An-Najah National University
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Utilization of Antibiotics in Nablus City- Palestine Pharmaco-epidemiological Study

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Dedication

To my family with all my love

Acknowledgement

I wolud to thank my supervisors Dr. Suleiman Al- Khalil and Dr. Waleed Sweileh for ther sincere encouragment, helpful, and close supervision which have been invaluable for me throughout all stages of this study.

Also my sincere thank go to my family for their help and encouragments espacially my father.

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Glossary

- JAMA: Journal of American Medical Association.
- TMP: Trimethoprim.
- SMX: Sulfamethoxazole.
- IV: Intra venous.
- OTC: over the counter.
- ED: Emergency Department.
- IDSA: Infectious Diseases Society of America.
- NIS: new Israeli shekel.
- GITI: Gstrointestinal Tract Infection.
- NSAID: Non Steroids Anti Inflammatory drugs.
- URTI: Upper Respiratory Tract Infections.
- UTI: Urinary Tract Infection

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Abstract

Few studies have studied the frequency of over the counter acquisition of antibiotics in Arabic countries. In order to provide an insight into these practice we investigate the frequency of self –medication in Nablus city-Palestine and factors influencing this practice .

Pharmacy based interviewed and observation data were collected from 9207purchares sampled from 24 privet pharmacy in the area. 1702 of 9207 customers purchased antibiotics without prescription (18.48) in a two week period . our data show that people likely to follow this practice are from low income families (workers and employee).

Also data show that the risk of buying antibiotics without prescription was associated with education at university level. The perception that it is expensive to consult doctors and low satisfaction with medical practitioners.

The antibiotics were mainly self-administered for upper respiratory tract infection (URTI) symptoms particularly sore throat with community pharmacies being source of about 70% of cases.

The study indicates the needs for educational campaigns on proper antibiotics use among Palestinian general public, also the need of other studies about this problem.

Chapter one

Literature Review

& Aims of the Study

Introduction

History of Antibiotics

With the advent of antibiotics in 1929 Alexander Fleming warned that, "The time may come when penicillin can be bought by anyone from shops. Then there is the danger of ignorant man who may easily underdose himself by exposing his microbes to non-lethal quantities of the drug which make them resistant.[1] Following Fleming's words; antibiotics need to be prescribed in a judicious fashion, since third of the 150 million outpatient prescriptions are unnecessary.[2] Today With the overuse of antibiotics we have seen this idea came true. Mostly Over usage is caused by lack of education on the part of the patient. Thus, the way to overcome such a case is to educate, both the physician and the patient.

Alexander Fleming started the history of antibiotics in the 1920's by his discovery of penicillin. When penicillin was first discovered and used widely, it was touted as a wonder drug, and consequently was used as one. Though, not necessarily harmful to the patient. Penicillin was used for much more infections than it was able to combat.Today the same practice is observed in the medical profession, however at this point it is due more to the detriment of an uneducated public.Studies have been carried out to show over usage of antibiotics. During the 70s a survey proved that 60% of physicians gave antibiotics to treat common cold[3], it is known that cold is caused by a virus, something that cannot be treated by an antibiotic.

In the United States more than 1/5 of all antibiotic prescriptions for children and adults are written for upper respiratory tract infections or bronchitis, conditions that are almost always viral.[4,5]). 10 to 50% of

outpatient antibiotic prescriptions are not necessary.[6] In a recent report published in September the 12th,2001 by (JAMA) journal Linder and Stafford reported that, the only common cause of sore throat warranting antibiotics is only cultured 5 to 17% in adults complaining of a sore throat. Thus illustrating the fact that over the years after antibiotics were discovered the use has drastically gone up and the awareness and or education about the use of antibiotics has remained little to nothing.

What is an Antibiotic?

It is a substance derived from living organisms, usually bacteria or molds, and it is able to kill microorganisms or inhibit their growth. In fact, the word antibiotic means life destroying. Whereas antibiotics were originally grown from natural components for the use of treatment of parasitic diseases, today they are often synthetically produced to help combat bacterial infections.[7]

The Importance of Antibiotics - Infectious Diseases

A. Signs and symptoms of infectious disease - Most infectious diseases develop symptoms such as fever, presence of sores or lesions, coughing, diarrhea, nausea, vomiting, inflammation, redness, pus formation, etc. Each of these symptoms will contribute information that is useful in knowing the cause of the infection so that an appropriate antibiotic may be selected for treatment.

B. location of infection - The location of the infection is important since some antibiotics can reach certain parts of the body while others cannot. This is an important consideration in the selection of the appropriate antibiotic.

C. Cause of the infection - Most infectious diseases which can be treated with antibiotics are caused by bacteria, although fungi, protozoa, and rickettsia can also cause such diseases. Viral diseases are not cured by antibiotics; Since different types of microorganisms respond differently to antibiotics, the identification of the microorganism that causes the disease is the most important factor in the selection of the best antibiotic to cure the disease.

D. Treatment of the infection - The cure of an infectious disease will depend primarily on the proper choice of the most effective antibiotic for the disease. Not only must all of the above factors be considered in this choice, but the properties of the antibiotics themselves are among the most important information which contributes to the right therapy for an infectious disease. Other factors which must also be considered are the overall health and the patient's age, and other medication which the patient may be taking and cost of medication.

Classification of Antibiotics

There are many types of antibiotics. Each works a little differently and affects on different bacteria, this is why patient must have a prescription before buy antibiotics. The doctor will decide which antibiotics will work best for infection.[8] some of these antibiotics is:

1- Penicillins and Cephalosporins

Penicillins and cephalosporins usually not cause serious problems for a patient. Like all antibiotics, they can cause mild side effects like diarrhea, & lesser common side effects like rashes, and hives (which usually means allergy to the medicine),and in much rare cases anaphylactic allergy, in

which airway swells up when patient takes a dose of the medicine, sometimes to the point where person can't breathe.

2- Macrolides (Erythromycin)

Erythromycin and its cousins do not cause allergy problems we see with the penicillins and cephalosporins, although there are people who may react towards it. The biggest problem with these medicines is that they can irritate the stomach. *Always* take erythromycin with food or milk. (The same goes for clarithromycin. Azithromycin doesn't irritate the stomach nearly as much as the others.)

3- Sulfas

Sulfas tend to produce allergic reactions -- different than those we saw with the penicillins, for the most part, but including some allergic reaction that are not common but life-threatening.

4- Trimethoprim-Sulfamethoxazole

Trimethoprim (TMP) is another man-made antibiotic. Like the sulfas, trimethoprim blocks an important step in the bacteria's system for making new DNA. TMP can kill bacteria by its own, but in a very slow way. Usually, we use TMP in combination with sulfamethoxazole (SMX), this combination kills bugs better. In fact, bacteria that are partly resistant to either TMP or SMX can still be killed by the combination of the two. The side effects of the combination are the same as those of the two separate components.

Nitrofurantoin

Nitrofurantoin is another synthetic antibiotic, used mainly for very nicely.) Nitrofurantoin stops bacteria from growing, and can kill bacteria with a high enough level, by forbidding bacteria from using energy made by "digesting" nutrients like sugar, and by stopping other chemical reactions that follows the same system. Nitrofurantoin not usually used for infections other than UTIs, and there are several side effects ranging from stomach ache to malfunctioning nerves which put limitations on its use.

