

**An-Najah National University  
Faculty of Graduate Studies**

# **Housing -Health Relationship in Al-Ain Refugees Camp in Palestine**

**Prepared by  
Safaa Farook. Kayed Ibsaiss**

**Supervisor  
Dr. Mohamed . J. Musmar  
Dr. Issam Al-Khatib**

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By  
Safaa Farook Kayed Ibsaiss

This Thesis was defended successfully on 01/08/2004 and approved by:

## Committee Members

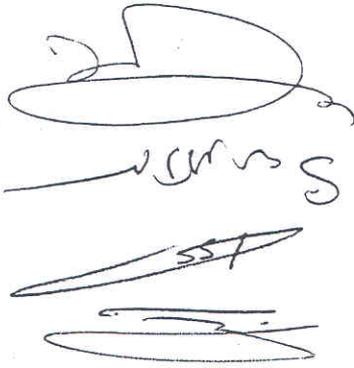
Dr. Mohammad Musmar\ Supervisor

Dr. Issam Al-Khateb\ Supervisor

Dr. Samar Gazal\ Internal Examiner

Dr. Qasem A.Ma'ani\ External Examiner

## Signature



# **Dedication**

**To my dear father, mother, units, brothers and for their  
encouragement, with love and respect**

# **Acknowledgment**

**For all of doctor's teach me in program of master public health and their help me in this study especially Dr. Mohammad Musmar, Dr. Issam Al-Khateb, Dr. Samar Gazal, Dr. Qasem A.Ma'ani.**

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## **LIST OF ABBREVIATIONS**

UN	United Nations
UNRWA	United National Relief and Works agency
PCBS	Palestinian Central Bureau of Statistics
CO	Carbon monoxide
NO2	Nitrogen dioxide
ARI	Acute Respiratory infection
EPA	Environmental Protection Agency
CLD	Chronic Lung Disease
BPD	Broncho Pulmonary Dysplasia

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**ABSTRACT**

Acute respiratory infections (ARI) represent one of the main health problems in children less than five years of age in developing countries.

Every year, pneumonia causes the death of over 100,000 infants under one year of age, which is an average of 300 deaths every day. Ninety-nine percent of these deaths occur in developing countries. Another 40,000 deaths from pneumonia occur each year in children under five, which represents another 100 deaths from this disease each year in the Western Hemisphere

Prevention of respiratory disease in children is an important public health matter in developed and developing countries.

The relationship between housing and health has long been researched tracing when the ill-health of working class families, particularly their susceptibility to tuberculosis, was attributed to poor housing conditions.

Our study was done to evaluate the impact of housing conditions on the health of the people at Al-Ain refugee camp in Nablus district, focusing on upper Respiratory Tract diseases

One hundred and forty nine houses from Camp No 1 were chosen randomly as a study sample, they were asked to answer a questionnaire

about their family status, house, life style, and information of children affected by ARI& risk factors, all data were analyzed by SPSS.

**The following are important study results:**

1. Poor housing conditions in refugee camp No 1, including overcrowded houses, and humidity in houses.
2. A high percent of Camp No 1 resided suffering from cold ,chronic cough ,throat ache ,influenza and otitis specially in age 1-6 years
3. The study divided the respiratory infection diseases to six diseases, cold, chronic cough ,throat ache ,influenza , bronchitis and otitis media. Association between these respiratory infection and housing conditions are the following:
  - Significant positive association chronic cough &the number of family members
  - Significant positive association between influenza & the number of family members
  - Significant positive association between throate ache & heating source, number of smokers in house.



**CHAPTER ONE**  
**INFRODUCTION**

# **1 Introduction**

## **1.1 Historical background**

On 29 November 1947, the United Nations (UN) General Assembly passed Resolution 181, endorsing a partition plan to divide the land of historic Palestine between the Jews and Arabs. War ensued and resulted in the state of Israel being created on 77% of the total area of historic Palestine. Over 750,000 Palestinians were displaced and dispossessed of their homes and land, creating what has become the largest refugee population in the world.

Palestinian facilities and private properties such as schools, hospitals, houses and lands confiscated by the Israeli government as "state property" since 1948 have been allocated for Jewish use only. New settlements throughout Israel and the Occupied Palestinian Territories are built on the remains of the destroyed villages and on land

previously owned by Palestinians (United National Relief and Works agency (UNRWA,1998)

In year 1948, more than 750,000 Palestinians (80% of the population) had fled and (50%) Palestinian villages were de-populated and destroyed by Israeli forces. One-third fled to the West Bank, one-third fled to the Gaza Strip, and the remaining population became scattered throughout Jordan, Syria, and Lebanon and in other countries throughout the world.

The Palestinian who left their homes, were scattered, lost everything, and were living in tents from 1948-1950, (Dan Kurzman,1970)

Marshy(1999) describes the physical condition of the camp as following : All Palestinian refugee camps started with tents.In the mid – 50s the UNRWA began to encourage refugees to build their own shelters in the camps to replace the tents.Bricks and asbestos were provided for camp residents to build units of uniform specified :

as following based on the family size.

- A units measuring 3\*3 meters housed families with 1-5 members
- B units measuring 4\*3.75 meters housed families with 6-9 members
- C units measuring 4\*4.45 meters housed families with 9-11 members.
- AA units were 6\*3 meters,comprising two rooms connected with an inside corridor,and housed 11-12 member families;finally
- BB units measuring 8\*4 meters housed families of more than 12 members in two rooms.

They were impoverished and their living conditions were extremely harsh. Then toward the late 1950s, the United Nations Works and Relief Agency (UNRWA) started building one-room dwellings for each family known as UNRWA block rooms. A family of up to ten people lived in each room. There was no electricity and no water (women had to make daily trips to nearby villages and carry water back to the camp).

To each family, the UNRWA block room was a living room, a kitchen and a bedroom, all in one. Over the years, the refugees have been able to add onto these rooms, or even tear them down and build houses in their place. The process has been a slow and difficult one. Families have to wait until they have enough money to complete the construction and this can take two to three years, if not more.

According to the United Nations Relief and Works Agency (UNRWA) Founded in 1949, the Palestinian refugees and their descendants number (as of 30 June 1998) was 3,521,130 of whom 30% live in camp.

Refugee is defined as a person who lived in Palestine between the first of June 1946 and 15 May 1948 and who lost his home as a result of the conflict, and took refuge in one of the countries in which UNRWA operates.

There are 1.46 million refugees in Jordan (of which 270,000 in camps), 365,000 in Lebanon (which 200,000 in camps), 365,000 in Syria with 105000 in camps). In Gaza there are 770,000 (of which 420,000 in camps) and in the West Bank 550,000 (which 30% live in camps,70 % live in towns and villages. (UNRWA,1998)

Following the 1948 Arab-Israeli conflict, UNRWA, the United Nations Relief and Works Agency for Palestine Refugees in the Near East, was created to help and carry out direct relief and work programmes for Palestinian refugees. The Agency began operations on 1 May, 1950. In the absence of a solution to the Palestinian refugee problem, the General Assembly has repeatedly renewed UNRWA's mandate, most recently extending it until 30 June 2005 (UNRWA.1998)

The 1951 Geneva Convention, relating to the Status of Refugees, define, a refugee as: 'A person who is outside his/her own country of nationality or habitual residence; has a well-founded fear of persecution because of his/her race, religion, nationality, membership in a particular social group of political opinion; and is unable or unwilling to avail himself/herself of the protection of that country, or to return there, for fear of persecution (UNRWA,1998)

One-third of the registered Palestinian refugees, (about 1.3 million), live in 59 recognized refugee camps in the area of operations in Jordan, Lebanon, the Syrian Arab Republic, the West Bank and Gaza Strip.

A camp, according to UNRWA's working definition, is a plot of land placed at the disposal of UNRWA by the host government for accommodating Palestinian refugees and for setting up facilities to cater to their needs.

The plots of land on which camps were set up are either state land or, in most cases, land leased by the host government from local land owners. This means that the refugees in camps do not "own" the land on which their shelters were built, but have the right to "use" the land for a residence. (UNRWA.1998).

Socio-economic conditions in the camps are generally poor with a high population density, cramped living conditions and inadequate basic infrastructure such as roads and sewers (UNRWA,1998).

Table 1 shows the total counts of Palestinian living in camps and out of camps are:

**Table 1. Palestinian Refugees Registered By UNRWA**

<b>Field of Operations</b>	<b>Registered Population</b>	<b>Number of Camps</b>	<b>Total Camp Population</b>	<b>Registered Persons not in Camps</b>	<b>Percentage of population not in camps</b>
<b>Lebanon</b>	376,472	12	210,715	165,757	44.02
<b>Syria</b>	383,199	10	111,712	271,487	70.84
<b>Jordan</b>	1,570, 192	10	280,191	1, 290,001	82.15
<b>West Bank</b>	583, 009	19	157,676	425,333	72.95
<b>Gaza Strip</b>	842,622	8	451,186	391,436	46.45
<b>Total</b>	3,737,494	59	1,211,480	2,526,014	67.58

Source: [UNRWA](#) Liaison Office, DC2-175,1998

The population of Gaza Strip as of December 1995 was estimated to be about 845,000 persons, residing in 23 communities. Registered refugees composed about 72% of the population. Almost half of the refugees live outside the boundaries of refugee camps. The Gaza Strip is characterized by an urban nature, with very high population density of 2,146 persons per square kilometer. Access to piped water supply, piped sewage, garbage disposal and 24-hour electricity is relatively high, compared with the West Bank. However, the conditions and size of these services are inadequate (UNRWA,1998).

By the middle of 2001, the number of Palestinian refugees on UNRWA rolls had risen to 3.9 million, five or six times the number that left Palestine in 1948. One-third of the registered Palestinian refugees,(about 1.4 million), live in 59 recognized refugee camps in Jordan, Lebanon, Syria, the West Bank and Gaza Strip. The other two-thirds of the registered refugees live in and around the cities and towns of the host countries, and in the West Bank and the Gaza Strip, often in the environs of official camps (UNRWA,1998).

Palestinians are the world's oldest and largest refugee population, and make up more than one fourth of all refugees.

The percentage of refugees in West Bank from total West Bank population is 29.4% (Palestinian Central Bureau of Statistics, 2002).

One of the problems faced by refugees and largely neglected by the media are the health problems that.The following are contributing factors to health problems.

1. The overcrowded living conditions, small size homes, inadequate ventilation and sunlight into the house, this situation to be coupled with poverty, unemployment or unskilled labour work of the people living in the camp.
2. Poor hygiene and lack of safe water supplies leading to the spread of many communicable diseases. One of the most common health problems among refugees is the occurrence of diarrheal diseases.
3. Acute Respiratory infection (ARI) a risk in refugee camps due to the overcrowding, poor sanitation and air pollution.
4. Malnutrition is an important contributing factor to the development of diarrheal diseases. (MOH, 1996). Infant mortality rates are presented at 25 deaths per thousand births for the Gaza Strip and 14.3 for the West Bank. The main causes of infant mortality in the Gaza Strip were pneumonia (22.9%), Prematurely (19.4%), congenital disorders (10.8%) and diarrhea (10.1%). In children aged 1-5 years, traffic and other accidents caused 28% of all deaths.

Acute respiratory infections (ARI) represent one of the main health problems in children under five years of age in developing countries. In the Region of the Americas, ARI are among the five major causes of death in this age group and the major cause of sickness and health service consultation (Koskinen, Om, and Husman, TM and Hyvarinen AM, 1997).

