morbidity rates due to drastic changes in traditional means of livelihood and diet. (Fraser D,2008). This study shows that the total diagnosed asthma prevalence was 8.8%; 13.1% of urbanized Bedouins compared to 4.4% of traditional Bedouins ($p<0.05$). Runny

nose and other cold-like symptoms saw a significant difference between urbanized women 47.5% and traditional women 31.3%, with 39.4% in total ($p<0.05$). Gastrointestinal disorders were shown to be significantly higher among Bedouins living urbanized lifestyles. Stomach gas complaints were higher in urbanized women, 56.3% compared to 1.3% in traditional women ($p<0.05$). Lower back pain (LBP) was shown to be significantly higher in urbanized women 34.4% compared to 3.1% in traditional women ($p<0.05$). Lower rates were seen regarding joint pain, which was also significantly higher in urbanized women (6.9%) ($p<0.05$). 13% of women reported having hypertension, which was significantly higher in urbanized women 21.3% compared to traditional women 5% ($p<0.05$). Women reported lower rates of diabetes (8.8%) with very low rates in traditional women. However, women reported very low rates of heart disease and only 6 urbanized women reported having breast cancer (3.8%). These results were collected from Bedouin women which may, as stated before, be under-diagnosed, under-reported or be based on biased information. Otherwise, this data may represent the associated factors that vary diseases pattern and affect the prevalence of diseases in both study groups.

### 6.5.1 Asthma asthma-like symptoms

A study on Bedouins in Kuwait showed that the prevalence of asthma, rhinitis, and eczema was estimated to be 11.9%, 20.4%, and 9.2% respectively. In the Kuwaiti study, the authors concluded that allergic diseases and allergic multi-morbidity is increasing due to living a westernized lifestyle (Ali H, 2017). In another publication, a systematic review of 8 publications of asthma, rhinitis, and eczema in Bedouins living in (Kuwait, United Arab Emirates, Bahrain, Qatar, Oman, Kingdom of Saudi Arabia, and Yemen), the analysis showed that prevalence of asthma ranged from 8 to 23%, while the reported prevalence of eczema ranged from 7.5 to 22.5%. There was a large variation in the prevalence rates of rhinitis, which ranged from 6.3 to 30.5%. The prevalence of food allergies (8.1%) concluded that those results are comparable with industrialized countries and moving to be higher levels than ever before. (Al-Herz W, 2018). Our study aligned with the results of published articles, in

addition to identifying the prevalence of asthma at 8.8% in Bedouin communities and even higher for those living urbanized lifestyles.

Reports of runny nose symptoms were highlighted as significantly different between urbanized women 47.5% and traditional women 31.3%, with 39.4% in total ($p<0.05$). Moreover, eye allergy or itching eyes were 9.1% in total with higher rates in urbanized women. In general, Bedouin women reported relatively high prevalence rates of allergies, in particular, itching symptoms (16.9%). Women reported much lower rates for skin and rash allergies (3.4%, 7.8%) respectively. In most allergy cases, reports of symptoms were significantly higher by urbanized women ($P<0.05$)

### 6.5.2 Chronic diseases and conditions

The Bedouin family is relatively larger in size than any other family in Palestine, which leads to overcrowding of houses where family members reach sometimes seven or more members per household (40-45%), comparing to about 1-10 % of households in industrialized settlements (CBS, 1999a). These factors are associated with increasing disease rates, hospitalization and mortality for infectious diseases among Bedouins with these conditions (Fraser et al., 2001; Levy et al., 1998; Weitzman, 1997). The lines characterizing lifestyle and living conditions between urban and traditional residents are becoming unclear and blurred with socio-economic development and lifestyle factors associated with the changes and it is expected that the incidence of these cardiovascular risk factors will continue to increase (El Mugamer IT, Ali Zayat AS,1995). Changes in socio-economic status can affect the frequency of diabetes occurrence in various urban and rural populations, including ethnic groups - proving a relationship exists between health and the transition to the 'western' lifestyle (Hansen T,2015). Our study results show that 8.4% of all Bedouins (regardless of the type of housing) suffer from diabetes. Studies on Bedouins in the Negev showed that 13.1% of urbanized Bedouins had diabetes, which is comparable to studies by Tamir O, Peleg R., et al 2007, who examined socio-economic status and educations levels of Bedouins, concluding that a significantly high prevalence of diabetes existed in Bedouin populations (12%) ( P

<0.001). However, a recent study showed that the prevalence of diabetes was 12.3% in the Bedouin population in the Negev (Amkarut et. al., 2018).

### 6.5.3 Gastrointestinal symptoms, indicators, and disorders

An urban lifestyle is reported to be associated with greater disease affliction associated with urbanization, more so than rural living. Population-based studies comparing the prevalence of gastrointestinal disorders in urban and rural communities taking into consideration factors such as socio-demographic and environmental factors have shown differences in Chinese (urban 10.5% and rural 6.14%), (Pan G et al., 2000), and Italians (urban 9.9% and rural 4.4%) (Usai P, 2010). Moreover, studies of Bedouin communities in the Negev have shown that rates of gastrointestinal diseases are more common amongst urban Bedouins rather than traditional communities as a result of shifting to urbanization, which includes better education which in turn leads to higher potential economic status. Urbanization also leads to a change in food consumption patterns that are rich in calories and fat, and less physical activity. (Sperber AD et. al, 2005) have concluded that Bedouins living in permanent towns have significantly higher rates of gastrointestinal symptoms than rural Bedouins.

The same results were shown in a study done by (Levy et. Al, 1998) which concluded that Bedouin children are at higher risks of entering hospitals because of infectious diseases, gastrointestinal infections, respiratory infections, and asthma in early childhood, compared to other children who are not Bedouins. And this varies according to social, environmental and lifestyle differences. In this study urbanized Bedouin women tended to have more gastrointestinal indications, symptoms, and diseases with 63.7% compared to 44.4% of traditional Bedouins($p<0.05$).

A higher percentage of people who suffer from diarrhea who live in tents 40.6% compared to 10% of urbanized women ($p<0.05$). Heartburn showed a higher percentage in urbanized women 43.8%, with no symptoms in traditional women. Flatulence was seen to be higher in urbanized women 56.3% compared to 1.3% in traditional women ($p<0.05$).