5- Aminoglycosides

Aminoglycosides bonds are broken down easily in the stomach, they can't be given by mouth and must be injected or given IV. When injected, their side effects include possible damage (temporary or permanent) to the ears and to the kidneys; this can be minimized by checking the amount of the drug in the blood and adjusting the dose so that there is enough amount to kill bacteria but not much to harm human body. Generally, aminoglycosides are given for short periods, and in the hospital where we can check both drug levels and bacteria's sensitivity easily.

Quinolones

The quinolones, of which the best known is ciprofloxacin (Cipro®:), interact with an enzyme called DNA gyrase that is essential for duplication of bacteria’s DNA.

Polymyxin B

Polymyxin B is an antibacterial that is produced by another bacteria. (We usually take our antibiotics wherever we can find them...) It kills

bacteria by damaging the cell wall chemically just the way soap does. It can't be taken internally, but it's very useful for skin infections.

Misuse of antibiotics

How Are Antibiotics Overused or Misused?

Some doctors give patients antibiotics when they might not be helpful. For example, a patient who suffering from cold may ask the doctor into prescribing an antibiotic because the patient hopes to get well fast. Antibiotics do not cure colds because they are caused by viruses, not bacteria. Antibiotics do not have any effect on viral infections. The treatment for a cold is normally getting rest, having plenty of fluids and treatment for fever and headache. (8) In United states an estimated number of million a year antibiotic prescription was taken, according to the government office. and about half of these do not suit the illness or not needed. (9)

The increasing use and misuse of antibiotics to treat illness is the biggest factor causing spread of drug resistance.

In 1998 a poll was made and it was found that 52% of patients said they believe antibiotics are the best medicine for viral infections. Physicians, who know that antibiotics are not effective against viruses, often go along with their patients' desires. Surveys of pediatricians reveal that they prescribe antibiotics to 44% of patients with viral infections such as common colds, 46% with upper respiratory tract infections, and 75% with bronchitis.(9) Physicians treating adults with viral infections prescribed antibiotics for 51% of patients with colds, 52% with urinary tract infections, and 66% diagnosed with bronchitis.(9) .

- Antibiotics are misused because many patients do not take them according to their doctor's instructions. They may stop taking their antibiotics too soon, before their illness is completely cured. This allows bacteria to become resistant by not killing them completely.

- Some patients save unused medicine and take it later for another illness, or pass it to other ill family members or friends.

- Some patients go to the pharmacy and take the antibiotics as OTC drugs.

These practices may result in the using of wrong antibiotics. They can also lead to the development of resistant bacteria.[8]

Self Medication of Antibiotics Without Following Prescription

The availability of antimicrobial agents for self-medication may increase and could include antibacterial agents for oral or topical use. Wholesale deregulation of antibacterial would be undesirable and likely to encourage misuse of classes of agents currently important in the management of serious infections.[10]

A number of antimicrobials are currently available for self-medication in Britain/United kingdom. The majority of the preparations are for topical application; only fluconazole and the antimalarials are systemically active. No systemically active antibacterial is currently available for self-medication.

Infections are illnesses which usually present acutely. Patients think they may therefore benefit specifically from the greater immediacy and convenience of access to antibacterial.They think that this could potentially

shorten the period of illness, reducing both the length of symptoms and the period of infectivity. Over the counter (OTC) availability of treatment for vaginal candidosis and herpes labialis probably shortens the delay between onset of symptoms and start of effective treatment. This is particularly important for herpes labialis, because delay in treatment significantly diminishes its effectiveness. Both of these infections are recurrent, and have quite distinct clinical symptom complexes and are easily recognized by patients who suffer them. In contrast, most bacterial infections are exceedingly difficult to diagnose clinically; this applies particularly to respiratory tract infection, the commonest type of bacterial infection requiring antibiotic treatment in the community. [11,12] It is only patients who are actully have bacterial infection who benefit from antibiotic treatment. [13] Therefore, the argument that OTC availability of antibiotics will improve access to effective treatment for respiratory symptoms is not very compelling, given that less than a quarter of patients with symptoms can derive any benefit from antibiotic treatment.

Another argument used to support OTC availability of antibiotics for respiratory symptoms is that this will reduce the number of patients with communicable diseases who attend doctors' waiting rooms. [10]

The effects of Misusing Antibiotics

- The widespread consumption of inappropriate and inadequate doses of antibiotics in developing countries is of a major concern because it can lead to several complications having short term and long term deletitious consequnces to the society.[14]

Short term complications are:

1- improper treatment leading to prolongation of disease.

2- Several advers effects like allergic manifestication as asthma, damadge to vital organs like kidny and liver and sometimes can have deadly consequncies[14].

The long-term consequncies are: the development of resistance which means the practical antibiotics becomes ineffective on future use depriving the patient of the treatment and cure of several infective diseases.[14] This new resistant microbial strain is easily spread within environments where poor sanitary conditions are common and immune system of substantial proportion of the population are compromised [15,16]. Because of the ease of global travel, the occurrence of resistant micro-organisms in one part of the world can have a major impact on the efficacy of antimicrobial therapy in other origins[17].

- The people who misuse antibiotics often suffer dire consequnces, such as destroying large number of the good bacteria that normally are present inside the human body, doing such important things as aiding the digestion.

- The economic impact of excessive and inappropriate consumption of antibiotics is also important,beside being a pressure on government health budget, poor families waste the little they have resources on expensive medicine that are not indicated or inadequately dosed.

Antibiotics Resistance

Resistance to antimicribial drugs has been linked to level of consumption [18,19] with evidence of a cause-effect relationship [20].

Bacterial resistance has been reported to several antibiotics commenly used in India. Early in 1978 researchor found strain of Escherichia coli with multiple resistance to sulphonamide, streptomycin, ampicillin, chloramphinicol, tetracyclin and kanamycine in 28% healthy subject [21].

A similar trend was reported in an epidemic of dysentery[22].

Resent tertiarly hospital stiudies show an alarming 73-99% rate of drug resistance to common antibiotics like ampicilline and cotimoxazole as well as third generation of cephalosporines with 30-73%resistance while of a great concern was the emergence of isolates (11.5%) which were resistant to all available antibiotics,[23-24].

Antibiotics resistant microbes were absent from human or animal flora [25,26], with antibiotics usage, rapid increase in bacterial resistance to tetracycline and other antibiotics was documented in previously susceptible strain. Resent examples come from studies of antibiotics resistance development in E-coli in the state of Washington. In 1989 7% of the isolates which carried antibiotics-resistance charactertistics has expanded. The dramatic appearance of antibiotics resistance in pathogenic shigella spp. during an epidemic of intestinal infections in the 1950s in Japan is yet another example of rapid response of bacterial pathogens to the threat of antibiotics use [27] and signalled the appearance of resistance plasmimes.