Epidemiological studies in developing countries have linked exposure to indoor air pollution from dirty fuels with at least four major categories of illness: acute respiratory infections (ARI) in children; chronic obstructive lung diseases such as asthma and chronic bronchitis; lung cancer; and

stillbirths and other problems at birth. Of these, ARI appears to have the greatest health impact in terms of the number of people affected and the time lost due to illness, especially in children younger than age 5 (WHO,1997).

Respiratory infectious disease in children is an important public health problem,the results of some studies suggest that repeated respiratory infections constitute a risk factor for chronic lung disease later in life (Marbury MC, Maldonado G, Waller L.,1997).

Most children under five have four to six acute respiratory infections each year in both developing and developed countries. The risk of pneumonia is, however, three to six times greater in children of developing countries, ranging from 10% to 20% and reaching levels as high as 80% in populations with high prevalence of risk factors such as malnutrition and low birth weight,and air pollution.The incidence of pneumonia is 3-4% in children under five in developed countries (WHO,1998).

Prevention of respiratory diseases in children is an important public health matter in developed and developing countries (Wallace JM, Hansen NI, Lavange L, et al. 1997).

Good-quality housing is a key element for ensuring a good health for people. Poor housing can lead to many health problems, and is associated with infectious diseases (such as ARI), stress and depression. Everyone should therefore have access to good-quality housing and a pleasant home environment that makes them happy and content (WHO,2003).

Children are exposed during periods of vulnerability, to high levels of pollutants in air, water, food, and soil, and to chemicals present in

household products and contaminated consumer goods. Air pollution from the inappropriate combustion of fossil fuels for cooking and heating is linked to respiratory infections, which cause up to 20% mortality in children under five years of age (www.bvsa.com)

WHO estimates in 1990 indicate that out of nearly 12.9 million children under 5 who die each year in developing countries, about 4.3 million die of ARI. (Yang, 1997 and Dales,1997).

Numerous studies were concerned with the effects of the indoor air quality (environmental tobacco, smoke, home heating incense burning, mosquito repellent burning, and damp or mold houses) on the respiratory symptoms (cough, wheezing, pneumonia and, asthma) among school children

According to “UNRWA” surveys, respiratory infections are still considered third main leading cause of death of infants (0-1) years and children (1-5)years, with mortality rates equal to (19% and 12.9% respectively). Most all refugee shelters in the camps are connected to water networks, and 69 percent are connected to sewerage networks

## **1.2 Housing and health:**

The housing environment has always been acknowledged as one of the main settings that affects human health. The quality of housing conditions plays a decisive role in the health status of the residents. Many health problems are either directly or indirectly related to(WHO,2002).:

- The building itself (indoor air quality, humidity etc).
- The construction materials that were used (asbestos),
- The equipment (hygiene, water supply)
- The size or structure of the individual dwellings (overcrowding)

In developing countries, about 700 million people – mainly women and children in poor rural areas – inhale harmful smoke from burning wood and other fuels. They are increasingly at risk from acute respiratory infections, especially pneumonia (World Health Organization 1999)

The relationship between housing and health can be discussed within the following sections.

### **1.2.1 Direct factors:**

#### **1.2.1.1 Site of Residential Area**

Millions of residents on the cities such as Los Angeles, breathe dirty air one-third of the days of the year, the symptoms suffered by people who live in dirty cities where aching lungs, wheezing, coughing, and headache.

The air of industry city is dirty, Combustion of fossil fuels releases a variety of pollutants into the atmosphere, including sulfur oxides nitrogen oxides and carbon monoxide, and particulate matter (PM). These pollutants can accumulate and can reach toxic levels in cities within rapid rate infected with acute respiratory diseases In Tehran city, within, the levels major air pollutants have been three to four times than rural area in Iran.

The health impacts of urban air pollution seem likely to be greater in some of the rapidly developing countries where pollution levels are higher.

The World Bank has estimated that exposure to particulate levels exceeding the WHO health standard accounts for roughly 2 to 5 percent of all deaths in urban areas in the developing world(Pierre et al, 2001).

#### **1.2.1.2 Building Materials**

The primary purpose of buildings worldwide is to protect humans from the hazards and discomforts of outdoor environments and to offer a safe and convenient setting for living and human activity, (WHO,2002).

For example asbestos is a natural mineral with unusual qualities. It has also been found in many products around the house. It has been used in clapboard; shingles and felt for roofing; exterior siding; pipe and boiler covering.

Asbestos poses health risks when fibers are in the air that people breathe. Asbestos fibers lodge in the lungs, causing scarring that can ultimately lead to severely impaired lung function (asbestosis) and cancers of the lungs or lung cavity (EPA,2003).

#### **1.2.1.3 Natural lighting and Ventilation**

Poor indoor lighting can have many harmful effects on health and well-being. A poorly light working environment at home can lead to eyesight problems; Poor lighting within the home can also make people feel more depressed.(Koskinen OM, Husman TM, Hyvarinen AM.1997)

Poor ventilation, encourages mould, fungi and other micro-organisms to grow. Many moulds in damp houses are allergenic and provide a food supply for house mites which are also potential allergens. At certain stages some fungi become toxic. Mould allergy is a recognized

cause of asthma. In addition to, associations between dampness/mould and ill health.

#### **1.2.1.4 Crowding**

Respiratory infectious diseases, diphtheria, whooping cough and other airborne diseases are more common among children who live in crowd, inadequate housing in developing countries (WHO,1998).

The definition of crowding is based on the relationship between the number of people in the house and the number of bedrooms. It assumes that two people can share a bedroom when they are a couple, or are of the same sex and under 18, or are under five (Gray,2001).

Overcrowding in homes causes ill-health because it makes disease transmission easier and because the lack of private space causes stress. Overcrowding is related to socioeconomic level, and the poor often have little choice but to live in cramped conditions (WHO,2003).

The relationship between overcrowding and health is complex. Overcrowding is associated with other health determinants such as income as well as exposure to other risk factors such as tobacco smoke. Some studies found that people who live in more crowded housing have poorer physical and mental health (Ministry of Health 1999; Howden-Chapman and Wilson,2000).

Thus, one must assume that the effect of crowding on health is not the same for all household members, differences exist between women, men, the elderly, the disabled and children.

Overcrowding as a public health problem is manifested by two aspects. First the crowding two people in each habitable room i.e. bedrooms and living rooms, The second aspect overcrowding between the household is reflected by the densely populated area.

The housing patterns in refugee camps in Palestine consist of wall to wall housing with narrow paths and streets in between (The Community Health Unit, 1997, Heibery and vensen 1999, Filfil, 1999)

### **1.2.2 Indirect Factors**

#### **1.2.2.1 Malnutrition**

Children in families on waiting lists for housing are 50% more likely to have iron deficiency anemia and are six times more likely to have stunted growth than children in families that receive housing subsidies (Frank DA, Roes N, Meyers A, et al 1996).

Many poor families who live in cold climates often must choose whether to heat or eat during the winter months.

#### 1.2.2.2 Access to Education

Children's education affected by condition of housing such as overcrowding, through a lack of space for homework, as well as indirectly because of school absences caused by illness, which may be related to overcrowding (Hunt, S. 1997).

### **1.3 Risk Factor of Respiratory Infectious Disease**

Respiratory Infectious Disease in children is an important public

health problem. In addition to the significant burden on health services and families during the acute phase of illness, the results of some studies suggest that repeated respiratory infections constitute a risk factor for chronic lung disease later in life. Prevention of respiratory disease in children is, therefore, an important public health matter in developed and developing countries (American Lung Association,1999).

**They are two groups of risk factors: Environmental factors and Microbial factors**

### **1.3.1 Microbial factors**

Exacerbations of asthma are the major cause of morbidity and mortality in asthmatic children (Johnston 1998; Johnston et al. 1996). Clinical evidence suggests that viral infections, rather than bacterial infections, play the major role in asthma exacerbation caused by upper respiratory infections (URIs) (Abramson et al. 1995; Busse et al. 1997; Johnston 1998; Pearce et al. 1998; Weiss 1998). In addition, a study by Sarafino et al. (1998) examined the impact of various triggers for asthma symptoms at various ages and found that, of all triggers examined, the impact of respiratory infections declines the most with age in children. They concluded that as children get older, asthma episodes are more likely to be triggered by factors such as exercise and allergy problems

### **1.3.2 Environmental factors**

Environmental factors may affect both the susceptibility of children to respiratory infectious disease and the duration of disease.

### **1.3.2.1 Air Pollution:**

the quality of the air we breathe both indoors and out has a great impact on lung health. Fragile lung tissue is easily damaged by pollutants in the air, resulting in increased risk of asthma and allergies, chronic bronchitis, lung cancer and other respiratory diseases(Weiss ST. 1998)

### **1.3.2.2 Outdoor air pollution,**

Such as motor vehicle exhaust fumes and severe childhood respiratory infections. Some investigators have evaluated the role of outdoor-air pollution. An association exists between air-pollution levels and the presence of irritation or inflammation in the upper respiratory pathways, causing a slight bronchoconstriction, but no data in support of a direct relation between air-pollution levels and the extent of infectious respiratory disease have been presented. (Marbury MC, Maldonado G, Waller L, 1997)

### **1.3.2.3 Indoor air:**

Condition, particularly dampness, mold, humidity, mildew, smoke from home cooking or heating and cooling our homes are major risk factors of indoor air pollution, poor indoor air quality can cause or contribute to the development of chronic respiratory diseases such as asthma and hypersensitivity pneumonitis. In addition, it can cause headaches, dry eyes, nasal congestion, nausea and fatigue. People who already have respiratory diseases are at greater risk.(Koskinen OM, Husman TM, Hyvarinen AM, 1997)

Heating systems and other home appliances using gas, fuel, or wood, can produce several combustion products, of which the most

dangerous are carbon monoxide (CO) and nitrogen dioxide (NO<sub>2</sub>). Fuel burning stoves, furnaces, fireplaces, heaters, water heaters, and dryers are all combustion appliances (Guidelines for Residential Indoor Air Quality, 1999)

#### **1.3.2.4 Biological Agents**

Are present in the air almost everywhere, and are a common factor in indoor air pollution. They include bacteria, viruses, fungi, pollen, dust mites and other insects, animal dander (tiny scales from hair, feathers, or skin) and molds. biological agents can travel through the air and are often invisible. They are usually inhaled, either alone or by attaching themselves to particles of dust or then entering the respiratory system.

Health effects: various biological agents can cause Infectious and non infectious diseases.

They can make you sneeze, trigger allergic reactions, cause rashes, watery eyes, hoarseness, coughing, dizziness, lethargy, breathing problems, and digestive problems.

People with asthma are especially susceptible to allergic problems caused by biological agents. Their very sensitive airways can react to various allergens and irritants, making breathing (Weiss ST. 1998).

#### **1.3.2.5 Cigarette smoking is the most common cause of ARI.**

The risk goes up with the amount of tobacco smoked, smokers, Exposure to Tobacco Smoke, Studies have shown that smokers are not the only ones at risk for increased respiratory difficulties. Children and spouses of smokers breathe second-hand smoke leading to asthma and more respiratory infections. Smoking by parents is also associated with the

increased frequency of ear infections in their children and sudden death syndrome (Kitchens CG,1995).

A study published by the American Lung Association further indicated that the premature babies of mothers who smoked while pregnant had significantly diminished lung function compared to pre-term babies of mothers who didn't smoke. Reduced lung function in infants has also been shown to lead to wheezing and respiratory illnesses in early childhood.