### 6.5.4 Respiratory symptoms, indicators, and disorders

Studies suggest that asthma and other respiratory disorders are related to urbanization, sociodemographic status, and environmental status. Studies have done in the United Arab Emirates across Bedouin communities showed that whilst urbanized lifestyles and income may partially explain the strong association between asthma and the United Arab Emirates nationals Bedouins (Alsowaidi. S et., al, 2010). Almi (2003) in his paper concluded that the prevalence of respiratory diseases and symptoms tended to be higher in Bedouin communities in general. There are several basic health and sanitation issues faced by Bedouins living in traditional lifestyles and conditions. For example, they are exposed to unsanitary sewage infrastructure and facilities, and lack of municipal waste management services. Due to these factors, waste can be seen in unsightly piles and near many residents' dwellings. Disease carrying vermin then find dwellings in the garbage and reproduce. Likewise, many Bedouin residents frequently burn solid waste which contains organic and inorganic waste thus releasing a large number of toxic chemicals into the air. This causes an increased prevalence of respiratory diseases in these dwellings (Almi., 2003). Studies done in Jordan have shown that there is no difference in the prevalence of asthma diagnosed by a physician in an urbanized region and amongst Bedouins having low socioeconomic status, living a traditional lifestyle (Abu-Ekteish,2009). The results in this study match previous study conclusions in that urbanized Bedouins suffered more from respiratory symptoms than traditional Bedouins with 65% and 48.8% respectively.

### 6.5.5 Urbanization of Bedouins and the study outcomes

This study shows the effect of significant lifestyle changes resulting from the transition into towns and houses and how these movements affect health. Dietary habits can be affected in several ways. First of all, moving to busy settlements affect traditional Bedouin food production and preparation methods developed over centuries. Traditionally, smaller families kept a limited amount of sheep, also to a few animals including chickens. However, these

habits have declined in recent years. Some Bedouins still plant fruit, and vegetables around their houses, but the high price of water prevents them from implementing adequate irrigation. Nowadays they procure their food needs from local markets. At the same time, urbanization makes access to the market easier meaning that access to food, sweets, processed food, snacks, and high calories products has now become very common. Changes in socioeconomic status and the availability of electricity are also the main factor to consider when transitioning to more modern methods of cooking and eating. Moreover, due to the political circumstances in Palestine, many are immigrating abroad to study and work. Which also impacts the ways of eating and availability of market food. The urbanization process contributes to a significant decrease in the level of physical activity among the Bedouin population. The household work requirements associated with agricultural production and livestock welfare has ceased except in the case of industrial practice. Moreover, Bedouins nowadays have cars, which means less walking, and increased sedentary habits, which lowers physical activity; whilst on the other hand, they have automated equipment which further decreases the need for physical activity e.g. Television. (Abu Saad,2001).

## 6.4 Conclusions

In summary, urbanized women reported higher disease frequency/disorder symptoms and diagnosis than traditional women. Surprisingly, using health services and getting treatment for these disorders/diseases was low in both groups.

Urbanization is an issue of growing concern worldwide that affects all aspects of life, health, and well-being. The Bedouin transition from traditional and semi-traditional lifestyles to urbanized ones affects their lives on many levels including; social, economic, environmental, in addition to adversely affecting their levels of physical activity and diet. This leads to an increased rate of diseases especially chronic diseases. Public health efforts need to be invested in the Bedouin health and general welfare of this community.

## 6.5 Study Limitations

In this study, due to the non-categorization of the Palestinian population into Bedouin and non-Bedouin by the Palestinian Bureau Statistical Centre, we could not select our sample readily. Moreover, a limited amount of information was publicly available via the governorate of Jericho West Bank. Recent data from the governorate was ten years old. Therefore, we had to visit the "Mukhtar" of villages and camps in Jericho governorate, we followed this method to organize the fieldwork, and to collect the population data of Bedouin's numbers in these areas. (This is non-official data source but was the only data that we can rely on in this study).

Lack of transportation facilities to and from some areas meant the hiring of a local expert was necessary to guide me while traveling between the houses/tents.

We faced difficulties to access the traditional Bedouins; due to their unsocial nature and lack of interaction with strangers, in addition to their very introvert nature. Sometimes non-credible data was provided during interviews, especially when asking about health status.

Visiting houses/tents with more than one woman due to polygamy which is a widespread phenomenon in Bedouin communities. Urbanized women were older compared to traditional women as a result of polygamy.

Difficulties were faced while retrieving information from Bedouin women, especially when we asked about health status. Which may lead sometimes to information bias/ misclassification bias. All data about the health status of Bedouin women were reported by them which may lead to underreporting/ over report of diseases.

## 6.6 Recommendations

### 6.6.1 Recommendations for policymakers, to provide;

- A comprehensive health education program to help the Bedouins understand their new lifestyle to prevent its associated diseases.
- A provision of the main services and needed infrastructures to Bedouins living a traditional lifestyle.
- A database recording the demography of Bedouin communities who are living in Palestine from PCBS and health centers.

### 6.6.2 Recommendations for future research and researchers

- Additional studies with a larger sample size will be needed to estimate the prevalence of the chronic diseases found in Bedouin communities.
- Further factors relating to environmental conditions must be studied e.g. industrial parks
- Research into sexual and reproductive health and other factors affecting women, including congenital disease factors of Bedouins. To be added as a key priority.

### 6.6.3 Recommendations for Bedouin women

- To speak out about their problems and needs
- The primary prevention of chronic diseases is a key factor in reducing the risk factors, they should be more physically active and eat a healthy diet.
- To visit doctors and health care units regularly.