The Relationship Between the Volume of Antimicrobial Consumption in Human Community and the Frequency of Resistant

The threat of human health posed by antibiotic resistance is a growing concern. Many commensal pathogenic organisms have developed resistance to well establish and newer antibiotics. The major selection pressure driving changes in the frequency of antibiotics resista nce is the volume of the drug be use. However, establishing a quantitative relationship between the frequncy of the resistance and the volume of drug used has proved difficult, using population genetic methods and epidemiological observations, scientists report an analysis of the influence of the selective pressure imposed by the volume of the drug use on temporal changes in resistance.

Analytical expression is derived to delineate key relationship about drug consumption. The analysis indicates that the time scale for emergence of resistance under a constant selective pressure is typically much shorter than the decay time after cessation or decline in the volume of the drug use and the significant reduction in resistance require equally significant reduction in drug consumption [(28)].

Prevalence of Antibiotics Utilization and Factors Influencing This Phenomenon

Few studies have studied the frequency of over the counter acquisition of antibiotics in western Europe[(29)],we have no acsessto these data but it has been documented there[(30)]. As a result few data are available on the prevalence of this phenomenon particularly throughout the countries

of southern Europe and Mediterranean where the practice hase been reported to be more prevalent than northern European countries[30].

1. **In Malta**.

In order to provide an insight into over the counter acquisition of antibiotics in Malta, attitudes toward antibiotics use in the general public were researched through a structured interview. Nineteen percent 19% admitted that they took antibiotics without prescription, 11% of parents replied that they had given antibiotics to their children without prescription. These antibiotics were mainly self-administered for upper respiratory tract symptoms, particularly sore throat with community pharmacies being the major source in more than 85%of cases.[31]

2. In Manila, the Philippines.

The purchase of antimicrobial agents in drugstores in district in Manila, the phillippines was examined in order to determine how antimicrobial agent might be used. Most antimicrobial agent are imported as bulk product and packaged by large number of small films into 1491 different preparation including 206 marketed as combination with other drugs. Antimicrobial agents accounting 20.1% of all drugs purchases. Purchases were made without prescription in 66.3% of 1608 transaction. Most of these were aminopenicillin or penicillin G or V (40.0%). The most common perceived indication were respiratory tract infection 8.3%. Almost 90% of purchases were for 10 or less capsules or tablets. The median number of purchased was three. Customers with written prescription a mean of 8 while those who self-prescribed purchased a mean of 4 units [32].

3.In Vietnam

A survey on the use of antibiotics purchased through retail pharmacies visit conducted in Badinh district of Hanoi, Vietnam. The showed found that customers visit pharmacy when they or those who felt they needed antibiotics had minor symptoms such as cough 34%, sore throat 32%, stomach upsets 10% and diarrhea 8.8%. The most common antibiotics were ampicillin 31.1%, amoxycillin 16.7%, cotimoxazole 11.6%, tetracyclin 5.2% and cephalexine 4.8%. The median of purchase quantity was 10 tablets, the mean 11.34 tablets. About 30% of purchasers intended to take antibiotic for three days or less. The mean cost of antibiotics purchase was US$1.27. the main reason for not taking a full course of antibiotics was economic constraint, but the customers poor knowledge about antibiotics was the second reasons [33].

4. In Kerala State, South India

A study aimed to investigat the magnitude of self-medication with antibiotics was performed in peri-urban area of in Kerala state, factors influencing this practice were also investigated. First, a random sample of 400 household was surveyed in one primary health center near Trivandrum, It was found that 69.3% off household had at least one person using a pharmaceutical product during the two week recall period, antibiotics formed 11% of the medicines consumed. secondly, pharmacy based interviewe and observation data collected from 405 antibiotic purchasers sampled from 11 out of 12 private pharmacies in the area.

73 (18%)of these customers purchased antibiotics without prescription.

By combining the household survey and the pharmacy observation it was estimated that almost half of 1% of the population, or four people of 1000, are engaged in self medication using antibiotics in Kerala in any two-weeks period. Data collected showed that people rarely follow this practice are from families with higher incom, having more education and higher status occupations and receiving the benefits of medical insurance conversely, Logistic regression analysis indicates that risk of buying antibiotics without script was associated with secondary education or below, the prescription that it is expensive to consult a doctor, and low satisfaction with medical practitioners[34].

5. In U.S.A

- **Are There Differences between Urban & Suburban areas in using and misusing of antibiotics?**

In order to compare the frequencies with which suburban and urban parents give children antibiotics without first consulting a physician, a comparative survey was performed between suburban emergency departments (ED). Patient population in New Jersey with an annual patient census of 60000 visit and an urban ED in connecticut with 58000 annual visit.

A convenience sample of parents with children less than 18 years of age were enrolled. Patient who were critically ill and/or not oriented were excluded. subject provided written answers to a series of closed questions regarding their knowledge and use of antibiotics for their children over the last 12 months.

800, one parents were enrolled, 424 at the suburban site, parents in the suburban setting were more likely to have misused antibiotics for their children (12.1%vs 4.0%). On the other hand, parents in the urban setting were more likely to have been discharged by a physician office or ED in order to obtain antibiotics for their children, (48% vs 5%). [35]

- **Selling Antibiotics Illegally Over the Counter**

In many countries around the world antibiotics are sold without a prescription, a practice that is illegal in the United States. Yet some New York City stores that primarily serve the Hispanic community are selling these drugs over the counter, which adds new elements to the growing problem of antibiotic resistance, according to a study being presented at the 42nd Annual Meeting of the Infectious Diseases Society of America (IDSA).[36]

- Stores in Hispanic neighborhoods in New York City sold antibiotics without a prescription, while stores in other neighborhoods did not, according to a study.

The study was initiated by sending research assistants into 101 stores in three neighborhoods: one primarily Hispanic, one primarily black and one primarily white. Antibiotics were available without a prescription in all 34 stores in the Hispanic neighborhoods, called bodegas, but in none of the other stores. Antibiotics were on the shelf in seven of the 34 Hispanic-neighborhood stores, and available by request in all of the others.

Study participants who didn't see antibiotics on the shelf in Hispanic stores were given such medications if they asked for something stronger than

over-the-counter medicine for a sore throat. None ever asked directly for an antibiotic.(36)

Results showed that money doesn't appear to be a motive for the bodega owners, since these antibiotics are being sold for as little as 25 cents a pill. "They are not doing it to make a lot of money," she said. "They are doing it to provide a service.(37)

Most people who buy antibiotics in this way know they are not supposed to, Larson said. "But the main concern they have is that it takes so long to go to a clinic and sit and wait for an appointment. It's an issue of access and convenience as much or more than money."

Most of the antibiotics they bought had Spanish labels, which means they were brought in from Latin America.

It is believed that this problem likely exists in other urban Hispanic communities in the United States.(37)

6. <u>In china</u>

Antibiotics were the 'Miracle Drugs' of the 20th century. But their widespread worldwide has led to the emergence of 'superbugs' and other drug-resistant bacteria. The problem is particularly acute in China where antibiotics are freely available over the counter. A new law effective since July 2004 changed that by making it illegal to buy antibiotics without the doctor's prescription.