#### **1.3.2.6 Smog and ozone go together.**

The Environmental Protection Agency (EPA) reports that repeated exposure to ozone pollution causes permanent damage to the lungs and even low levels can reduce lung capacity and worsen bronchitis and asthma(Awasthy S, Glick HA,1996)

#### **1.3.2.7 Breast-feeding:**

children who stop breast-feeding before six months of age are at higher risk of dying from pneumonia than those who are still breast fed. (Weiss ST,1998).

#### **1.3.2.8 Infant feeding:**

Bottle-feeding can be a risk factor for allergies in infants. Evidence suggests that fewer allergies surface in the first two years of a child's life if they were exclusively breast-fed during their first 6-12 months (WHO.1998)

#### **1.3.2.9 Some investigators have demonstrated that dietary factors are**

important for respiratory disease. Schwartz and Weiss demonstrated that bronchitis was associated negatively with serum vitamin C levels and

that symptoms of wheezing were associated negatively with serum vitamin C and niacin levels. An important nutritional factor for children that protects against respiratory infection is breast-feeding, as has been proven in several studies (Ragnar R, Ysabelle M, 2000).

#### 1.4 Complication

Chronic lung disease (CLD):

**Is a general term for long-term respiratory problems in premature babies.**

**It is also known as bronchopulmonary dysplasia (BPD).**

**Asthma** is an inflammatory condition of the bronchial airways. This inflammation causes the normal function of the airways to become excessive and over-reactive, thus producing increased mucus, mucosal swelling and muscle contraction (WHO, 1998).

#### 1.5 Prevention

**1.5.1 Control of ARI at the Local Level** The final section is on the development of control actions at the local level, including the appropriate planning, evaluation, and use of the indicators and parameters needed for the evaluation. This process makes it possible to gather the information needed to improve ARI case management to meet the goals proposed for coverage and reduce the rates of morbidity and mortality (Smith SJ, 1999)

**1.5.1.1** Reducing indoor air pollution (tobacco smoke, cooking and heating smoke), and keeping infants warm (Wallace JM, Hansen NI, Lavange L, et al. 1997, AL-Khatib et. Al. 2003)..

**1.5.1.2** Control relative humidity in house. In kitchens and bathrooms, install an exhaust or high-capacity fan that is vented to the outdoors. Clean humidifiers (Wallace JM, Hansen NI, Lavange L, et al. 1997).

**1.5.1.3** Improving nutrition and breastfeeding contribute to strengthening the defenses of the child and thus reduce the chances of the child becoming ill and dying from pneumonia.

**1.5.1.4** Other preventive measures include reducing the incidence of low birth weight deliveries

**1.5.1.5** Improve nutrition status of children, administer Vitamin A supplements

**1.5.1.6** Reduce overcrowding, limit chilling by providing adequate shelter, and distribute blankets.

**1.5.1.7** Immunize against measles, diphtheria, and whooping cough.

**1.5.1.8** Some ARIs can be prevented with **vaccinations**. These include measles, diphtheria, and whooping cough. If children are vaccinated against measles, whooping cough, and diphtheria, up to 25 percent of the deaths from these infections can be prevented.

## **1.6 Treatment**

**1.6.1** Treatment is aimed at relieving symptoms and preventing complications. Smoking and all other respiratory irritants should be avoided. Intake of plenty of fluids and inhalation of humidified warm air can help loosen secretions and ease coughing. It is best if productive coughing is allowed to bring up mucus, but a cough medicine should be used if coughing fits become unbearable (Busse ww, Gern JE, Dick EC. 1997).

**1.6.2** Pneumonia or ARI in severely malnourished children require antibiotic treatment –either orally or intravenously.

Other types (coughs and colds) need only supportive treatment as they are generally caused by viruses

**1.6.3** Respiratory treatments including inhaled medicines are often used to open constricted airways and aid in the clearance of mucous from the airways. Medications include the bronchodilator. Oral antibiotics may be prescribed in certain circumstances.

**1.6.4** Patient education programs all contribute to the treatment plan. For patients with low oxygen levels, home oxygen is also used.

**1.6.5** Steroids (either inhaled or by mouth) can also help some patients with chronic bronchitis.

**1.6.6** Recommendations regarding acute respiratory infections treatment include setting up guidelines for treatment, monitoring the sensitivity of bacteria causing respiratory infections, regular reviewing of vaccination programs and health education.

### **Housing at Camp 1 (Al Ain refugee camp)**

Was established in 1950 over 45 km an area of beside the main road to the Nablus City, within the municipal boundaries of Nablus. Following the Israeli redeployment in 1995, the camp fell under the Palestinian Authority control in "zone A".

The land of camp was lent by Jordan through the UNRWA Number of inhabitants counted 6,290 persons, living in 1319 houses during the year 2003.

The camp was very crowded,, and the narrow alleys were in desperate need of repair.

Health services: the camp has a health unit consist of (general doctor, nurse, family planning, teeth unit, mother care, x- ray, and lab) no health servicing to children in the camp specially during winter. Every clinic was supervised by UNRWA.

The study will cover that most commonly diseases in winter, For example: common cold, cough, Pharyngitis, influenza, ear infection asthma and bronchitis.

In 1997, UNRWA constructed two new schools, with contributions from the governments of Saudi Arabia and Sweden, over a piece of land outside the camp's boundaries, provided by Nablus municipality. All information were get from interview of head of refugee camp.

### **1.7 Aims of the study**

The study covered disease that are most common in winter, they include common cold, cough, Pharyngitis, influenza, ear infection, asthma, and bronchitis. The aim of this study was. To evaluate the impact of housing conditions on the health of the people at (Al-Ain) Camp(Camp No 1) refugee in Nablus district, focusing on upper Respiratory Tract diseases. To investigate the incidence and prevalence rates of upper respiratory tract diseases that are known to be related to poor conditions at (Al-Ain) Camp refugee those include:-

***-Bronchitis***

***-Asthma***

***-Cough***

***-Allergies***

***-Wheezing***

***-Ear infection***

**CHAPTER TWO**  
**METHODOLOGY**

## 2. Methodology

This chapter describes the population, the subject of the study data collection & the analysis method

### **2.1 Population of study: (Sample)**

The study sample was selected randomly from (Al-Ain) camp by divided into three areas the beginning camp, middle, and the end of the camp..

The houses were chosen randomly at (Al-Ain) camp The study sample consists of 149 houses chosen from 1319 houses in Al-Ain camp (camp No 1)

### **2.2 Tool of study**

#### **2.2.1 Questionnaire:**

It is a good tool for collecting, it consisted of questions (Annex.1) focused on four parts:

The first part was about the family status including the work of houseman, housewife work, number of family. (Questions from 1-12).

The second part was about house building including (number of room, average of children room, house material, roof material, sun exposure, room windows, number of smoking people in house and method of waste disposal. (Questions from 13-33).

The third part was about living style of the study sample including water source, heating source, and domestic animals and diseases (Questions from 34-46).

The fourth part was information of patient children including information about their weight and sort of medication they use (Question47).

### **2.2.2Data collection**

Data were collected during the period through January to February 2003 using interview.

### **2.3 Procedure**

It was found that 74.5% met mothers, while only 4% met fathers, 14% interview with grandmothers.

The houses were chosen randomly in (Al-Ain) camp. The rate of the researcher visits to (Al-Ain) camp was 4 visits per week, interviewing people in about 10 houses per day.

When researcher interviewed the people he/she asked them to fill the questionnaire, and confirmed that's all questionnaire was full

### **2.4 Data analysis**

Data of questionnaire were entered, computed, and analyzed using SPSS software.

Descriptive studies and Chi square, were used to obtain the study survey results.

**CHAPTER THREE**  
**RESULTS**

### 3. Results

The results of the study include two main categories:

#### 3.1 Profile of the study population society, residence style of life.

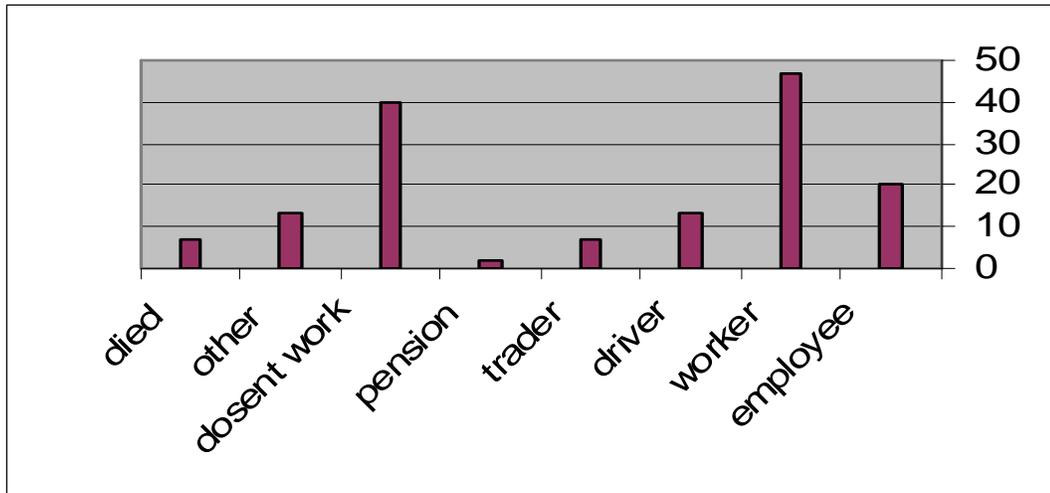
#### 3.2 Relationships

##### 3.1.1 Social profile

**Table (2)** summarize the survey results with respect to selected, the work of breadmaker as 13.4% of men employee, 31.5% were workers, 8.7% driver 4.7% trader and 26.8% unemployed

**Table 2.** Father work

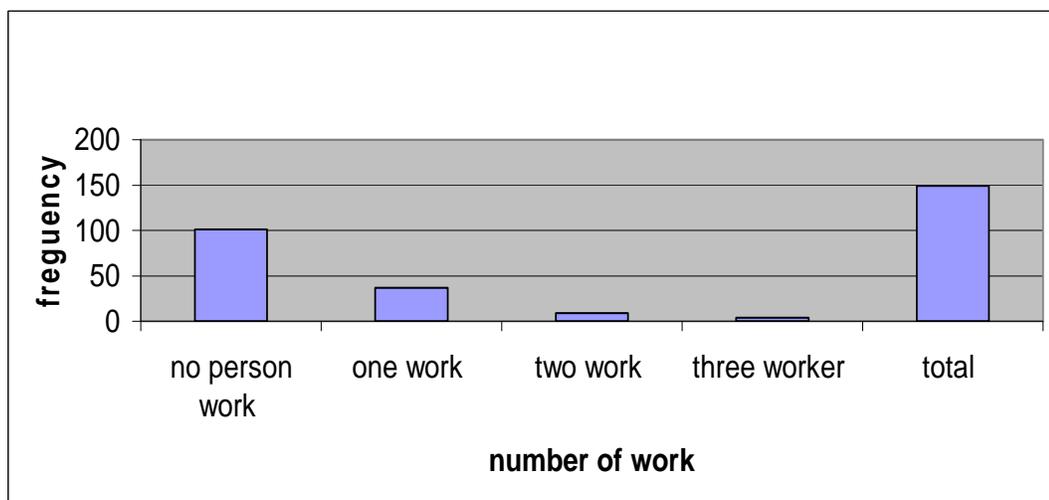
<b>Father work</b>	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
employee	20	13.4	13.4
Worker	47	31.5	45.0
Driver	13	8.7	53.7
trader	7	4.7	58.4
pension	2	1.3	59.7
Doesn't work	40	26.8	86.6
other	13	8.7	95.3
died	7	4.7	100.0
Total	149	100.0	



**Fig 1.** Male employed

### Male employed

In our situation 70% of Palestinian people don't work and their economic status is very difficult, 67.8% of male study sample were not work, 24.8% of have one male work, 6% two males work, 1.3% three of males work.