## Reference List


- Musaiger, A. O., Hassan, A. S., & Obeid, O. (2011). The paradox of nutrition-related diseases in the Arab countries: the need for action. International journal of environmental research and public health.
- Abu-Ekteish, Faisal & Otoom, Sameer & Shehabi, Iman. (2009). Prevalence of asthma in Jordan: Comparison between Bedouins and urban schoolchildren using the International Study of Asthma and Allergies in Childhood phase III protocol. Allergy and asthma proceedings: the official journal of regional and state allergy societies.
- Abu-Saad, I. (1998). The influence of settlement on substance use and abuse among nomadic populations in Israel and Kenya (Project code number 92-2.1). Scientific report: Israel development research program.
- Abu Saad, K., Abu Shareb, H., Weitzman, S., Fraser, D., Abu Rabiah, Y. (2001). Rapid lifestyle, diet and health changes among urban Bedouin Arabs of southern Israel. Food, Nutrition and Agriculture (28): 45-54.
- Aharonovitz.I.(1999). Statistical Yearbook of the Negev Bedouin, No. 1. Beer-Sheva, the Negev Center for the Sustainability Ben-Gurion University of the Negev. Israel, Center for Bedouin Studies and Development and Negev Center for Regional Development.
- Al-Herz W. (2018). A Systematic Review of the Prevalence of Atopic Diseases in Children on the Arabian Peninsula. Medical Principles and practice: international journal of the Kuwait University, Health Science Centre, 27(5), 436–442.
- Ali H. Ziyab. (2017). Prevalence and Risk Factors of Asthma, Rhinitis, and Eczema and Their Multi-morbidity among Young Adults in Kuwait: A Cross-Sectional Study. Department of Community Medicine and Behavioral Sciences, Faculty of Medicine, Kuwait University, Kuwait, Kuwait.
- Almi, O. (2003). No Man's Land: Health in the Unrecognized Villages of the Negev. Tel Aviv: Physicians for Human Rights

- Amkraut, J. Zaina, A. Abu-Rabia, Y. (2018). Diabetes in the Bedouin population in the Israeli Negev - An update 2017. Diabetes Res Clin Pract.140:55-60.
- Anderson, R. Sorlie. P, Backlund E, et al. (1997). Mortality effects of community economic status. Epidemiology;8:42–7.
- Almas K et al. (2003). Oral hygiene, dietary pattern and smoking habits of Bedouin (nomadic Arabs) population in Saudi Arabia. Odonto-StomatologieTropicale, 26:19–23
- Al-Nuaim, A.R., Mirdad, S., Al-Rubeaan, K., Al-Mazrou, V., Al-Attas, O., Al-Daghari, N. &Koja, T. (1997). Population-based epidemiological study on characteristics of risk factors of hypercholesterolemia in Saudi Arabia. Int. J. Cardiol., 62: 47-54.
- Alsowaidi, Shirina & Abdulle, Abdishakur & Bernsen, Roos. (2010). Prevalence and Risk Factors of Asthma among Adolescents and Their Parents in Al-Ain (United Arab Emirates). Respiration; international review of thoracic diseases.
- Bambra C., Eikemo, T. (2009). Welfare state regimes, unemployment, and health: a comparative study of the relationship between unemployment and self-reported health in 23 European countries. Journal of Epidemiology & Community Health, 63(2):92–98.
- Barreto ML, Genser B, Strina A, Teixera MG, Assis AM, et al. (2007). Effect of city-wide sanitation program on reduction in the rate of childhood diarrhea in northeast Brazil: assessment by two cohort studies. Lancet.370:1622–28.
- Beersheba District Health Office. (2009). Report: Bedouin children suffer from poorer health.
- Berkman L, KawachiI.(2000). Social Epidemiology. New York: Oxford University Press
- Bjartveit K, TverdalA.(2005). Health consequences of smoking 1–4 cigarettes per day. Tob Control. ;14(5):315–320.
- Bopp, M. and C.E. Minder. (2003). Mortality by Education in German-Speaking Switzerland, 1990-1997: Results from the Swiss National Cohort", International Journal of Epidemiology, Vol. 32, pp. 346-354.
- Cross AJ, Leitzmann MF, Gail MH, et al. (2007). A prospective study of red and processed meat intake in relation to cancer risk. PLoS Med.4:e325.

- Doe, R. S. and Khan, S. M. et al, (2004) The boundaries and limits of community management: Lessons from the water sector in Ghana, Community Development Journal Vol 39 No 4, Oxford University Press.
- El Mugamer IT, Ali Zayat AS, Hossain MM, Pugh RN.(1995). Diabetes, obesity, and hypertension in urban and rural people of Bedouin origin in the United Arab Emirates. J Trop Med Hyg.
- Environmental Epidemiology Unit. (1999). Rapid reviews of public health for London. Housing and the built environment, London School of Hygiene and Tropical Medicine, London, Http://www.doh.gov.uk/London/hatbe.htm.1\7
- 2019
- Evans, J., Hyndman, S., Stewart-Brown, S. Smith, D. & Petersen, S. (2000). An epidemiological study of the relative importance of damp housing in relation to adult;8health, J Epidemiol Community Health, 54: 677–686.
- Falah, Ghazi. (1989). "Israeli State Policy Toward Bedouin Sedentarization in the Negev." Journal of Palestine Studies, 18(2), 71-91.
- FAO/WFP, .(2009). Food Security and Vulnerability Analysis Report in the oPt.
- Fraser D, Bilenko N, Vardy H, Abu-Saad K, Shai I, Abu-Shareb H, ShaharDR.(2008).Differences in food intake and disparity in obesity rates between adult Jews and Bedouins in southern Israel. Ethn Dis.18:13–18
- Garg P, Tian L, Criqui MH, et al. (2006). Physical activity during daily life and mortality in patients with peripheral arterial disease. Circulation 114(3): 242–248.
- Gurwitz JH, Field TS, Glynn RJ, et al. (1994). Risk factors for non-insulin-dependent diabetes mellitus requiring treatment in the elderly. Journal of the American Geriatrics Society 42(12): 1235–1240.
- Haan M, Kaplan GA, Camacho T.(1987). Poverty and health: prospective evidence from the Alameda County Study. Am J Epidemiol.125:989–98.
- Haddad Laila. (2006).This week in Palestine.
- Hansen T. Type 2 diabetes mellitus—a multifactorial disease. (2015). NCBI.nlm.nih.gov.12\7\2019.