A deep untrust of doctors and the medical system, joined with poverty in the countryside has led to widespread self-treatment in China, and the misuse of antibiotics is so common. In Shangahai alone, authorities

estimated a percent of 80% households owning antibiotics at home. Bacterial resistance isn't the only problem. Reports say that 70% of people with hearing impairment in China developed their condition due to adverse reactions to drugs and up to 40% of all adverse reactions to drugs in China involve antibiotics Side-effects and allergies caused by antibiotics can be fatal. but over-the-counter drug sales aren't the only channel for antibiotic misuse. Antibiotics are also over-prescribed in hospitals and clinics. In the West around 30% of drug prescriptions are for antibiotics, in China the percentage exceeds than 70%.[38,39]

The Situation in Developing Countries

- It is estimated that 70% of the world antibiotics are used in the community of the developing countries [40]. Significant variations exist in the quantities and types of the antimicrobial used, even between countries with similar political and economic status[41]. The efficacy of these important pharmaceuticals is under threat from ever-increasing prevalence of antimicrobial resistance[42],which continue unabated and is a cause for concern by both health organization as well as political insinuations[43-45].

The relationship between the patients' attitudes and prescription toward antibiotics use and antimicrobial consumption is well documented, patient demand for antimicrobial has been shown to increase unnecessary prescription[46], despite the doctor's assessment that no such need existed [47]. Such practice can in turn enhance patient belief even when they are not indicated, of the need for antimicobials even when they are not indicated, further increasing demand on prescribes [48].

Additionally despite being designated as prescription-only medicines, antibiotics may requested without a medical practitioner's prescription, this has been reported as practice in developing countries[49], it has also been a common documented in Western Europe [50]although not thoroughly researched. As a result few data are available on the prevalence of this phenomenon particularly throughout the practice of Southern Europe and Mediterranean where the practice has been reported to be more prevalent than Northern European countries [50].

Antibiotic medicines constitute as bastasial portion of the health budgets in developing countries as the high rates of bacterial infectious disease persist[51]. between 25 & 50% of the government pharmaceutical budget among East Asia countries is consumed by antimicribial agents [52].their ability to cure bacterial infections with little, if any, short term harm to the host helped to cerate the image of antibiotics as "miracle drug", this image has contributed to the inappropriate use of these agents by both prescribes[53] and consumers [54], for symptoms ranging from diarrhea to sore throat and cough [55].

Interventions resulting in reducing of antibiotics use have brought about a concurrent decrease in resistant level[56]. For this reason any strategy aimed toward the containment and reduction of antibiotics resistance in community must include surveillance of antibiotics consumption as well as examination of all factors that influence it [29].

This study aims to establish the level of over-counter acquisition of antibiotics in Nablus city as a study case and provide an insight into factors and perception associated with such practice.

Aims of the Study

- To investigate the extent of prescription and non- prescription use of antibiotics in Nablus city –Palestine.
- To investigate the factors that influent non-prescription utilization of antibiotics.
- To investigate the community awareness toward antibiotics and their use.
- To investigate the mostly used antibiotic without prescription.

Chapter Two

Methodology

2. Methodology

This chapter describes the population and the subject of the study, data collection, instrument, and analysis method.

This survey was carried out in Nablus city and the surrounding camps, with a population of 126728, where 64341person are males and 62387 females.[59]

2.1 Population of the Study

- The population of study was the customers who buy any type of drugs with or without prescription, from 24 community pharmacies during a period of 28 consecutive days. These pharmacies were chosen from 84 community pharmacies in Nablus city and the surrounding camps distributed as 71 pharmacy in the city and 13 in camps.
- The population study consist of total 9207 customers.

2.2 Sample of the Study

- The study sample was the customers who asked for antibiotics without prescription from the 24 pharmacies, during the consecutive 28 days.
- The sample study consists of total 1702 customers.

2.3 Instruments

- Data were collected during

1- A counting sheet, every pharmacy was provided with this counting sheet.

2- A questionnaire answered by the customers who took antibiotics without prescription.

2.4 Procedure and Data Collection

- a field survey was carried out on antibiotics use and misuse in 24 community pharmacies in Nablus city- Palestine, after taking a verbal agreement from them to cooperate with us. (names of these pharmacies are found in Annex 1). These pharmacies were distributed as 13 pharmacies in the city center, 5 pharmacies inside camps, 2 pharmacies in east suborders, 4 pharmacies in west suborders.

- Data were collected during consecutive 28 days from 13th December till 14th January.

- This survey was divided into two phases, took place in the same period of time (the same 28 days).

- **Phase 1: Finding the Prevalence of Antibiotics use.**

  In order to find the prevalence of customers using oral systemic antibiotics with/without prescription, we provided every pharmacy with counting sheet (Annex2) in order to account:

  1- The number of all customers who entered the pharmacy asking for any type of medication with/without prescription.

  2- The number of customers who entered the pharmacy having a prescription includes antibiotic.

  3- The number of customers who enter the pharmacy asking for antibiotics without prescription.

- **Phase 2: Answering the Questionnaire.**

We asked the patients who took antibiotics without prescription to answer the questionnaire (Annex3), which we provided the pharmacies with it. This questionnaire aimed to identify the reasons for consuming antibiotics without prescription, and to estimate the degree of community awareness related to antibiotics and its use.

The questionnaire used in the study has been evaluated, reviewed carefully. Content of the questionnaire consisted of questions focused on five parts:

- The first part was about social status, age, sex, residence, level of education (questions1-6).
- The second part included question aimed to estimate the degree of awareness toward antibiotics (questions 7-16)
- The third part included questions about consumption of antibiotics, and which symptoms demands makes need for using antibiotics from the patient point of view (questions 17-24).
- The fourth part was about reasons factors affecting using antibiotics without prescription (questions25-29).
- The fifth part included questions that to be answered by the pharmacist who gave the antibiotics, these questions includes information about the drug characteristics e.g name, cost, number of pills and indications, (questions30-35).

2.5 Data Analysis

All data of the questionnaire for 542 sample were computed using SPSS program and applying Chi-Square test, with 95% level of significance (P value = 0.05).

2.5.1 Analysis of the Descriptive Studies

A table containing descriptive studies which were obtained, such as age, sex, education, job descriptive, residence.

2.5.2 Analysis of Awareness Data

Tables were obtained, such as definition of antibiotics, ways of using antibiotics and risks of in appropriate use of antibiotics.

2.5.3 Analysis of Consumption Data

Tables were obtained, such as number of times person use antibiotics during one month ago, who give the advice using antibiotics

2.5.4 Analysis of Factors Affecting Using Antibiotics

Also tables were obtained such as, the cost of consulting privet practitioners, using old medication script.

2.5.5 Analysis of Relationships

Relationship between residence, level of education and awareness were obtained.

2.5.6 Analysis of Accounting Data

The number of all customers, number of customers took antibiotics with/without antibiotics were obtained in tables. The prevalence rate for using antibiotics with/without prescription was calculated.

2.5.7 Analysis of the Answers That Given by the Pharmacist.

Tables were obtained, such as type of antibiotics, dose, cost, indications.