**Fig 2.** Number of male employed

### Children at the age of 5 died in 5 years ago

When we asked question about number of children died at the age of 5 old they said 10.1% of the sample has dead child

### 3.1.2 Housing

#### 3.1.2.1 Average of children sharing one bed

The data found in figure (3) results from question about the average of sharing one bed, 47% of children sleep alone, while 23.5% of children share bed with another child, 8.1% of children share with two other children, 3.4% of children share with three other children.

This question indicates the overcrowding in camp houses

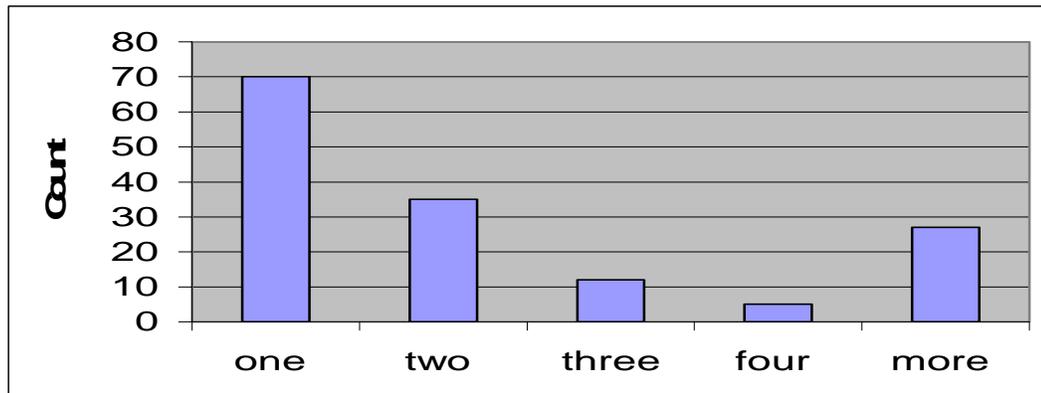
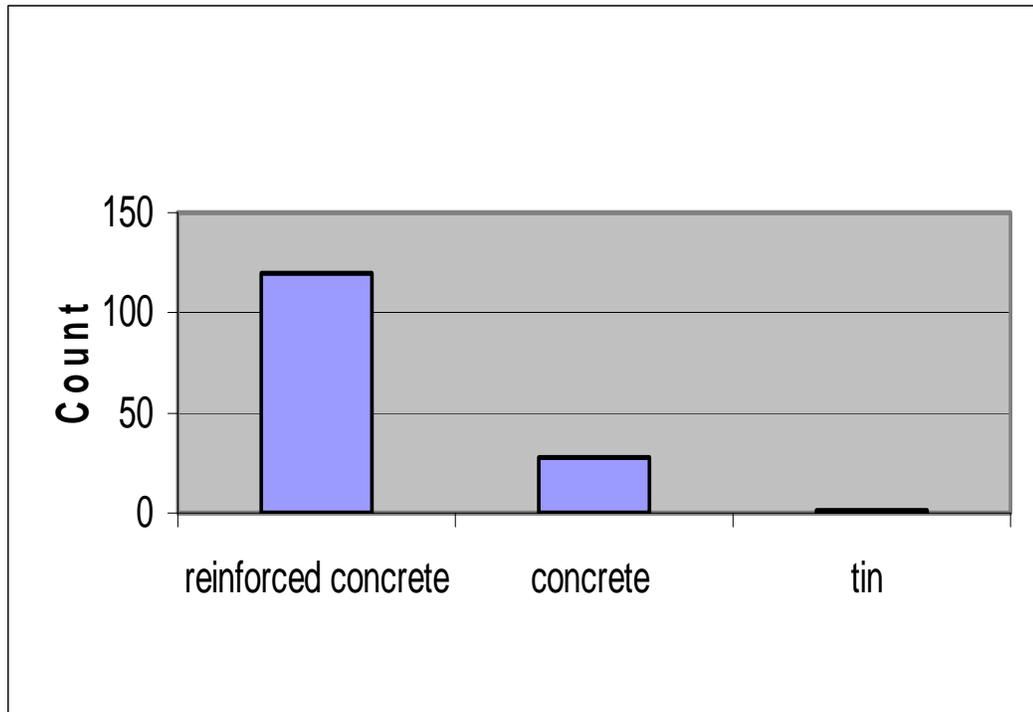


Fig 3. Average number of children sleeping in the same bed

#### 3.1.2.2 House roof

In total 80.5% have house roof reinforce concrete and this material is good its protected the members of family, 16.1% have house concrete r., 0.7% have house tin roof.



**Fig 4.** Type of house roof

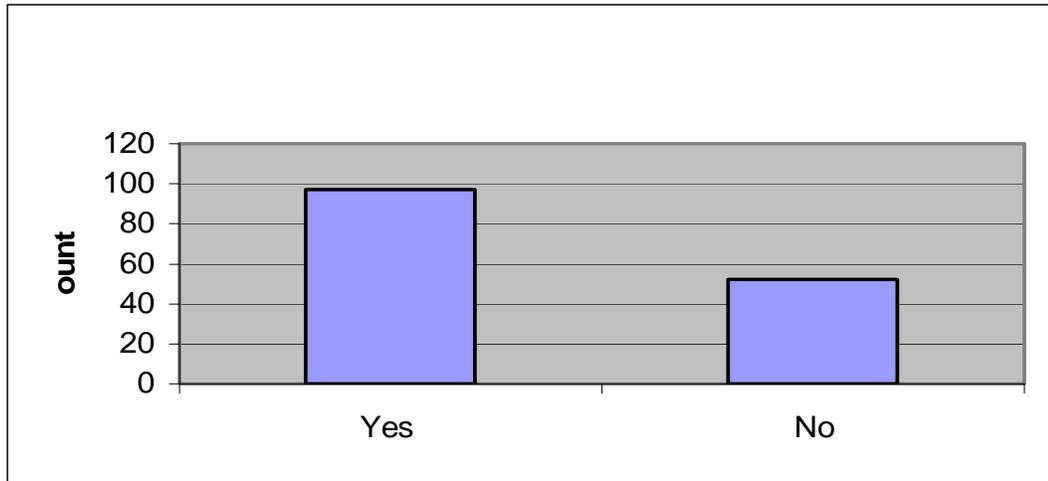
### 3.1.2.3 Humidity in the houses

Of 149 houses were visited on the camp 97 houses have humidity, 52 houses haven't humidity in house.

**Table 3. Humidity in the houses**

<b>Humidity</b>	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
yes	97	65.1	65.1
no	52	34.9	100
Total	149	100	

65.1% have humidity in their houses, 34.2% don't have humidity



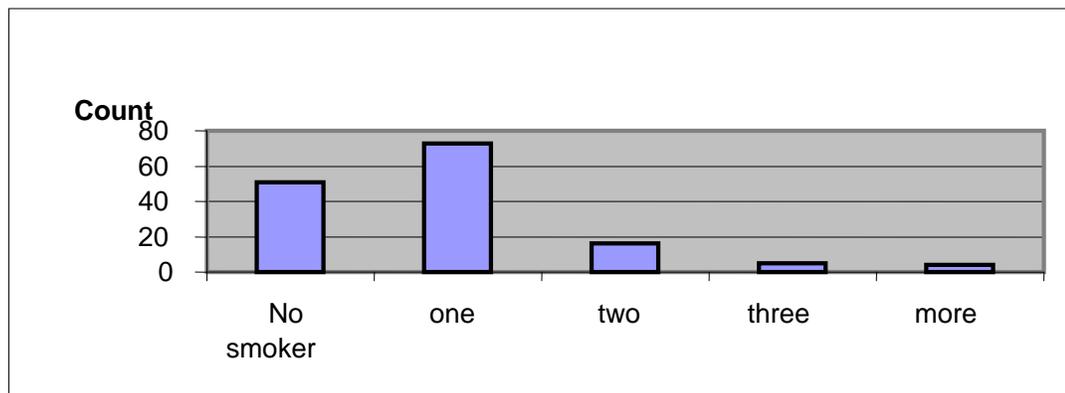
**Fig 5.** Humidity in houses

### 3.1.2.4 Number of smokers

When we asked question, how many smoker in house, the results show that 34.2% of houses have no one smoking, while 49% have one person smoking in house, 10.4% have two smoking in house, 3.4% have three smoking in house.

**Table 4.** Number of smokers in the house

Number of smokers	Frequency	Percent	Cumulative Percent
.00	51	34.2	34.2
one	73	49.0	83.2
two	16	10.7	94.0
three	5	3.4	97.3
more\specify	4	2.7	100.0
Total	149	100.0	



**Fig 6.** Number of smokers in the house

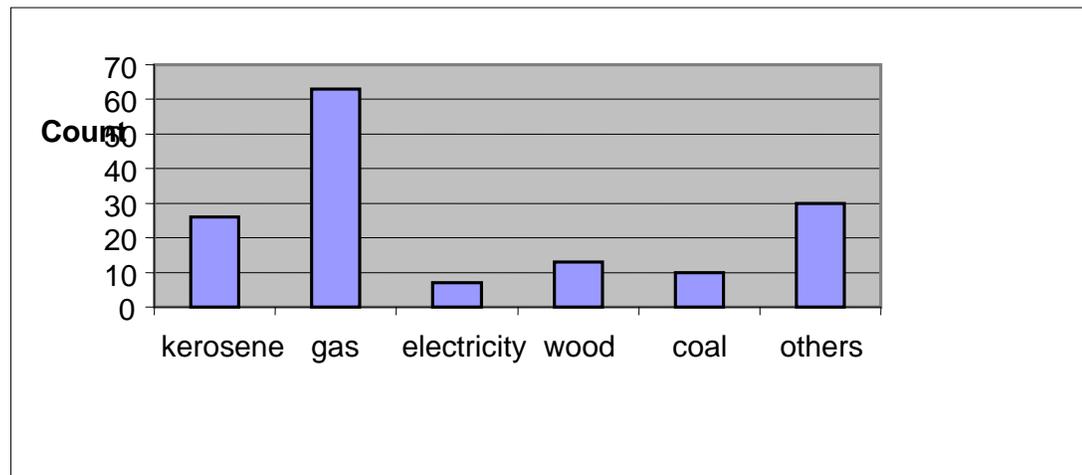
### 3.1.3 Life Style

#### 3.1.3.1 Heating source

17.4% used kerosene in heating, 42.3% used gas, 4.7% used electricity, 8.7 %used wood, 3.4% used coal, 3.4% used kerosene gas, 20% others.

**Table 5.** Heating source

Heating Source	Frequency	Percent	Cumulative Percent	
kerosene	26	17.4	17.4	
gas	63	42.3	59.7	
electricity	7	4.7	64.4	
wood	13	8.7	73.2	
coal	5	3.4	76.5	
kerosene and gas	5	3.4	79.9	
Others/		30	20.1	100
Total		149	100	



**Fig 7.** Heating source in house

### 3.2 Relationships results

To examine the truth of all questionnaire, which states that "There are no statistically significant differences, in the significance level 0.05 in

the all questions in questionnaire of housing in Camp No 1, we applied the chi square test to the frequencies of all answers in the questionnaire, The result is summarized in the following :

### **3.2.1 Family monthly income & number of person in family affected by chronic cough cand cold**

To study the relationship between family monthly income & number of person in family affected by chronic cough, we compute the chi square test for both of them.