- House, J.S., J.M. Lepkowski, A.M. Kinney, R.P. Mero, R.C. Kessler and A.R. Herzog (1994), "The Social Stratification of Aging and Health", Health and Social Behavior, Vol. 35.3, pp. 213-234.
- Howden-Chapman, P. & Wilson, N. (2000). Housing and Health. In: HowdenChapman, P. & Tobias, M. (eds), 2000, Social Inequalities in Health: New Zealand 1999, Ministry of Health, Wellington.
- Ibn Khaldun.A.(1969). The Muqaddimah: An Introduction to History, Bollingen Series, Princeton NJ: Princeton University Press.
- Idilbi NM, Barhana M, Milman U, Carel RS. (2012).[Diabetes mellitus and cancer: the different expression of these diseases in Israeli Arabs and Jews] Harefuah. 151:625–628, 654.
- INFOCUS: Bedouins in the occupied Palestinian territory (2013).
- Institute for Middle East Understanding (IMEU). (2006).
- J. Eggert1 and W.K. Al-Delaimy. (2009).Behaviors and attitudes related to smoking among a Bedouin population in rural Jordan.
- Jonathan Amkraut, Adnan Zaina, Yones Abu-Rabia,.(2018). Diabetes in the Bedouin population in the Israeli Negev – An update 2017. Diabetes research and clinical practice, ISSN: 1872-8227, Vol: 140, Page: 55-60
- Karakis, I., Bolotin, A., Kordysh, E., Belmaker, I., &Sarov, B. (2008). Mortality in the Bedouin population and proximity to a regional industrial complex. Environmental Health Insights, 1, 21–9. Retrieved from https://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=3091347&tool=pmcentrez&rendertype=abstract.2\1\2019.
- Kuan-Min.H.(2007). Westernization: concepts, discourses, and lifestyles.
- Levy A, Fraser, Hille l, Vardi R, Dagan. (1997).Hospitalizations for infectious diseases in Jewish and Bedouin children in southern Israel.Eur J Epidemiol.
- Lleras-Muney, Adriana. (2006). "The Relationship between Education and Adult Mortality in the United States: Erratum." Review of Economic Studies 73 (3): 847–847.
- Lithwick, H. (2001). Urbanization policy for indigenous peoples: a case study of Israel's Negev Bedouins. In I. Abu-Saad& D. Champagne, eds. The future of indigenous

peoples: strategies for survival and development. Los Angeles, CA, UCLA American Indian Studies Center. (In press)

- Marmot MG, Wilkinson RD.(2006). Social Determinants of Health. Oxford, England: Oxford University Press.
- Marx, E. (1967). The Bedouin of the Negev. Manchester: Manchester University Press.
- Moe, L. C. &Rheingans D. R., (2006), Global Challenges in Water, Sanitation and Health, Journal of Water and Health, IWA Publishing
- Monto AS, Ross HW.(1978). The Tecumseh study of respiratory illness. X. Relation of acute infections to smoking, lung function and chronic symptoms. Am J Epidemiol. 107(1):57–64.
- Mordechai.K.(2013). The Bedouin problem and the only possible solution, the Jerusalem Post.
- Muhsen, K., Green, M. S., Soskolne, V., &Neumark, Y. (2018, February 10). Inequalities in non-communicable diseases in Israel – Authors' reply. The Lancet. Lancet Publishing Group. https://doi.org/10.1016/S0140-6736(17)32452-2 2\8\2019
- Myers-JDC-Brookdale Institute. March .(2012). Data Snapshot: The Bedouin in Israel.
- Nabil Aho.(2015).Palestinian cuisine, land of olives and figs.
- Parrish RG.(2010). Measuring population health outcomes. Prev Chronic Dis;7(4): A71. http://www.cdc.gov/pcd/issues/2010/jul/10_0005.htm. Accessed [18/4/2019].
- Parry, G., Van Cleemput, P., Peters, J., Walters, S., Thomas, K., & Cooper, C. (2007). Health status of Gypsies and Travellers in England. Journal of Epidemiology & Community Health,61(3), 198–204. https://doi.org/10.1136/jech.2006.045997. accessed [12\12\2018].
- Pan G, Lu S, Ke M, et al. Epidemiologic study of the irritable bowel syndrome in Beijing: a stratified randomized study by cluster sampling. Chin Med J (Engl) 2000;113:35–39
- Qiao YL, Dawsey SM, Kamangar F, et al. (2009). Total and cancer mortality after supplementation with vitamins and minerals: follow-up of the Linxian General Population Nutrition Intervention Trial. J Natl Cancer Inst. 101:507–18.

- Robert S.(1998). Community-level socioeconomic status effects on adult health. J Health SocBehav 39:18–37.
- Robinson-Cohen C, Katz R, Mozaffarian D., et al. (2009). Physical activity and rapid decline in kidney function among older adults. Archives of Internal Medicine;169(22): 2116–2123.
- Sabeva, A. (2006). State of the Art Report for Bulgaria survey made for the project MIGHEALTHNET
- Skodova, Z. van Dijk, JP, NagyovaI.(2010). Psychosocial factors of coronary heart disease and quality of life among Roma coronary patients: a study matched by socioeconomic position. Int J Public Health. 55:373–380.
- Spasojevic, J. (2003), "Effects of Education on Adult Health in Sweden: Results from a Natural Experiment", Ph.D Dissertation, City University of New York Graduate Center.
- Sperber AD, Friger M, Shvartzman P., et al. (2005). GastroenterolHepatol. Rates of functional bowel disorders among Israeli Bedouins in rural areas compared with those who moved to permanent towns. Apr;3(4):342-8.
- Stronks, K1., et al. (1997). The interrelationship between income, health and employment status.
- Suwaed, M. (2008). The Bedouin in Palestine in the Ottoman Era: 1516-1914. Amman, JO: Dar Zahran, (in Arabic).
- Tamir, O. Peleg, R. Dreiher, J,. et al. (2007).Cardiovascular risk factors in the Bedouin population: management and compliance's Med Assoc J.
- Thiebaut, AC. Kipnis, V. Chang, SC,.et al. (2007). Dietary fat gastric and esophageal cancer in the National Institutes of Health-AARP Diet and Health Study cohort. J Natl Cancer Inst. 99:451–62.
- Thompson, S.J. & Gifford, S.M. (2000). Trying to keep a balance: the meaning of health and diabetes in an urban aboriginal community. Soc. Sci. Med., 51:1457-1472.
- Treister-Goltzman, Y. Peleg, R.(2014). Health and morbidity among Bedouin women in southern Israel: a descriptive literature review of the past two decades. J Community Health. 39:819–825.