Chapter Three

Results

3. Results

The Results of the Study Have Three Main Categories:

- Profile of study sample including: social profile, awareness profile, profile of antibiotics consumption, profile of the reasons of using antibiotics without prescription.
- Profile of the questions that were answered by the pharmacist.
- Prevalence of antibiotics utilization in Nablus-city with/without prescription

3.1 Profile of Study Sample

Study sample was customers took antibiotics without prescription from the pharmacies. We asked them to answer the questionnaire but for some reasons some of them did not. So the response rate for answering the questionnaire was low. It was according to this equation:

(Number of answered questionnaires/ sample study)x100%

(542/1702) x 100% = 31.84% only.

3.1.1 Social Profile

A total of 542 questionnaire was answered from 1702 customers took antibiotics without prescription. This sample has a distribution according to demographic variables as shown in table1

Table 1. Social profile variables

Variables		Frequency	Percentage
Gender	Male	346	63.8
	Female	196	36.2
Residence	City	285	52.6
	Village	107	19.7
	Camp	143	26.4
Age	Less than 2 years	15	2.8
	2-6 years	29	5.4
	7-14 years	31	5.7
	15-29 years	184	33.9
	30-44 years	219	40.4
	45-59 years	51	9.4
	60 years and more	13	2.4
Level of Education	Not educated	36	6.7
	school educated	250	46.1
	student	93	17.2
	university educated	254	46.9
Type of Work	employee	172	31
	Worker	179	33
	dependent	6	1.1
	house wife	84	15.5
Martial Status	Married	351	4.8
	Single	170	31.4

- 63.8% of the study sample were males, 36.2% were females.
- 52.6% of the sample study live in the city, 19.7% live in village, and 26.4 live in camps.
- The majority of antibiotics consumers without prescription (40.4%) were between 30-44 years old, 33.9% between 15-29 years old, 5.7% between 7-14 years old, 5.4% between 2- years old, 9.4 % between 45-59 years old and fortunately it was only 2.8% for children less than 2 years and 2.4% for persons whose ages were over 60 years.

- Self administration of antibiotics without prescription increased with higher educational background, reaching the highest percentage about 47% of them were in university level, 46.1% school level and 6.6% of them were uneducated.

- 64.8% of the study sample were married and 31.4% were single.

- The majority of the antibiotics consumers without prescription (33%) were workers, 31.7% were employees, 17.2% students and 15.5% of them were housewives.

3.1.2 Awareness profile

Our study aimed to investigate the awareness toward antibiotics and their use, So we asked the sample study some questions about antibiotics. The results of their answers are shown in table 2.

Table 2. Awareness questions

No.	Question	Yes		I don't know		No	
		Frequency	Percent %	Frequency	Percent %	Frequency	Percent %
1	Antibiotic is taken as one capsule when needed.	234	43.2	44	8.1	263	48.5
2	Antibiotic used for treatment for occasional headache.	67	12.4	53	9.8	422	77.9
3	Antibiotic is used in case of bacterial infections.	414	76	59	10.9	67	12.4
4	Antibiotic is a fever lowering agent.	154	28.4	72	13.3	313	57.7
5	We must use a full course of antibiotic.	429	79.2	39	7.2	73	13.5
6	All antibiotics are similar in the same activity and way of use.	52	9.6	104	19.2	383	70.7
7	Distinguishing between antibiotics through color and shape.	198	36.5	9	12.7	270	49.8
8	Children antibiotics can be used after adding water to it for 2 weeks.	200	36.9	107	19.7	234	43.2
9	The quantity of water that must be added to some antibiotics to have suspension is a specific quantity.	466	86	55	10.1	19	3.5
10	There a risk on health when taking antibiotic unnecessarily.	362	66.8	54	10	124	22.9

- Although these individuals use antibiotics without prescription, 66.8% admitted that there is probably a risk on their health if antibiotics are taken inappropriately.

- 74% of the antibiotics consumers without prescription can define the antibiotic correctly as a drug used in case of bacterial infections.

  But 10.9% use antibiotics without knowing if it is used for bacterial infection or not. 12.4% said antibiotics are not used in case of bacterial infections.

- Although a high percentage can identify antibiotic as anti-infection agent, 28.0% said it is used as fever lowering agent, 13.3% of the antibiotics consumers use it without knowing any thing about this fact. Also 12.4 said that antibiotics is a drug used in case of occasional headache.

- These results mean that there is a high percentage of antibiotics consumers use it for treatment of symptoms regardless if these symptoms are associated with bacterial infections or otherwise.

- In order to insure if the antibiotics consumers can define the antibiotics correctly, we asked them if antibiotics are used as a full course or it is not important to complete it.79.2% said yes, they must be used as a full course (a specific quantity used for specific days). 13.5% said they do not use a full course, meaning that they stop using antibiotics once the symptoms they suffer from start to disappear.7.2% answered that they don't know because they do not have enough information about antibiotics.

- Although 79.2% of antibiotics consumers identified antibiotics as a drug must be used as a full course, 43.2% said they use antibiotics as one capsule when needed.

- 9.6% of the antibiotics consumers without prescription said, they can distinguish the antibiotic they use from its colour and shape, almost this practice done by elderly and uneducated persons because they have no enough information about antibiotics. These consumers may go to the pharmacy asking for the drug they use by giving information about its color and shape without knowing the name or the type of this drug and take the wrong medication. This will happen because there are different type of antibiotics have the same colour and shape, also some antibiotics have the same colour and shape of other type of medications.

For example:

1- jeflex capsules 500mg (cefalexin) and amoxitid capsu;es 500mg (amoxycilline)

2- brimocyclin 500mg (Tetracyclin) and amoxicare 500mg (amoxycilline).

3- Ciprocare 750 (ciprofloxacine) and suproviran 800 (acyclovir).

4- Altracin (oflaxin) and Ibufen 400(ibuprofen)

- 19.2% of antibiotics consumers without prescription, use antibiotics without knowing that there is a difference between types of antibiotics in there effects and way of use. While 9.6% think all antibiotics are similar in their activity and way of use. This will lead to use the wrong antibiotic for the wrong type of infection they have.

- According to the answers we have from the antibiotic consumers about children antibiotics which must be prepared by adding water to it in order to have suspension**, the results were as followed**:

1- 3.5% said the quantity of water must be added to prepare this type of antibiotics is not a specific quantity. 10.1% could not decide or they had no idea whether it is specific or not, this will lead to a wrong concentration of the antibiotic they use. Fortunately 86.0% said this quantity of water is a specific quantity, must not be exceeded or be less than the antibiotic needs.

2- 36.9% said these antibiotics can be used even 2 weeks after adding water to it. 19.7% had no idea about this fact (whether if it can be used or not), this will lead to use of antibiotics lost there activity and must be discharged.

3.1.3 Antibiotics consumption profile.

In order to detect the way of consuming antibiotics, the symptoms antibiotics used for treating them without prescription, beside source of antibiotics, antibiotics consumers without prescription were asked several questions.