The chi square value for family monthly income & number of person in family infected with chronic cough was.p =0.010 chi square =64.189

**Table 5.** Family monthly income & number of person in family affected by chronic cough cand cold

<b>Average of family monthly income</b>	<b>Number of Family infected with chronic cough and cold</b>	<b>Percent</b>	<b>Cumulative Percent</b>
00	37	36	36
100-500	15	15	51
600-1000	17	17	68
1100-1500	17	17	85
1600-2000	5	5	90
More than 2100	10	10	100
Total		100	

### **3.2.2 Number of rooms & number of family affected by cold**

To study the relationship between number of rooms & number of family affected by cold,we computed the p value for both of them,the results were as shown in the table below

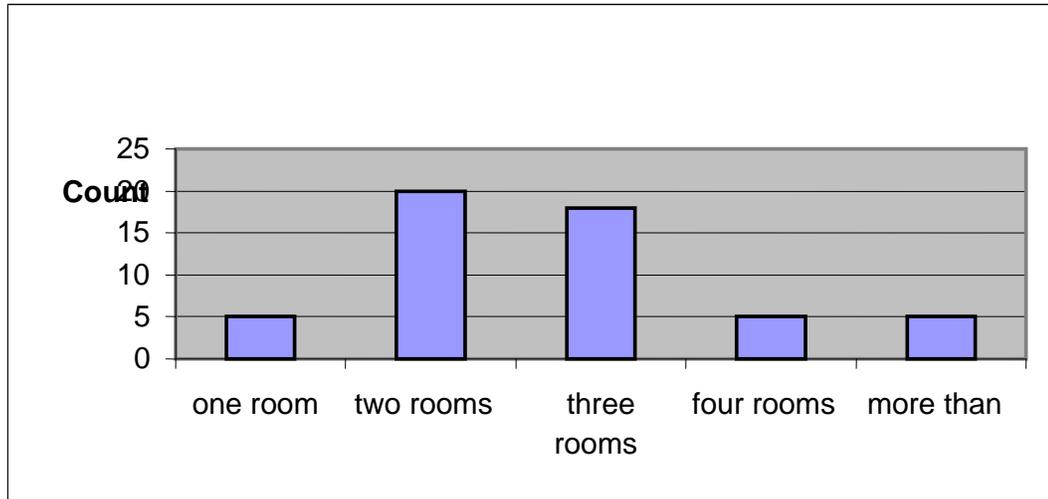
**Table.6** Number of rooms & number of family numbers affected by cold

Number of rooms		num of family members infected with cold													Total	
		1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.	11.0	14.0	17.0		19.0
one room	Count	7	3	3	2		1	1								17
	% within number of rooms	41.2	17.6	17.6	11.8		5.9	5.9								100.0
two	Count	18	9	5	5	3	4	5		1				1		51
	% within number of rooms	35.3	17.6	9.8	9.8	5.9	7.8	9.8		2.0				2.0		100.0
three	Count	10	9	9	2	4	2	3	1	1	1	1				43
	% within number of rooms	23.3	20.9	20.9	4.7	9.3	4.7	7.0	2.3	2.3	2.3	2.3				100.0
four	Count	6	1	3	4	1		1		1			1			18
	% within number of rooms	33.3	5.6	16.7	22.2	5.6		5.6		5.6			5.6			100.0
more than	Count		1		1	3			1						1	7

Number of rooms		num of family members infected with cold														Total
		1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.	11.0	14.0	17.0	19.0	
four	% within number of rooms		14.3		14.3	42.9			14.3						14.3	100.0
Total	Count	41	23	20	14	11	7	10	2	3	1	1	1	1	1	136
	% within number of rooms	30.1	16.9	14.7	10.3	8.1	5.1	7.4	1.5	2.2	.7	.7	.7	.7	.7	100.0

The chi square value for number of rooms & number of family infected with cold was 70.146,p =0.047

Bars below demonstrated this table:-



**Fig 8.** Number of rooms

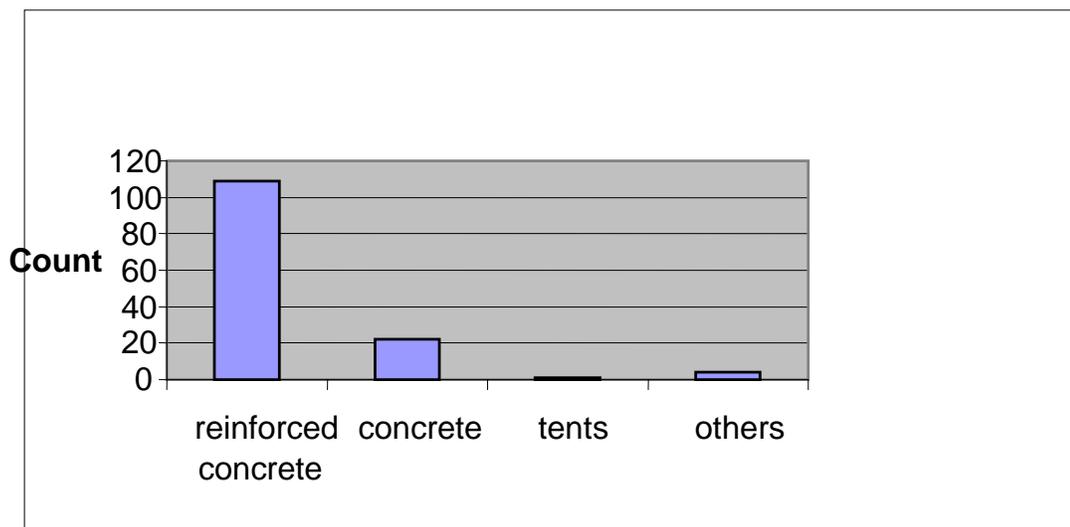
### **3.2.3 House roof & number of family affected by cold**

To study the relationship between house roof & number of family affected by cold, we compute the chi square for both of them, the results were as shown in the table below

**Table 7.** House roof & number of family affected by cold

house roof	num of family infected with cold														Total
	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.0	11.0	14.0	17.0	19.0	
<b>reinforced concrete</b>	38	15	13	12	9	6	8	2	2	1	1	1	1		109
<b>%reinforced concrete</b>	34.8	13.8	12.9	11.1	8.25	5.5	7.34	1.83	1.83	0.92	0.92	0.92	0.92		100
<b>Concrete</b>			5	2	1	1	2		1						12
<b>%concrete</b>			41.6	16.6	8.44	8.44	16.6								100
<b>Tent</b>					1										1
<b>% Tent</b>					100										100
<b>other\specify</b>		1	2											1	4
<b>% other</b>		25	50											25	1000
<b>Total</b>	41	23	20	14	11	7	10	2	3	1	1	1	1	1	136
<b>% Total</b>	30.1	16.9	14.7	10.3	8.09	5.15	7.35	1.47	2.2	1.1	1.1	1.1	1.1	1.1	100

The chi square value for house roof & number of family affected by cold was 60.906,p =0.014



**Fig 9.** house roof

### **3.2.4 Number of smokers & number of person in family affected by throat ache**

To study the relationship between number of smokers & number of person in family affected by throat ache, we compute the chi square test for both of them, the results were as shown in the table below

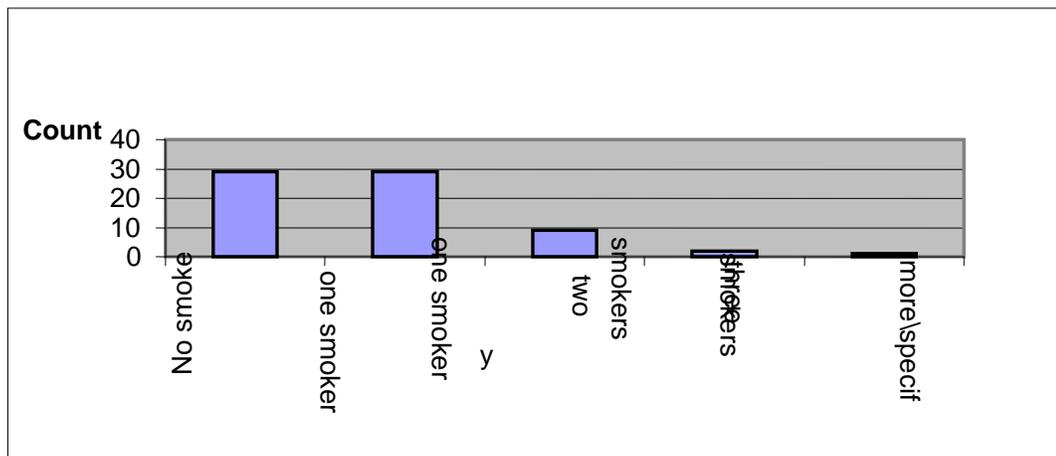
**Table 8.** Number of smokers & number of person in family affected by throat ache

number of smokers		num of person in family affected by throat ache							Total	
		1.00	2.00	3.00	4.00	5.00	6.00	7.00		8.00
.00	Count	18	5	1	3			2		29
	% within number of smokers	62.1%	17.2%	3.4%	10.3%			6.9%		100.0%
one	Count	17	4	3	2		2		1	29
	% within number of smokers	58.6%	13.8%	10.3%	6.9%		6.9%		3.4%	100.0%
two	Count	5	2	1	1					9
	% within number of smokers	55.6%	22.2%	11.1%	11.1%					100.0%
three	Count	1				1				2
	% within number of smokers	50.0%				50.0%				100.0%
more's pecify	Count			1						1

number of smokers		num of person in family affected by throat ache								Total
		1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	
	% within number of smokers			100.0%						100.0%
Total	Count	41	11	6	6	1	2	2	1	70
	% within number of smokers	58.6%	15.7%	8.6%	8.6%	1.4%	2.9%	2.9%	1.4%	100.0%

The chi square value for number of smokers & number of person in family affected by throat ache was 54.092,  $p = 0.002$

Bars below demonstrated this table:-



**Fig 10.** Number of smokers

### 3.2.5 Heating source & number of person in family affected by throat ache

To study the relationship between heating source & number of person in family affected by throat ache, we compute the chi square test for both of them, the results were as shown in the table below