- United Nations Development Programme.(2013).Infocus:Bedouins in occupied Palestinian territory. Report.
- UNRWA/BIMKOM .(2012).al jabal: a study on the transfer of bedouinpalestinerefugeesUNICEF, April 2010. oPt Monthly Update.
- Usai, P. Manca, R. Lai MA. Russo, L. Boi, MF. Ibba. I, Giolitto, G. Cuomo R.(2010) Prevalence of irritable bowel syndrome in Italian rural and urban areas. Eur J Intern Med. 21:324–326.
- Waitzman, N.,Smith, K.(1998). Phantom of the area: poverty-area residence and mortality in the United States. Am J Public Health 88:973–6.
- WASH REPORT .(2014).Water Scarcity and Response in vulnerable areas: data & recommendations for the organization of an effective water supply system, the case of Jericho Governorate and Eastern Slopes of Jordan Valley/Ramallah" funded by the Italian Development Cooperation - Italian Ministry of Foreign Affairs.
- Wang.(2012). Health Outcomes in poor Countries and Policy Options. Empirical Findings from Demographic and Health Surveys. The World Bank Environment Department.
- Weitzman, S., Lehmann, E.E. & Abu-Rabiah, Y. (1974). Diabetes mellitus among the Bedouin population in the Negev. Diabetologia, 10: 391
- World health orgnisation.(2010). Global Physical Activity questionnaire.
- WHO.(2104). personal protective equipment guidelines for Ebola response, health topics.
- Zajc, M. Smolej, Narančić, N. Škarić-JurićT. (2006). Body Mass Index and Nutritional Status of the Bayash Roma from Eastern Croatia. CollAntropol. 30:783.

# Appendix 1

---

## Consent Form

**نموذج طلب موافقة على المشاركة في بحث علمي**

**عنوان الدراسة: The effect of urbanization on Bedouin women's health in Jericho Governorate**
**A comparative study.**
**اسم الباحث الرئيسي:** وئام خميس القادري
**اسم المشرف على البحث:** الدكتورة نهى الشريف

**ملخص البحث:**
البدو هم لاجئون فلسطينيون قد هجروا قسرا من مسكنهم الاصلي صحراء النقب في حرب ال 48. هناك من بقي في ارضه و جزء كبير قد استوطن و سكن المخيمات و القرى و المدن الفلسطينية ومن هذه المدن محافظة اريحا و الاغوار التي سنقوم بعمل الدراسة فيها. نتيجة لذلك التهجير فان من البدو من اضطر للعيش في المدن و نتيجة لذلك قد اكتسب من حياة المدينة و تمدنها في شتى مناحي الحياة. فقد طال التمدن التغذية خاصتهم و النشاط الجسماني اضافة الى طبيعة العمل الممارس من قبلهم و ادى الى ظهور الكثير من الامراض التي سببها الاساسي هو طبيعة الحياة. لذلك في هذه الدراسة سوف نقوم بمقارنة حياة البدو التقليدية و حياة البدو المتمدنين من عدة مناح و ندرس اثر هذا التمدن على صحتهم و الامراض التي يعانون منها.
هذه الدراسة تهدف لمعرفة اثر التمدن على صحى البدو في محافظة اريحا. فنحن نريد دراسة اثر الوضع الاجتماعي و الاقتصادي و طبيعة العمل و علاقتهم في صحة البدو و الامراض التي يعانون منها و دراسة الوضع البيئي و اثرة على صحة البدو هذا بالإضافة لدراسة اثر طبيعة الحياة كأسلوب الغذاء و الرياضة و التدخين و اثرها على صحة البدو و الامراض التي يعانون منها.

**معلومات عن العينة المنتقاة والفترة الزمنية المقدرة لاستكمال المقابلة أو الاستبيان:**
تم اختيارك لأنك من الفئة المستهدفة لاستكمال الدراسة. الاستبانة سوف تأخذ من وقتك نصف ساعة.

**المخاطر المتوقعة والخصوصية:**
لا يوجد اي مخاطر.

**موافقة أو توقيع المشارك في البحث:**
حصلت على شرح مفصل عن الدراسة وأهدافها وإجراءاتها، ومنافعها، والمخاطر المحتملة وعن الحرية الكاملة للمشاركة. أفهم كل المعلومات التي قدمت ووصلتني إجابة على كل أسئلتي.
أوافق على أن أشارك في هذه الدراسة بطوعية وبدون أي نوع من الاجبار أو الضغوط. أفهم ان بإمكاني التوقف عن المشاركة في أي وقت.

اسم المشارك_____

التوقيع_____

التاريخ_____

# Appendix 2

# Research ethics committee

Al-Quds University
Jerusalem
Deanship of Scientific Research

بسم الله الرحمن الرحيم

جامعة القدس
القدس
عمادة البحث العلمي

**Research Ethics Committee**
**Committee's Decision Letter**

**Date: November 3, 2018**
**Ref No: 50/REC/2018**

Dear Dr. Nuha El Sharif, Miss Wiam Al- Qadri,

Thank you for submitting your application for research ethics approval. After reviewing your application entitled **"The effect of urbanization on Bedouin's health in Jericho Governorate A comparative study**."
The Research Ethics Committee confirms that it is in accordance with the research ethics guidelines at Al-Quds University.
Please inform us if there will be any changes in your research methodology, subjects, plan and we would appreciate receiving a copy of your final research report.

Thank you again and wish you productive research that serves the best interest of your subjects.