The result were as followed:

1- source of antibiotics

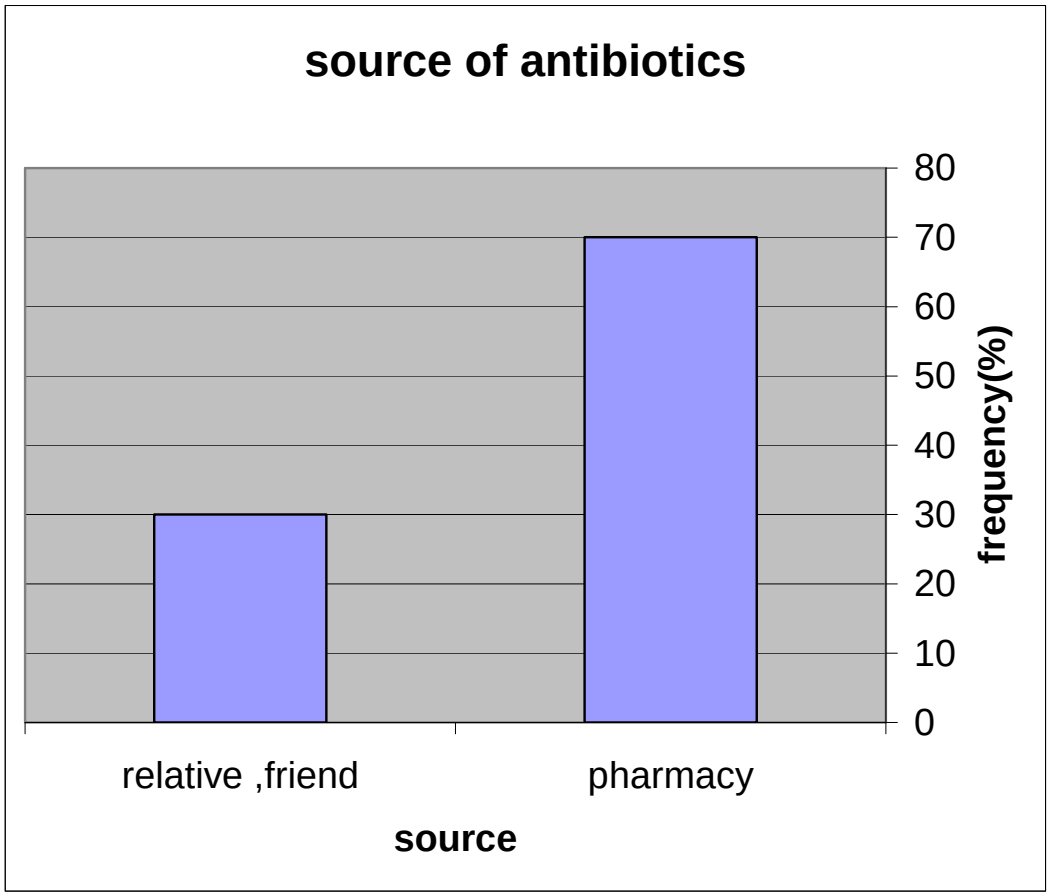

Fig. Source of antibiotics

- 70% of antibiotics consumers consider the pharmacy as the only source of antibiotics. 30% have other sources beside the pharmacy like relatives and friends.

- 17.9% of the antibiotics consumers without prescription use them after taking an advice to use antibiotics from the pharmacist, 5.9% use them depending on relatives advice relatives and friends, although these consumers took antibiotics without prescription 50.7% said, they took

antibiotics after having an advice from their doctors. But 23.8% took antibiotics on their own decision.

- 47% kept antibiotics at home on stand by purpose, taking them if they perceived the need. 23.6% only said they do not keep the antibiotics at home at all, 29.2% sometimes keep these drugs at home.

2- indications and Way of Using Antibiotics

1- Antibiotics were self administered for treatment of different symptoms by different percent as shown in fig 2

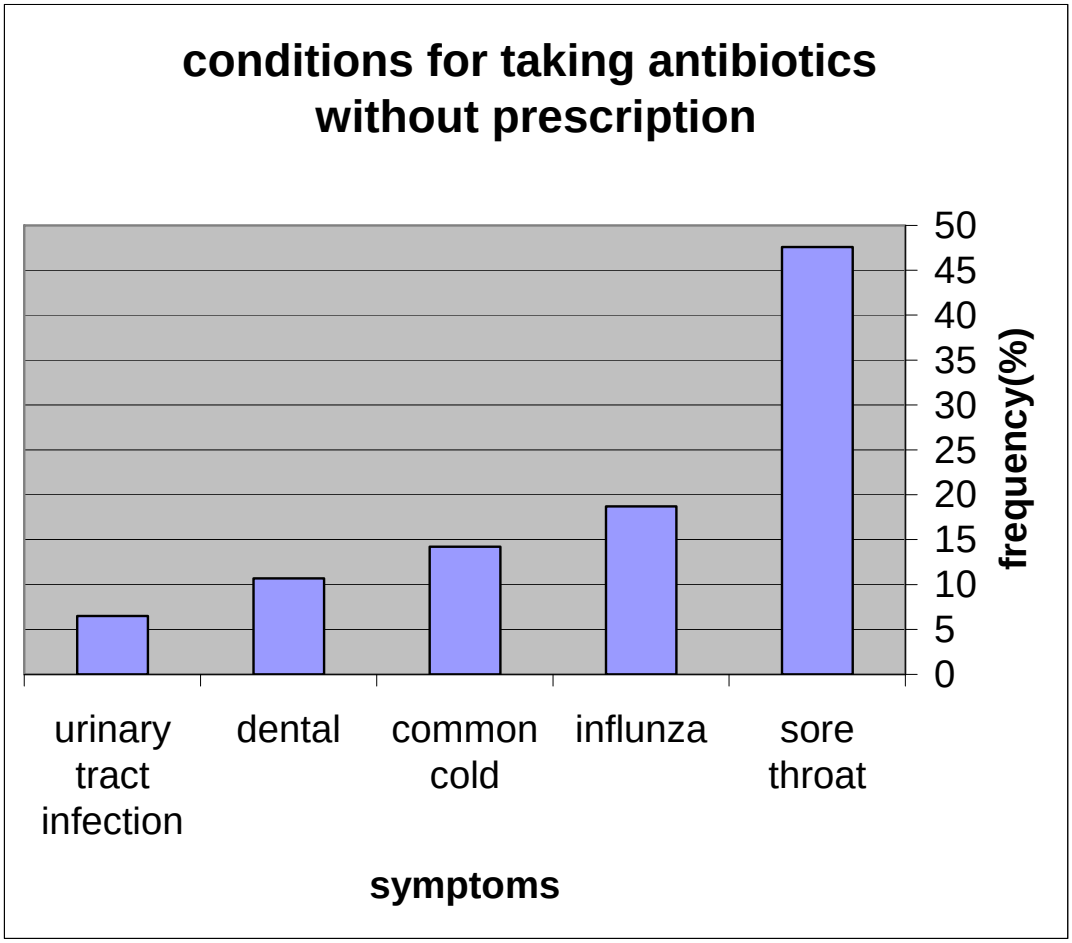

Fig 2. Conditions for taking antibiotics without prescription

- Antibiotics were mainly self administered for upper respiratory tract infections, particularly sore throat with a percent reaching up to 47%. 18.7% use antibiotics for treatment of influenza symptoms, 14.2% for common cold symptoms, 10.7% of antibiotics consumers use them when they have toothache or any dental problem,6.5% for treatment of symptoms of urinary tract infections.