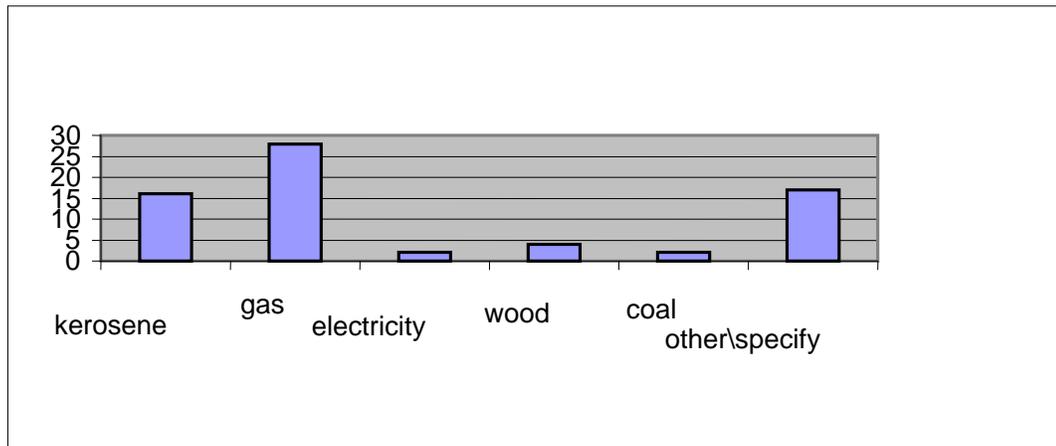
**Table 9.** heating source & number of person in family affected by throat ache

heating source		num of person in family infected with throat ache							Total	
		1.00	2.00	3.00	4.00	5.00	6.00	7.00		8.00
kerosene	Count	9	2	1	3		1			16
	% within heating source	56.3%	12.5%	6.3%	18.8%		6.3%			100.0%
Gas	Count	15	4	3	2	1	1	2		28
	% within heating source	53.6%	14.3%	10.7%	7.1%	3.6%	3.6%	7.1%		100.0%
electricity	Count	2								2
	% within heating source	100.0%								100.0%
Wood	Count	2		2						4
	% within heating source	50.0%		50.0%						100.0%
Coal	Count		1							1
	% within heating source		100.0%							100.0%
kerosene gas	Count	1							1	2

heating source		num of person in family infected with throat ache								Total
		1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	
	% within heating source	50.0%							50.0%	100.0%
other\speci fy	Count	12	4		1					17
	% within heating source	70.6%	23.5%		5.9%					100.0%
Total	Count	41	11	6	6	1	2	2	1	70
	% within heating source	58.6%	15.7%	8.6%	8.6%	1.4%	2.9%	2.9%	1.4%	100.0%

The chi square value for heating source & number of person in family affected by throat ache was 61.379, p =0.027

Bars below demonstrated this table



**Fig (11) Heating source in house**

### **3.2.6 Waste disposal & number of person in family affected by chronic cough**

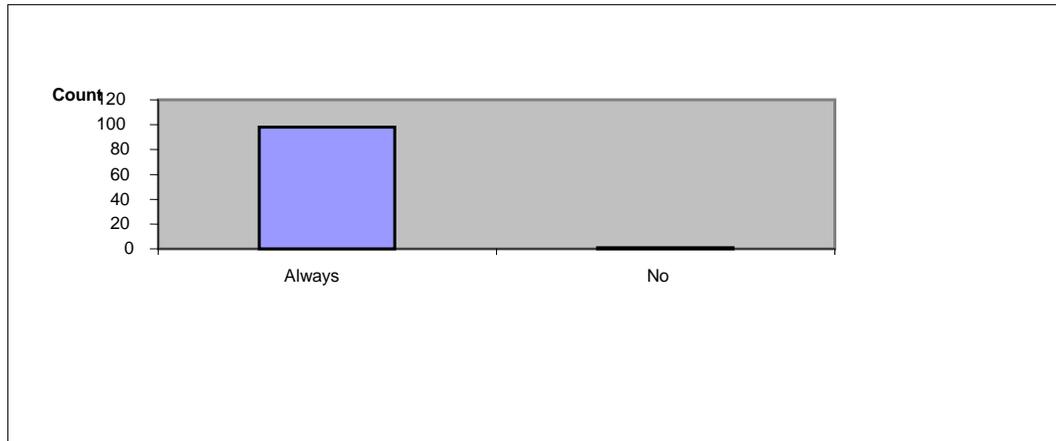
To study the relationship between water disposal & number of person in family affected by chronic cough, we compute the chi square test for both of them, the results were as shown in the table below

**Table 10.** Waste disposal & number of persons in family affected by chronic cough

			num of person in family infected with chronic cough									Total	
			1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	10.0		17.0
waste disposal	always	Count	52	18	9	2	7	3	3	2	1	1	98
		% within waste disposal	53.1	18.4	9.2	2.0	7.1	3.1	3.1	2.0	1.0%	1.0	100.0
	No	Count				1							1
		% within waste disposal				100							100.0
Total		Count	52	18	9	3	7	3	3	2	1	1	99
		% within waste disposal	52.5	18.2	9.1	3.0	7.1	3.0	3.0	2.0	1.0	1.0	100.0

The chi square value for water disposal & number of person in family affected by chronic cough was 32.327, p =0.000

Bars below demonstrated this table:



**Fig 12.** waste disposal in Al-Ain Camp

### **3.2.7 Heating source & number of family infected with cold**

To study the relationship between heating source & number of family affected by cold, we compute the chi square test for both of them, the results were as shown in the table below

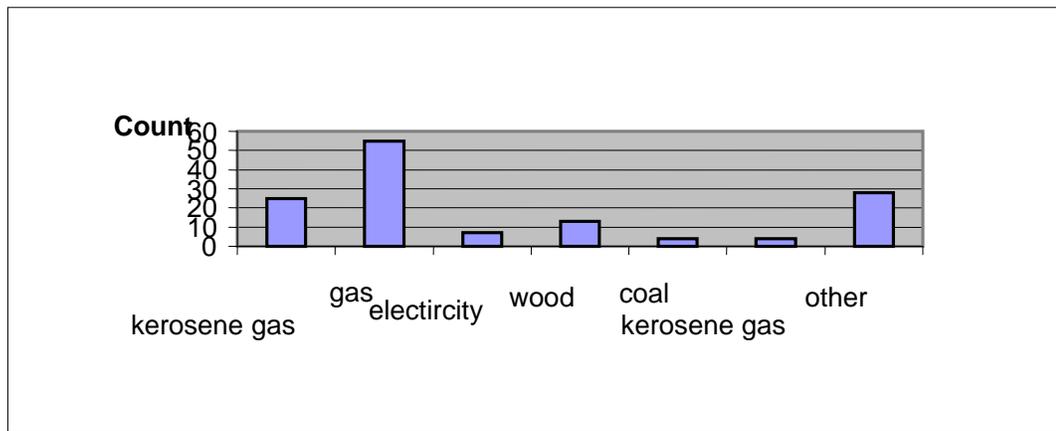
**Table 11. Heating source & number of family affected by cold**

heating source	num of family infected with cold														Total
	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.0	11.0	14.0	17.0	19.0	
<b>Kerosene</b>	6	4	3	5	1	2	1	1	1				1		25
<b>% within heating source</b>	24.0	16.0	12.0	20.0	4.0	8.0	4.0	4.0	4.0				4.0		100.0%
<b>Gas</b>	13	13	11	2	8	2	5		1						55
<b>% within heating source</b>	23.6	23.6	20	3.64	14.55	3.64	9.1		1.82						100%
<b>Electricity</b>	3	2	1				1								7
<b>% within heating source</b>	42.8	28.58	14.28				14.28								100%
<b>Wood</b>	2	3	1	3	2	1						1			13
<b>% within heating source</b>	15.3	23.1	7.7	23.1	15.3	7.7						7.7			100%
<b>Coal</b>	3										1				4
<b>% within heating source</b>	75										25				100%

heating source	num of family infected with cold														Total
	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.0	11.0	14.0	17.0	19.0	
kerosene gas	2						1	1							4
% within heating source	50						25	25							100%
other\specify	12	1	4	4		2	2		1	1				1	28
% within heating source	42.86	3.6	14.28	14.28		7.14	7.14		3.6	3.6				3.6	100%
<b>Total</b>	41	23	20	14	11	7	10	2	3	1	1	1	1	1	136
% within heating source	30.15	16.9	14.7	10.3	8.1	5.15	7.25	1.17	2.2	0.74	0.74	0.74	0.74	0.74	100%

The chi square value for heating source & number of family affected by cold was 112.298, p =0.00

Bars below demonstrated this table



**Fig 13.** Heating source in house

### **3.2.8 number of rooms & number of person in family age affected by influeza**

To study the relationship between number of rooms & number of chi square test coefficient for both of them, the results were as shown in the table below

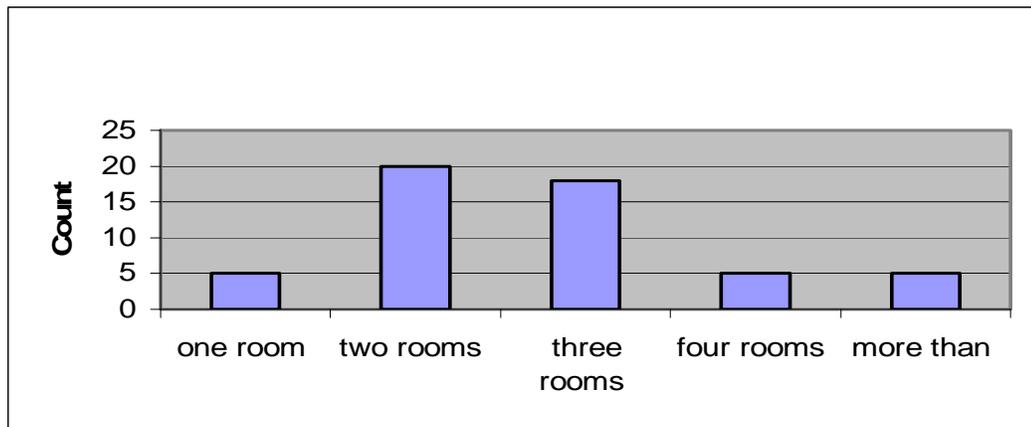
**Table 12.** Number of rooms & number of family age affected by influenza

number of rooms		num of person in family age infected with flu								
		1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	Total
one room	Count	3		2						5
	% within number of rooms	60.0%		40.0%						100.0%
Two	Count	14	2		3			1		20
	% within number of rooms	70.0%	10.0%		15.0%			5.0%		100.0%
Three	Count	7	5	2	1	3				18
	% within number of rooms	38.9%	27.8%	11.1%	5.6%	16.7%				100.0%
Four	Count	5								5
	% within number of rooms	100.0%								100.0%
more than	Count	2				1	1		1	5

number of rooms		num of person in family age infected with flu								
		1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	Total
four	% within number of rooms	40.0%				20.0%	20.0%		20.0%	100.0%
Total	Count	31	31	7	4	4	4	1	1	1
	% within number of rooms	58.5%	58.5%	13.2%	7.5%	7.5%	7.5%	1.9%	1.9%	1.9%

The chi square value for number of rooms & number of person in family age affected by flu was 46.801, p=0.014

Bars below demonstrated this table:



**Fig 14. Number of room in house**

### **Cause of infection**

Peoples perceptions on the reasons for respiratory disease,more than half (57%) of the respondents explained that it may be due to weather related factors and changes in temperature,whereas smale proportion around 30% indicated that the unhealthy housing conditions,Only 3% of respondents stated that smoking is a possible cause of respiratory diseases.

9% of the sample mentioned that infection from others is a factor in catching the diseases

**CHAPTER FOUR**  
**DISCUSSION**

#### **4 Discussion**

This study was conducted figure out effects of poor conditions in the housing on respiratory infection at refugee Camp No 1.

##### **4.1 Social profile:**

We studied the social profile of sample study through answers for related questions in the questionnaire, to have an idea about the society of Al-Ain (Camp No 1), which might be helpful in this study

##### **4.1.1 Gender**

The percentage of male in palestine in 2000 estimated 50.5% from all population while 49.5 % are female (MOH,2001).

In our study males & female were nearly the same percentage as 49.5% of the study population were males & 50.5% were females.

In this study the females are at risk for expoured ARI because they spend a lot of time in kitcken and expoured to cooking stream,this stream is indoor air pollution and that pollution is risk factor of ARI.