Dina M. Bitar PhD
Research Ethics Committee Chair

Cc. Prof. Imad Abu Kishek - President
Cc. Members of the committee
Cc. file

Abu-Dies, Jerusalem P.O.Box 20002
Tel-Fax: #970-02-2791293
research@admin.alquds.edu
أبوديس، القدس ص.ب. 20002
تلفاكس: #970-02-2791293

# Appendix 3

# Arabic Questionnaire

# Code:

الاستمارة العامة للمنزل+ الام

| | | | | | | |
|---|---|---|---|---|---|---|
| التاريخ: \ \ | | | | | | |
| 1. \|___\| SD | نوع البيت | 1متحضر 2 تقليدي | | | | |
| 2. | اسم الباحث | | | | | |
| 3. | العنوان | المنطقة السكنية | | | | |
| 4. \|___\| SD | المؤهل العلمي | 1.غير متعلم | 2. ابتدائي | 3.اعدادي | 4.ثانوي | 5.جامعة فما فوق |
| 5. \|__ SD\| | العمر ___ سنة | | | | | |
| 6. \|___\| SD | عدد سنوات الاقامة بالبيت-الخيمة في هذا الموقع | _____سنة | | | | |
| 7. \|___\| SD | عدد الافراد المقيمين في المنزل بشكل دائم منذ 9 أشهر على الأقل | _____شخص | | | | |

| | | | | | |
|---|---|---|---|---|---|
| 8. \|SD___\| | ما معدل دخل الاسري الشهري | 1. من 1500-2000 شيكل | 2.من 2001 الى 3000شيكل | 3.اكثر من 3000 شيكل | |
| 9. \|SD-___\| | مصادر الدخل للاسرة؟ | 1.الزراعة | 2.تربية الحيوانات | 3. الوظيفة | |
| | | 4.عمال، حدد_____ | 5.الاعمال الحرة،حدد_____ | 6.غيرها، حدد_____ | |
| 10. \|SD___\| | عدد العاملين في الاسرة؟ | 1. 2 فاقل | 2. 3-5 اشخاص | 3. اكثر من 5 اشخاص | |
| 11. \|SD___\| | ما هو نوع السكن في الموقع؟ | 1.بيت من حجر | 2.بيت من طوب | 3.خيمة/بيت شعر\ بيت من صفيح | |
| 12. \|SD___\| | حدد عدد الغرف في البيت او الخيمة؟ | 1. 2 فاقل | 2. 3-5 غرف | 3. اكثر من 5 | |
| 13. SD ☐ نعم ☐لا | هل تملك مساكن في مواقع أخرى؟ | 1.نعم | 0. لا | | |
| 14. \|SD-___\| | ما هي مصادر المياه المتوفرة لديكم؟ (متعدد الاجابات) | 1.شبكة مياه | 2. ينابيع | 3. ابار جمع | 4. غير ذلك، حدد_____ |
| 15. \|EN___\| | ما هي مجالات استخدام المياه بالإضافة للاستهلاك الشخصي؟(متعدد الاجابات) | 1.الزراعة | 2.للقطيع | 3.لا استخدمه لغير الاستخدام الشخصي | |
| 16. \|EN-___\| | ما هي المشاكل التي تواجهها في خدمات المياه؟ (متعدد الاجابات) | 1.النقص بشكل عام | 2.نوعية المياه | 3.صعوبة ايصالها | 4.الغلاء |
| | | 5.لا مشاكل | 6. | | |
| 17. EN ☐ نعم ☐لا | هل يوجد مرحاض داخل بيتك\الخيمة؟ | 1.نعم | 0. لا | | |
| 18. EN ☐ نعم ☐لا | هل بيتك موصول بحفرة امتصاص؟ | 1.نعم | 0. لا | | |
| 19. EN ☐ نعم ☐لا | هل بيتك موصول بشبكة مجاري؟ | 1.نعم | 0. لا | | |
| 20. SD | هل يوجد تامين صحي لدى الاسرة | 1. نعم | 0. لا | | |
| 21. \|LS-___\| | ماذا تستخدم للطبخ؟ (متعدد الاجابات) | 1.فرن غاز | 2.حطب | 3.روث حيوانات | 4.اخرى/ حدد_____ |
| 22. \|SD-___\| | هل يوجد كهرباء في المنطقة؟ | 1.نعم | 2.لا | | |
| 23. \|SD-___\| | ماذا تملك من الأجهزة التالية في البيت؟ (متعدد الاجابات) | 1.تلفزيون أسود / أبيض | 2.تلفزيون ملون | 3.صحن لاقط ستالايت | 4.راديو |
| | | 5. فيديو | 6.ثلاجة | 7.غسالة | 8.فرن كهربائي |
| | | 9.طباخ غاز | 10.سخان شمسي | 11.هاتف | 12.هاتف نقال (تلفون) |

LS24الممارسات و العادات الغذائية : طبخات frequency

| | لا يتناول او اقل من مرة في الشهر | 1-3 في الشهر | مرة في الاسبوع | 2-4 مرات في الاسبوع | 5-6 مرات في الاسبوع | مرة في اليوم |
|---|---|---|---|---|---|---|
| خبيزة | | | | | | |
| مقلوبة | | | | | | |
| حويرنة | | | | | | |
| مقالي | | | | | | |
| محاشي | | | | | | |
| عيشة بتنورة | | | | | | |
| بطاطا محمرة | | | | | | |
| منسف | | | | | | |
| ملفوف | | | | | | |
| دوالي | | | | | | |
| مشاوي | | | | | | |
| خبز و زيد | | | | | | |
| مشوطة | | | | | | |
| مجدرة | | | | | | |
| عدس | | | | | | |
| رقاقة | | | | | | |
| مسخن | | | | | | |
| بطاطا مسلوقة | | | | | | |
| جريشة | | | | | | |
| فيطلية | | | | | | |
| عيشة ارز و حليب | | | | | | |
| بطاطا محشية | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| الاكلات المتحضرة | | | | | | |
| كبسة | | | | | | |
| معجنات | | | | | | |
| ذرة | | | | | | |
| صينية دجاج الحمة | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