2- 67.2% of antibiotics consumers without prescription ask the pharmacist to give them antibiotic but they do not which type of antibiotic they must use. But 32.3% choose the type of antibiotic by themselves whether it is suitable or not. if we consider that this person really needs antibiotic he will might use the unsuitable antibiotic for the condition he has, so this antibiotics will be of no use to him also he might have a health problem by using the unsuitable antibiotic.

3- 50.4% buy a full course of antibiotics, 27.3 % sometimes buy a full course, but 22% do not at all.

4- Fortunately 54% of antibiotic consumers use a full course. But 22% said they do not use a full course at all, 23.8% sometimes they do.

Not using a full course of antibiotics affect the activity of the antibiotics on the bacteria by increasing the resistance of this type of bacteria against the antibiotic they use, leading a recurrent infection with more resistant bacteria.

3.1.4 Factors Affecting Consuming Antibiotics Without Prescription Profile

Our study aimed to identify the reasons and factors affecting consuming antibiotics without prescriptions. In order to detect these factors we asked the antibiotics consumers without prescriptions several questions and **the results were as the following**:

1- 22.1% admitted that they do not have enough money to go to doctors because it is expensive to consult practitioner. 54.8% said that the financial condition is not the reason for using the antibiotics this way. But 23.1% said lack of money resources sometimes do have some effect and they cant consult doctors so they use the antibiotics without prescription if they suffer from any symptoms they think it need using antibiotics.

2- We asked the antibiotic consumers, if they use antibiotics prescribed by their doctor for the same symptoms in the past. the results were as in table 3

Table 3. Doctors prescribing antibiotics

Answer	frequency	Percentage
Yes	246	45.4%
No	202	37.3%
sometimes	94	17.3%

45.4% copied the drug name from old prescription given to them or to another family member with similar symptoms, and their doctor always gives them the same medication to treat these symptoms. So they felt secure in taking that antibiotics. 37.3% said they never do this at all.

3- 55.9% had been treated successfully by the same type of antibiotics in the past and they thought that it would work effectively once again. 26% said the successful treatment with a type of antibiotic in the past is not the reason for their using antibiotics without prescription. 18.1% sometimes they go back in memories and choose the antibiotic they buy in the past and gave them benefits but other times they do not depend on these antibiotics.

4- 47% said they always can identify the problem they have and the type of antibiotics they need without going to the doctor. Fortunately 53.0% said although they consume the antibiotics without prescription but the reason for this is not their ability to identify their problem by themselves.

5- although 53% have health insurance they use antibiotics without prescription and they do not go to government clinics because they do not want to waste time in waiting their turn to see the doctor and also several times the drug which was prescribed by doctor is not available in these clinics.

3.2 Questions Answered by Pharmacist Profile

One of the aims of our study is to investigate the mostly used antibiotic without prescription, so our questionnaire has a part that must be answered by pharmacist, from their answers we take information about:

1- The mostly used antibiotics.

2- The price of these antibiotics.

3- The dose and the quantity of the antibiotics the consumers used.

4- The indication for use.

3.2.1 The Mostly Used Antibiotics

Table 4, Fig 3 gives clear picture about these antibiotics.

Table 4. Mostly used antibiotics

Antibiotic	Frequency	Percentage %
Amoxycilline	288	53.1
Cefalexin	56	10.3
amoxycilline+ clavulanic acid	39	7.2
ampecilline+ cloxacilline	25	4.6
Cefadroxil	21	3.8
Trimethoprim+ sulfamethaxazol	14	2.5
Erythromycin	10	2.2
Ciprofloxacin	13	2.4
Azithromycin	13	2.4
Cefurixem	12	2.2
Cefaclore	13	2.4
Doxycycline	3	0.5
Tetracycline	2	0.37
Penicilline	2	0.37

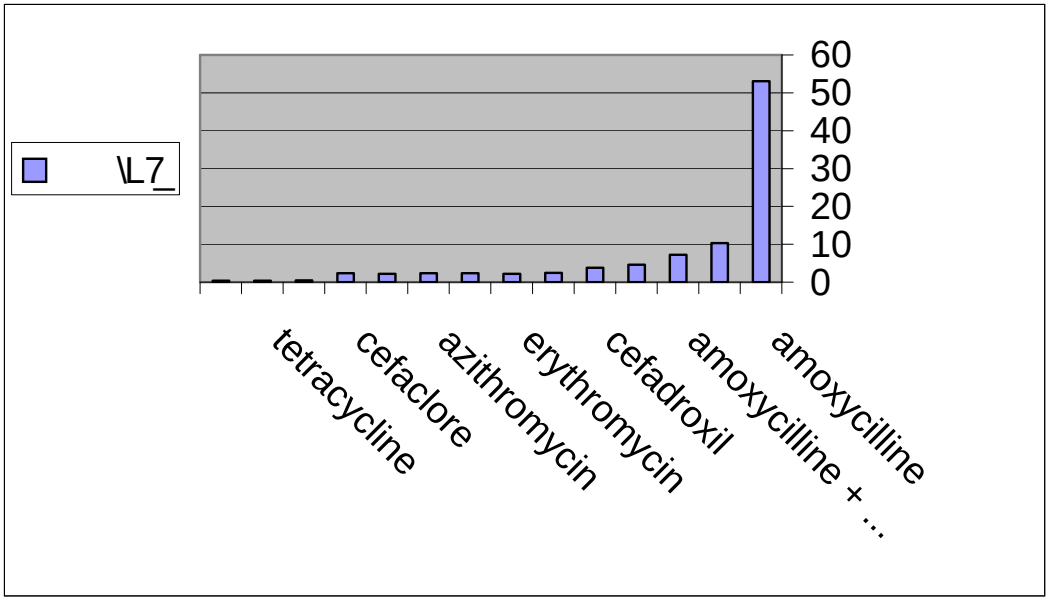

Fig 3. Mostly used antibiotics.

3.2.2 The Price ranging from 5 NIS to 120NIS with a mean of 22.4NIS, from the frequencies we notice that the most frequent price 13NIS with a percent of 16%..

3.2.3 The Dose that the pharmacies advice the consumers to use it varies from once daily to 6 times daily with a mean of 3 times daily.

3.2.4 The Number Of Capsules patient took range from 5 capsules to 32 capsules with a mean of 15 capsule.

3.2.5 Indication For Use.

Indications of use from pharmacists point of view were as shown in table 5

Table 5. Indication for antibiotics use

Indications	Frequency	Percentage %
Otitis media	8	1.5
GITI	47	8.7
Sore throat	222	41
Influenza + common cold	111	20.4
Tonsillitis	32	5.9
Dental problems	59	10.9
Lower respiratory tract infections	45	8.3

The antibiotics without prescriptions from pharmacist opinion which they gave upon the symptoms they notice on the patient or they tell them about it were:

- 67% used for upper respiratory tract infections, mostly for sore throat with a percentage reach up to 41%, 20% influenza and common cold, and 5.9% for tonsillitis.