The family size ranges from 1-20 member,average family size found in the camp was 7 member

##### **4.1.2 Occupation of male and female & income of study sample**

32.2% of sample are unemployed that mean no monthly income,while 67.8% f male of study sample were (workers) The highest percentge of monthly income (25.3%) was (1000-1200) NIS, while only 13% had more than 1300-2000 NIS, and 33% had monthly income less than550 NIS.

It is noticed that income has no effect, as long as income rises health care don't improve, our society needs health education and promotion their health.

That means 58.3% of population under line of poverty, this low income in general reflects the difficult economic situation in Palestine.

Palestinian People has an average of monthly income more than 1500 NIS and the average monthly consumption on eating is 120 NIS, on clothing 25 NIS, on furniture and house hold operations is 25 NIS, on medical care is 20 NIS, these results show that priorities of Palestinian people while eating comes on top, their last priority is health treatment and prevention.

#### **4.1.3 The interview:**

It was found that 74.5% met mothers, while only 4% met fathers, 14% interview with grandmothers.

This result indicates that mothers are the most aware of childrens suffering diseases.

#### **4.1.4 The number of children died at 5 years of age since 5 years ago**

Most of the sample population didn't have children died 89.9%, and 10.1% had children died, 91.7% of this children died 5 years old in our sample just one child died and 8.31% two child died.

The mortality rate in Palestine under five age is 37.3/1000 live birth (MOH,2002)

This result is good because that all women immunization their children against infection diseases according to child immunization schedule is given free of charge for all Palestinian infants

## **4.2 Housing**

**4.2.1** A high percentage (94%) of the houses were private property, 4.7% of the houses were rented, 1.2% others.

When person owns his house he must give his attention to the condition of house (roof ceiling, floor, windows) and maintains this roof. . . . ect all of their conditions prevented for infected with cold diseases and ARI.

When we visit camp the first feeling in themselves no care to mantian and clean the roads and houses, they are hoping to return to their towns and cities in future to live there.

And when we ask refugees about why no rehailbitation their houses they said there are relation between income and rehailbitation our houses.

In general, the camps doesn't belong to the refugees, it was rented from UNRWA to 99 years.

The houses in the camp consisted of average 2-4 rooms, 12.8% of houses consisted of one room, 38.3% two rooms, 30.2% three room, 13.4% four room

In 4% of houses, the floor was uncovered, 51.7% was covered with carpet. 39.6% with (haseer) and 4.7 with moquette.

100% of camp houses are connected to sewage system and all houses are connected to a pipe water supply.

#### **4.2.2 house roof:**

Most of the houses (96%) had house roof, 4% didn't had roof in their houses. The income of these families was very low and they didn't have money to built roof, The importance of built roof house lies in protecting themselves against weather changes, when there no house roof the people are at risk to infected of respiratory infection disease.

#### **4.2.3 The sun exposure and humidity:**

When the children are prevented from exposure to the sunrays, this leads to loss necessary radiation for the body to utilise vitamin D, Lack of exposure can give rise to tooth decay, rickets in children, and osteomalacia in adults. Additionally the sunrays can help in killing viruses and germs. Smith, S. (1998)

In this study sample houses 56.4% of the houses were exposed to the sun, 43.6% of the houses didn't. Because the land of the camp is low, and because of the density of houses or crowding (Ministry of Health 1999; Howden-Chapman and Wilson 2000) And high percentage of houses 65.1% had humidity, while 34.2% were healthy houses (there are no humidity).

Humidity in their homes is major risk factor of indoor air pollution, Poor indoor air quality can cause or contribute to the development of chronic respiratory diseases such as asthma and hypersensitivity pneumonitis. (Ministry of Health 1999; Howden-Chapman and Wilson 2000)

The dangerous of waste when the waste burn,we breathe this gas from waste burning and when children play near the waste,this waste is source of pollution of there hands and it is possible to infected with ARI.

In Al-Ain (camp No 1) there were rarely accumulated waste (3.4%), sometimes 37.6% accumlated.

It is a good result because when waste accumulate it is source to pollution and to insects and this insects can cause diseases.

#### **4.2.5 windows screen:**

The majority of houses didn't have windows glass (54.5%) and 45.6% have screening in houses, they didn't have windows screening because,the situation is difficult and and they didn't have mony to but this screening,and they didn't have aware to put screening in windows

Windows are important for the function and amenity of houses. Windows: Allow residents to control the temperature in the house; keep insects and dust outside; and can be an escape entrance if there is fire in the house; provide security by allowing residents to check activity outside the house; and provide natural lighting and reduce the cost of artificial lights. If poorly designed, windows can increase the temperature inside the house and reduce privacy and security. (WHO,2003)

#### **4.2.6 Number of smokers**

Most of the study sample (64.8%) have smokers, the highest percentage (49%) is having smoker in the houses, (10.7%) two smokers, (3.4%) three smokers

In a study published by the American Lung Association further indicated that the premature babies of mothers who smoked while pregnant had significantly diminished lung function compared to pre-term babies of mothers who didn't smoke. Reduced lung function in infants has also been shown to lead to wheezing and respiratory illnesses in early childhood.

Smoking by parents is also associated with the increased frequency of ear infections in their children and sudden death syndrome.

### **4.3 life style**

**4.3.1** The majority of houses had the toilet indoor of the houses (94.6%) and 5.4% the toilet outdoor

#### **4.3.2 Health insurance**

The percentage of Palestinian peoples are enrolled in government health insurance of the total west bank and GazaStrip about 53.2% in year 1999. (MOH,1999)

In this study 63.3% of the population sample were had health insurance because they depended health insurance from UNRWA.

### **4.4 Relationship of the contents of houses**

**4.4.1 Crowding (number of room):** respiratory infectious disease, whooping cough and other airborne diseases are more prevalent among children who live in crowded, inadequate housing in developing countries

The results show that 22.6% of Palestinian households in camps live in housing units containing of 1-2 rooms.(Al-Khatib et,al.2003)

The results show that housing density in the population tota is 1.88 persons per room in general and is 1.85 in West Bank,1.92 Gaza.

Nearly 22.8% of Palestinian households with high density (three persons or more per room).

Crowding is one of the reason that why diseases spread easily and highly contiegous,when one patient has any ARI diseases and another one in the family contact directly with him that may increase the possibility of infection.

In this study found relation between No.of rooms in house and infected with cold ( $P=0.047<0.05$ ) Chi =70.146 & influnza ( $P=0.014<0.05$ ) Chi =46.801 & bronchitis disease (Sig=0.014< 0.05) Chi =6.000.

#### **4.4.2 Smoking**

Studies have shown that smoking is a risk factor of ARI diseases that smokers are not the only ones at risk of increased respiratory difficulties. Children of smokers breathe second-hand smoke leading to asthma and more respiratory infections.(Kitchens CG1995)

The highest incidence of chronic bronchitis was seen in smoking men employed in jobs with high air pollution levels..(Guidelines for Residential Indoor Air Quality.1999).

In this study found relation between No.of smoker in houses and infected with throat ache ( $P=0.002<0.05$ ) Chi = 54.092.

#### **4.4.3 Humidity**

Indoor air condition, particularly, humidity in homes are major risk factors of indoor air pollution, poor indoor air quality can cause or contribute to the development of chronic respiratory diseases such as asthma and hypersensitivity pneumonitis. In addition, it can cause headaches, dry eyes, nasal congestion, nausea and fatigue. People who already have respiratory diseases are at greater risk..(WHO,1997).

The lack of ventilation can also cause increased moisture leading to growth of mold and dust mites..(WHO,1997).

By controlling the relative humidity level in a house, the growth of some sources of biologicals can be minimized. A relative humidity of 30-50 percent is generally recommended for homes. Standing water, water-polluting elements, or wet surfaces also serve as a breeding ground for molds, mildews, bacteria, and insects. House dust mites, the source of one of the most powerful biological allergens, grow in damp, warm environments.(Marshy,M,1999)

In our country there is no frequent done for humidity from my observations on camp. I notice a high degree of humidity,when we ask about humidity 63.1% of houses have humidity in their houses,and people who already have respiratory diseases are have symptoms and allergic from humidity.

In this study it is found that there was no significant relationship between humidity and ARI diseases in the sample houses.

**4.4.4 House roof:** The roof of house protects people from infected of ARI.

The material of house roof affect on infect of ARI diseases because exposure to air from the roof such as tents,it is weakness in protection from air sources and any body have high percentage to infected with ARI diseases.(WHO,2002).

In this study found relation between house roof & infected with chest (P=0.006<0.05). Chi=10.271. and cold (P=0.014<0.05) Chi=60.906.

#### **4.4.5 Dust source**

The quality of the air we breathe, both indoors and out, has a great impact on lung health. Fragile lung tissue is easily damaged by pollutants in the air, resulting in increased risk of asthma and allergies, chronic bronchitis, lung cancer and other respiratory disease (Weiss ST. 1998).

#### **4.5 Relationship of life style**

**4. 5.1 Tame animals:** The studies show that animals causes allergies, allergies occur when the immune system overreacts to a given substance called an allergen (ainmals, for example). Respiratory allergies affect the respiratory tract. The lining of the airway from the nose to the lungs is similar in structure and therefore similarly affected by the allergic process so it occur inflammation already occurring in the lungs

In this study no sigificant between animals and ARI because absent of tame animals in houses because the areas of houses is limited and only 1% of sample study have cats or birds (Koskinen OM, Husman TM, Hyvarinen Ames al 1997).

#### **4.5.2 Heating source**

Smoke from heating and cooling our homes are major risk factors of indoor air pollution, poor indoor air quality can cause or contribute to the development of chronic respiratory diseases such as asthma and hypersensitivity pneumonitis. In addition, it can cause headaches, dry eyes, nasal congestion, nausea and fatigue. People who already have respiratory diseases are at greater risk..(Kitchens CG1995)

When breathed, CO combines with hemoglobin to form carboxyhemoglobin (COHb), which disrupts the flow of oxygen to the body and brain. CO's potential to kill is well known, but the bigger story may be how many people suffer adverse health effects from chronic and often undetected exposure to low levels of the gas. Symptoms of CO poisoning, which include fatigue, headache, dizziness, nausea, and vomiting, so closely mimic the common cold that exposures may not be properly diagnosed. (Guidelines for Residential Indoor Air Quality, 1999)

In this study found relation between heating source &infected with throat ache ( $P=0.027<0.05$ ) $\chi^2=61.379$ , and infected with cold ( $P=0.007<0.05$ )  $\chi^2=112.298$ .

## **5 Conclusion**

This is the first study regarding the related housing condition and respiratory infection diseases in Al-Ain camp(Camp No 1) in Nablus.

In this study, we demonstrated that home conditions (i.e., humidity, presence of molds) were major risk factors for respiratory infections in children.

The following are important study results :

In this research,we could clearly notice, the poor housing conditions that the Palestinian refugees are living Al-Ain camp(Camp No 1),houses are overcrowded,camps are over-burbened with close building,high precentage of humidity in houses .

A high percent of people in Al-Ain camp (Camp No 1) infected with cold, chronic cough, throat ache, influenza and otitis specially in age 1-6 years.

The study divided the respiratory infection diseases to six diseases: cold, chronic cough, throat ache, influenza, bronchitis and otitis and study all of housing conditions, the results are :

Significant positive association between cold & family members, numbers of rooms, house roof, heating source, family monthly income.

Significant positive association between throate ache & heating source, number of smoker in house.