LS24الممارسات و العادات الغذائية : طبخات frequency

| | لا يتناول او اقل من مرة في الشهر | 1-3 في الشهر | مرة في الاسبوع | 2-4 مرات في الاسبوع | 5-6 مرات في الاسبوع | مرة في اليوم |
|---|---|---|---|---|---|---|
| خبيزة | | | | | | |
| مقلوبة | | | | | | |
| حويرنة | | | | | | |
| مقالي | | | | | | |
| محاشي | | | | | | |
| عيشة بتنورة | | | | | | |
| بطاطا محمرة | | | | | | |
| منسف | | | | | | |
| ملفوف | | | | | | |
| دوالي | | | | | | |
| مشاوي | | | | | | |
| خبز و زيد | | | | | | |
| مشوطة | | | | | | |
| مجدرة | | | | | | |
| عدس | | | | | | |
| رقاقة | | | | | | |
| مسخن | | | | | | |
| بطاطا مسلوقة | | | | | | |
| جريشة | | | | | | |
| فيطلية | | | | | | |
| عيشة ارز و حليب | | | | | | |
| بطاطا محشية | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| الاكلات المتحضرة | | | | | | |
| كبسة | | | | | | |
| معجنات | | | | | | |
| ذرة | | | | | | |
| صينية دجاج الحمة | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

التدخين

| | | | |
|---|---|---|---|
| LS.29 ☐نعم ☐لا | هل يدخن احد افراد اسرتك: | 1- نعم | 2- لا |

| | | | |
|---|---|---|---|
| LS.30 |___|كم عدد المدخنين في الاسرة؟ | 1. 0 | 2. 1-2 | 3. اكثر من 2 |

LS النشاط البدني:

| | | |
|---|---|---|
| ☐نعم ☐لا | LS. 31 | هل طبيعة عملك تتطلب منك القيام بنشاط بدني شاق مثل : ( الحمل الثقيل والحفر ورشة بناء - التي تسبب تعرق شديد وزيادة في ضربات القلب والتنفس لمدة لا تقل عن10 دقائق في اليوم؟<br>الإجابة (لا) ، انتقل للسؤال 34 |
| \|___\| | LS. 32 | كم يوما من أيام الأسبوع العادي تقومين بمثل هذا النشاط ( البدني الشاق) كجزء من عملك؟ |
| \|___\| ساعة | LS. 33 | كم من الوقت(ساعة) تقضينه في القيام بهذا النشاط البدني الشاق في اليوم الواحد كجزء من عملك |
| ☐نعم ☐لا | LS. 34 | هل طبيعة عملك يتطلب منك القيام بنشاط بدني متوسط مثل (المشي السريع أو حمل أشياء خفيفة - التي تسبب تعرق بسيط وزيادة قليلة في ضربات القلب والتنفس) لمدة 10 دقائق على الأقل في اليوم ؟<br>الإجابة (لا) انتقل للسؤال 37 |
| \|___\| | LS. 35 | كم يوما من أيام الأسبوع العادي تقومين بمثل هذا النشاط ( البدني المتوسط) كجزء من عملك؟ |
| \|___\| ساعة | LS. 36 | كم من الوقت (ساعة) تقضينه في القيام بهذا النشاط البدني المتوسط في اليوم الواحد كجزء من عملك |
| ☐نعم ☐لا | LS. 37 | هل تذهبين مشيا على الأقدام للتنقل من والى الأماكن (الزيارات ، التسوق ، العمل ). لمدة لا تقل عن 10 دقائق متواصلة على الأقل في كل مرة؟ الإجابة (لا) انتقل للسؤال 40 |
| \|___\| | LS. 38 | في الأسبوع العادي كم يوما تمشين لمدة لا تقل عن 10 دقائق في كل مرة للتنقل من والى هذه الأماكن ؟ |
| \|___\| دقيقة | LS. 39 | بالمتوسط كم من الوقت (دقيقة) تمشين في كل مرة للتنقل من والى هذه الأماكن |
| ☐نعم ☐لا | LS. 40 | هل تقوم في وقت فراغك بنشاط بدني شديد شاق كالرياضة مثل: الجري بسرعة أو حمل اشياء ثقيلة ، الحفر ، العمل في المزرعة أو ورشة بناء ) لمدة 10 دقائق مستمرة على الأقل؟ الإجابة (لا) انتقل للسؤال 43 |
| \|___\| | LS. 41 | في الأسبوع العادي كم يوما تقومين بممارسة هذه الأنشطة البدنية الشديدة ؟ |
| \|___\| ساعة | LS. 42 | في اليوم العادي: كم من الوقت (ساعة) تقومين بممارسة الأنشطة البدنية الشديدة ؟ |
| ☐نعم ☐لا | LS. 43 | هل تقومين في وقت فراغك بنشاط بدني متوسط الشدة بسيط للمحافظة على اللياقة لمدة لا تقل عن 10 دقائق مستمر في اليوم ؟ (المشي السريع او السباحة او ركوب دراجة او لعب الكرة الطائرة)<br>الإجابة (لا) انتقل للسؤال 46 |
| \|___\| | LS. 44 | كم يوما في الأسبوع العادي تقومين بممارسة هذه الأنشطة البدنية المتوسطة؟ |
| \|___\| ساعة | LS. 45 | في اليوم العادي: كم من الوقت (ساعة) تقومين بممارسة الأنشطة البدنية المتوسطة؟ |
| \|___\| ساعة | LS. 46 | في اليوم العادي كم من الوقت (ساعة) تمضين جالسة أو مستلقية ( ما عدا وقت النوم ).<br>تشمل الجلوس في العمل , او القراءة , او مشاهدة التلفزيون أو التطريز أو اعمال يدوية , أو الكومبيوتر ..الخ |

هل طبيعة عملك تتطلب منك القيام بنشاط بدني شاق مثل : ( الحمل الثقيل والحفر ورشة بناء - التي تسبب تعرق شديد وزيادة في ضربات القلب والتنفس لمدة لا تقل عن10 دقائق في اليوم؟ 1. درجة كبيرة 2. درجة متوسطة 3. درجة قليلة

هل طبيعة عملك يتطلب منك القيام بنشاط بدني متوسط مثل (المشي السريع أو حمل أشياء خفيفة - التي تسبب تعرق بسيط وزيادة قليلة في ضربات القلب والتنفس) لمدة 10 دقائق على الأقل في اليوم ؟ 1. درجة كبيرة 2. درجة متوسطة 3. درجة قليلة

هل تقومين في وقت فراغك بنشاط بدني متوسط الشدة بسيط للمحافظة على اللياقة لمدة لا تقل عن 10 دقائق مستمرة في اليوم ؟ (المشي السريع او السباحة او ركوب دراجة او لعب الكرة الطائرة) . 1. بشكل منتظم 2. بشكل غير منتظم 3. لا امارس

للمزارعين

| | | | | | |
|---|---|---|---|---|---|
| EN.47\|___\| | ماذا ينمو او تزرع في الارض في موقعك الحالي؟ | 1. خضروات | 2.اشجار فواكهة وحمضيات | 3.نباتات برية | 4. اعشاب مخطلة |
| EN.48\|___\| | هل تقوم باستخدام الأسمدة في الزراعة؟ | 1.نعم | ٧.0 | | |
| EN.49\|___\| | ما نوع السماد الذي تستخدمة؟ | 1.زبل بلدي | 2.مركب | 3.نيتروجيني | 4.فوسفاتي |
| | | 5.غيره حدد: _____ | | | |
| EN.50\|___\| | لمكافحة الافات الزراعية، هل تقوم بـ؟ | 1.مكافحة يدوية كازالة الاعشاب باليد | 2.مكافحة كيماوية تشمل(مرشات) | 3.مكافحة متكاملة (يدوية +مرشات) | 4.غيره،حدد_____ |

ENتمربي الحيوانات:

| | | | | | | |
|---|---|---|---|---|---|---|
| EN.51\|___\| | ما هي الحيوانات التي تقوم برعايتها حول مسكنك؟ | 1.حيوانات منزلية (قطط كلاب | 2.ابقار ومواشي | 3.حمير | 4.اغصنة | 4. دواجن |
| | | 5.نحل | 6. غير ذلك، حدد: _____ | | | |
| EN.52\|___\| | ما هي الأمراض الأكثر انتشارا في ماشيتك؟ | ---------- | ---------- | | | |
| EN.53\|___\| | هل لديك حظيرة للحيوانات؟ | 1.نعم | ٧.0 | | | |
| EN.54\|___\| | اين ترعي الحيوانات؟ | 1. أرضك الخاصة فقط | 2. أراضي مشاع | 3. أراضي مستأجرة | | 4. كل ما ذكر |
| | | 5.غير ذلك، حدد_____ | | | | |
| EN.55\|___\| | من يقوم بعملية الرعي؟ | 1.رب البيت | 2.ربة البيت | 3.الابناء او البنات | | 4.جميع الافراد |
| | | 5.اخرون، حدد_____ | | | | |

Code #

استمارة خاصة بالافراد+ الام

| q\b | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | الرجاء الأجابة على الأسئلة التالية المتعلقة بالتاريخ المرضي | | | | | | | |
| | الرجاء وضع رقم الاجابة على في المربع<br>0:لا 1- نعم 2. لا اعرف 3. نادرا 4. مرة بالشهر 5. مرة بالاسبوع 6. يوميا | | | | | | | |
| .1 | المرض | 0:لا<br>1- نعم | التكرار في العام الماضي | يراجع طبيب | يستخدم ادوية للمرض | من اعطاه الدواء | تاريخ بداية المرض (عدد السنوات) | ادخلت للمستشفى بسببه |
| .2 | الحساسية | | | | | | | |
| .3 | الربو (شخصك طبيب) | | | | | | | |
| .4 | سعلة مع بلغم<br>لون البلغم: _____ | | | | | | | |
| .5 | التهاب الحلق | | | | | | | |
| .6 | صفير في الصدر | | | | | | | |
| .7 | ضيق الصدر | | | | | | | |
| .8 | قصر في التنفس | | | | | | | |
| .9 | عطس، انف سائل، او برد | | | | | | | |
| .10 | احتقان في الانف | | | | | | | |
| .11 | نزيف من الانف | | | | | | | |
| .12 | حساسية في العيون او احمرار | | | | | | | |
| .13 | حساسية جلد، | | | | | | | |
| .14 | حكة | | | | | | | |
| .15 | طفح جلدي | | | | | | | |
| .16 | على bruisingكدمات الايدي او الارجل | | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| .17 | فقدان سريع في الوزن | | | | | | | |
| .18 | سرطان ؟وما نوعه | | | | | | | |
| .19 | طنين في الاذنين | | | | | | | |
| .20 | مشاكل في السمع | | | | | | | |
| .21 | حمى | | | | | | | |
| .22 | مشاكل في الرؤيا | | | | | | | |
| .23 | نزف اللثة | | | | | | | |
| .24 | تقرحات في الفم | | | | | | | |
| .25 | فقدان للشهية | | | | | | | |
| .26 | عدم راحة في المعدة | | | | | | | |
| .27 | انتفاخات في الامعاء | | | | | | | |
| .28 | حرقة في المعدة(ارتجاع للأطفال) | | | | | | | |
| .29 | امساك او اسهال | | | | | | | |
| .30 | خروج اسود | | | | | | | |
| .31 | استفراغ | | | | | | | |
| .32 | عصبية | | | | | | | |
| .33 | ارهاق | | | | | | | |
| .34 | مشاكل في التركيز | | | | | | | |
| .35 | اكتئاب | | | | | | | |
| .36 | وجع راس | | | | | | | |
| .37 | دوخة | | | | | | | |
| .38 | وجع الرقبة | | | | | | | |
| .39 | اوجاع مفاصل | | | | | | | |
| .40 | اوجاع اسفل الظهر | | | | | | | |
| .41 | انتفاخ مفاصل | | | | | | | |
| .42 | ضعف في العضلات | | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| .43 | تشنج عضلي | | | | | | | |
| .44 | مشاكل في الكلى | | | | | | | |
| .45 | مشاكل في القلب | | | | | | | |
| .46 | مشاكل في ضغط الدم | | | | | | | |
| .47 | ارتفاع السكري | | | | | | | |
| .48 | مرض السكري | | | | | | | |