Significant positive association between influenza & family members numbers of rooms, family monthly income.

Significant positive association chronic cough & family members, water disposal, family monthly income.

Raising awareness for preventing respiratory diseases even the hardest housing conditions is essential to contuine there live.

## **6 Recommendation**

**6.1 Education** educating people about the importance of a cleaner indoor air and how reduce indoor pollution

### **6.2 Reduce indoor air pollution including**

**6.2.1**Control the Source: reduce or remove as any thing cause asthma or allergy triggers from your home as possible.

**6.2.2** Ventilate and Keep the windows open as often as possible to allow air to circulate.

**Refugees** have already built that houses given a mount of space available for each person, to ventilation (e.g. risk of respiratory infection), environmental health risks.

**6.3 Planning and improvement** should take place as early as possible in order to minimize overcrowding and make it possible to organize efficient relief services.

Researches in infection diseases such as Aute Resparitory infection in the West Bank and Gaza Strip to exposed the risk factors such as overcrowding, poor sanitary conditions, and a shortage of health facilities.

**6.4** Minsitry of Health should make a national health survey to discover the percentege of resiratory infection disease in Palestine, and establish an epidemiological surveillance system, and increase inter-sectoral coordination and international cooperation in the field of infectious disease control and prevention.

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بسم الله الرحمن الرحيم

استبيان حول علاقة الامراض التنفسية والسكن

1- الاسرة :-

1- رقم الاستمارة:

2- التاريخ:

3- عمل رب الاسرة:

4- عمل ربة الاسرة:

5- عدد افراد الاسرة

6- عدد الذكور:..... عدد الاناث.....

• عدد الذكور العاملين؟.....

• عدد الاناث العاملات؟.....

7- المقابلة تمت مع:

1- الاب 2- الام 3- الابن 4- الابنة 5- الجد 6-

الجدة

8- هل تعيش الاسرة مع أهل الزوج؟

1- نعم 2- لا

9- هل تعيش الاسرة مع أهل الزوجة؟

1- نعم 2- لا

10- ما هو عدد أفراد الاسرة؟.....

11- ما هو معدل الدخل الشهري.....بالشيكل

12- هل توفي أحد الاطفال المرضى بالبيت في السنوات الخمس الاخيرة؟

1- نعم 2- لا

اذا كان الجواب نعم فما هو عددهم؟.....

ب- السكن :-

- 13- هل المسكن ذلك/حدد  
1- ايجار 2- ملك 3- غير
- 14- ماهو عدد الغرف في المسكن؟  
1- غرفة 2- اثنتين 3- ثلاثة 4- اربعة 5- أكثر من 4
- غرف  
15- ما هو متوسط عدد الاطفال الذين ينامون في غرفة واحدة؟  
1- طفل 2- طفلين 3- ثلاث أطفال 4- اربعة أطفال 5- أكثر من اربعة
- 16- ما هو متوسط عدد الاطفال الذين ينامون في سرير واحد؟  
1- طفل 2- طفلين 3- ثلاث أطفال 4- اربعة أطفال 5- أكثر من اربعة
- 17- هل المسكن مبنى من ؟  
1- اسمنت مسلح 2- حجر 3- طوب اسمنتي 4- غير ذلك /حدد
- 18- هل جميع الاسطح مسقوفة في المنزل؟  
1-نعم 2- لا
- 19- هل يوجد تسرب مياه(تشققات) من الاسقف والجدران؟  
1-نعم 2- لا
- 20- هل سقف المسكن؟  
1- اسمنت مسلح 2- اسمنت 3- صفيح 4- اسبست 5- غير ذلك /حدد.....
- 21- هل البيت معرض للشمس؟  
1-نعم 2- لا
- 22- هل ارضية المسكن؟  
1- ميلطة 2- مكونة من اسمنت 3- غير ذلك/حدد.....
- 23- هل توجد نوافذ في جميع الغرف المسكن؟  
1-نعم 2- لا
- 24- هل يوجد في المسكن رطوبة؟  
1-نعم 2- لا
- 25- هل يوجد في المسكن تعفن للجدران والاسقف؟  
1-نعم 2- لا

- 27- هل هناك تراكم النفايات داخل المسكن أو في حدوده؟  
 1- دائماً 2- أحياناً 3- نادراً 4- لا
- 28- هل هناك وجود للحشرات أو القوارض داخل المسكن أو في حدوده؟  
 1- دائماً 2- أحياناً 3- نادراً 4- لا
- 29- هل يتم التخلص من النفايات ضمن المخيم بصورة منتظمة؟  
 1- دائماً 2- أحياناً 3- نادراً 4- لا
- 30- هل هناك مصدر للغبار والأتربة؟  
 1- دائماً 2- أحياناً 3- نادراً 4- لا

31- هل يوجد مناخل على شبابيك المسكن؟

1- نعم 2- لا

32- هل يتم أغلاق التشققات الموجودة في المسكن حال وجودها؟

1- نعم 2- لا

33- ما هو عدد المدخنين في المسكن؟

1- واحد 2- اثنين 3- ثلاثة 4- أكثر من ثلاثة/حدد.....

ج-طريقة الحياة:

34- هل تتواجد المرافق الصحية(المرحاض)؟

1- داخل المسكن 2- خارج المسكن 3- داخلية وخارجية 4- غير ذلك/حدد.....

35- هل المرافق الصحية؟

1- خاصة بصاحب المسكن 2- مشتركة مع المساكن الأخرى 3- غير ذلك/حدد.....

36- هل المسكن مربوط مع شبكة صرف صحي؟ نعم لا

37- هل المسكن مربوط مع حفرة امتصاصية؟ نعم لا

38- ما هو مصدر المياه المستعملة في المسكن؟

1- شبكة مياه 2- بئر جمع 3- خزان ماء(شراء تنكات) 4- غير ذلك/حدد.....

39- ماهو مصدر التدفئة في المسكن؟

- 1- الكاز 2- الغاز 3- الكهرباء 4- الحطب 5- الفحم 6- كاز وغاز 7-غاز كهرباء 8- غير ذلك/حدد.....

40- هل توجد حيوانات داجنة في المسكن؟

- 1- دائماً 2- أحياناً 3- نادراً 4- لا

41- ما هو المصدر الطاقة الذي يستخدم في تسخين الماء اللازم لاستحمام أو الغسيل؟

- 1- الكاز 2- الغاز 3- الكهرباء 4- الحطب 5- الفحم 6- كاز وغاز 7-غاز كهرباء 8- غير ذلك/حدد.....

42- هل يوجد تأمين صحي للعائلة؟

- 1- نعم 2- لا

43- ماهي الخدمات الصحية المتوفرة بالمخيم؟

- 1- عيادة خاصة 2- مستوصف 3- عيادة المخيم 4- غير ذلك/حدد.....

44- ماذا تفرشون ارضية المسكن ؟

- 1- سجاد 2- حصر 3- موكيت

45- ماهي الامراض التي اصيب بها افراد الاسرة خلال الثلاثة الاسباع الاخيرة؟

المرض	عدد الاشخاص المصابين في الاسرة	عدد المصابين من فئة عمر يوم-سنة	عدد المصابين من فئة عمر 1-6 سنين	عدد المصابين من فئة عمر 6-10 سنة	عدد المصابين من فئة عمر 10-15 سنة	عدد المصابين من فئة عمر 15 فأكثر
الرشح						
سعال مزمن						
التهاب حلق						
الانفلونزا						
التهاب الاذن						
التهاب اللوزتين						
الربو						
التهاب الشعب الهوائية						
ازمة صدرية						
السل الرئوي						
سرطان الرئة						

46- هل يوجد متقفين صحيين في المخيم؟

2-لا

1- نعم

2- موظفي

1- متطوعين

اذا كانت الاجابة بنعم فهم

47- الأطفال: المعلومات عن الأطفال

الطفل المريض في دراسته	يراجع الطفل الطبيب من بداية فصل الشتاء		هل تكررت اصابة الطفل هذا العام		معاناه الطفل من حساسية اثناء تقلب الطقس		معاناه الطفل من حساسية للمأكولات معينة		معاناه الاطفال من حساسية للادوية معينة		المعاناه من فقدان الشهية		المعاناة من ارتفاع درجة حرارة		الادوية التي يستخدمها		وزن الطفل	رقم الطفل المريض	
	ضعيف	مقبول	جيد	لا	نعم	لا	نعم	لا	نعم	لا	نعم	لا	نعم	لا	نعم	لا	نعم		
																			1
																			2
																			3
																			4
																			5
																			6
																			7

48- ما هي اسباب انتقال امراض الجهاز التنفسي بين الاطفال حسب رأيك؟

49- هل لوجود الحمامات خارج المنزل تأثير على صحة الاطفال؟

1- نعم  
2- لا

اذا كان الجواب نعم كيف ذلك؟

50- هل لوجود المطبخ خارج نطاق المنزل تأثير على اصابة الطفل بالمرض؟

1- نعم  
2- لا

51- اذا كان الجواب نعم لماذا؟

بسم الله الرحمن الرحيم

جامعة النجاح الوطنية

كلية الدراسات العليا

الأمراض التنفسية وعلاقتها بالسكن في  
مخيم عين بيت الماء - نابلس

إعداد

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إشراف

الدكتور محمد جواد مسمار

الدكتور عصام الخطيب

قدمت هذه الأطروحة استكمالاً لمتطلبات درجة الماجستير في الصحة العامة بكلية الدراسات  
العليا في جامعة النجاح الوطنية في نابلس، فلسطين.

2004

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### الملخص

تعتبر الأمراض النفسية من أهم المشاكل الصحية الأساسية عند الأطفال التي أعمالهم تقل عن 5 سنوات في الدول النامية.

سنوياً الأمراض النفسية تقضي على 100.000 رضيع تقل أعمارهم عن سنة، بمعدل 300 مولود يومياً، 99% من هؤلاء الرضع يموتون في الدول النامية، وأيضاً 40000 طفل يموتون في العالم أعمارهم أقل من 5 سنوات.

الوقاية من الأمراض النفسية تعتبر من أهم القضايا المجتمعية الصحية في الدول النامية والمتحضرة، هذه الدراسة من أهم أهدافها هو تقييم تأثير الظروف السكنية على صحة الأفراد في مخيم عين بيت الماء في محافظة نابلس وخاصة أمراض الجهاز التنفسية.

149 بيت في المخيم تم اختيارهم بشكل عشوائي كعينة عشوائية حيث تم تعبئة الاستمارة حيث تعكس الظروف المعيشية والمعلومات حول الأسرة ووضعها الاقتصادي والوضع المعيشي، كل المعلومات تم جمعها وتحليلها إحصائياً.

من خلال الدراسة هذه تم ملاحظة النقاط التالية:

1. الظروف السكنية السيئة في المخيم حيث ازدحام السكان في البيت وارتفاع نسبة الرطوبة في البيوت.

2. ارتفاع نسبة الأشخاص المصابين بالبرد والتهاب الحلق، في المخيم وخاصة عن عمر 1-6 سنوات.
3. من خلال الدراسة تم تحديد 6 أمراض وهم (البرد، القحة المزمنة، الالتهاب الحلق، الانفلونزا، التهاب القصبات، التهاب الأذن).
4. العلاقة الإيجابية بين عدد أعضاء الأسرة والقحة المزمنة.
5. العلاقة الإيجابية بين عدد أعضاء الأسرة والانفلونزا.
6. العلاقة الإيجابية بين التهاب الحلق، ومصادر التدفئة وعدد المدخنين في الأسرة.