- 8.7% for GITI symptoms.

- 10.9% for dental problems.

- 8.3% for lower respiratory tract infections.

These results are slightly different from the result that we have got from the consumers themselves about the indications of use antibiotics without prescriptions. but symptoms of sore throat still the mainly symptom indicates the use of antibiotics without prescription.

3.2.6 Is There A Need for Using Antibiotics?

According to pharmacist opinion 56.6% of the antibiotics consumers without prescription do need to use of antibiotics for their condition. 17.3% of them took antibiotics even though they do not need these antibiotics for their condition. 25% of cases were given antibiotics by the pharmacist even though the pharmacist could not decide if these conditions need antibiotics or not.

3.3 Prevalence Of Antibiotic Utilization With/Without Prescription

Our study aimed to detect the prevalence rate of using antibiotics with/without antibiotics in Nablus city. From the accounting sheet we distributed among pharmacies we have the results as shown in table6

Table 6. Prevelance of antibiotics utilizations

Location of the Pharmacy	Number of All Customers	Number of Customers Take Antibiotics		Rate of Customers Taking Antibiotics	
		with prescription	without prescription	with prescription	without prescription
West Suberbers	1547	486	340	31.4	21.6
East Suberbers	1033	318	337	30.4	32.6
Center of the City	3911	920	504	23.2	12.88
Camps	2672	524	621	19.9	23.2
Total	9207	2258	1702	24.5	18.48

From table 6 we find that:

- 18.48% of all customers use antibiotics without prescription.
- 24.5% of all customers have a prescription containing antibiotics.
- 43% of all customers use antibiotics with/without prescription.
- 57% of antibiotics consumers use antibiotics with prescription.
- 43% of antibiotics consumers used antibiotics without prescription.

From the above data we conclude:

a- Among community

1- prevalence of antibiotic utilization with/without prescription is 43%.

2- prevalence of antibiotic utilization with prescription is 24.5%.

3- prevalence of antibiotic utilization without prescription is 18.48%.

b- Among antibiotic users

1- prevalence of antibiotic utilization with prescription among antibiotic users is 57%.

2- prevalence of antibiotic utilization without prescription among antibiotic users is 43%.

3.4 Relationship profile

In the results we have about awareness we notice huge differences in answers to the questions. in order to understand these differences we must make a relationship study between level of education and residence with awareness. The results are shown in table 7 and table8.

1- level of education and awareness, table 7 shows the relationship between level of education and awareness

Table 7. Relation between awareness and education

Item		yes		I don't know		No			
	Education	**N**	**%**	**N**	**%**	**N**	**%**	**K**	**sig**
Antibiotic is taken as one capsule when needed	Not educated	17	3.2	5	0.9	14	2.6	22.447	.0001
	School educated	114	21.2	31	19.3	104	5.8		
	University educated	102	18.9	8	26.7	144	1.5		
Antibiotic used for treatment for occasional headache	Not educated	10	1.9	10	1.9	16	3	44.987	.0001
	School educate	35	.5	33	.1	182	33.7		
	University educated	20	3.7	10	1.9	224	41.5		
Antibiotic is used in case of bacterial infections	Not educated	28	5.2	6	1.1	2	0.4	5.309	.257
	School educated	185	34.4	32	5.9	32	5.9		
	University educated	200	37.2	21	3.9	32	5.9		
Antibiotic is a fever lowering agent	Not educated	15	2.8	14	2.6	7	1.3	50.239	.0001
	School educated	72	13.4	44	8.2	133	24.8		
	University educated	65	12.1	14	2.6	173	32.2		
We must use a full course of antibiotic	Not educated	22	4.1	4	0.7	10	1.9	29.55	.0001
	School educated	182	33.8	28	5.2	39	7.2		
	University educated	224	41.6	6	1.1	24	4.5		
All antibiotics are similar in the same activity and way of use	Not educated	6	1.1	17	3.2	12	2.2	4.069	.0001
	School educated	36	6.7	48	8.9	166	30.9		
	University educated	9	1.7	39	7.3	204	38		

The level of education has an effect on level of awareness, showing that the university educated consumers of antibiotics have a high level of awareness about definition of antibiotics, way of use and characteristics of them, although they were the highest category in using antibiotics without prescription.

2- Level of awareness and residence

Table 8 shows the relationship between awareness and residence

Table 8. Relation between awareness and residence.

Item		yes		I don't know		No			
	Education	**N**	**%**	**N**	**%**	**N**	**%**	**K**	**Sig**
Antibiotic is taken as one capsule when needed	City	124	22.9	13	2.4	147	27.2	18.539	.0005
	Village	54	10	10	1.8	43	7.9		
	Camp	55	10.2	19	3.5	69	12.8		
Antibiotic used for treatment for occasional headache	City	33	6.1	14	2.6	238	43.9	19.704	0.003
	Village	14	2.6	16	3	77	14.2		
	Camp	20	3.7	21	3.9	102	18.8		
antibiotic is used in case of bacterial infections	City	219	40.6	30	5.6	34	6.3	6.713	.0348
	Village	77	14.3	11	2	19	3.5		
	Camp	114	21.1	16	3	13	2.4		
Antibiotic is a fever lowering agent	City	69	12.8	28	5.2	185	34.3	21.901	0.001
	Village	39	7.2	13	2.4	55	10.2		
	Camp	44	8.2	28	5.2	71	13.2		
we must use a full course of antibiotic	City	244	45.1	12	2.2	28	5.2	20.271	0.002
	Village	83	15.3	9	1.7	15	2.8		
	Camp	97	17.9	29	5.4	17	3.1		
all antibiotics are similar in the same activity and way of use	City	21	3.9	49	9.1	213	39.5	8.464	.020
	Village	12	2.2	21	3.9	74	13.7		
	Camp	18	3.3	31	5.8	93	17.3		
distinguishing between antibiotics through color and shape	City	97	18.1	28	5.2	158	29.4	12.986	0.043
	Village	39	7.3	14	2.	54	10.1		
	Camp	59	11	25	4.7	5	10.4		
children antibiotics can be used	City	98	18.1	48	8.9	128	25.5	10.494	0.105

Item		yes		I don't know		No			
	Education	**N**	**%**	**N**	**%**	**N**	**%**	**K**	**Sig**
after adding water to it for 2 weeks	Village	42	7.8	107	4.3	42	7.8		
	Camp	59	10.9	33	6.1	51	9.4		
the quantity of water that must be added to some antibiotics to have suspension is a specific quantity	City	258	47.8	17	3.1	8	1.5	16.843	0.010
	Village	91	1.9	12	2.2	4	0.7		
	Camp	112	20.7	24	4.4	7	1.3		
there a risk on health when taking antibiotic unnecessarily	City	194	35.9	20	3.7	9	12.8	15.527	0.017
	Village	75	13.9	11	2.0	21	3.9		
	Camp	89	16.5	20	3.7	34	6.3		

Results show that the consumers living in the city have great awareness about antibiotics, but we must notice that most of consumers were from the city, this was due the political status at which was in the study carried. Nablus was a closed city in the face of people from outside leading to minimize number of people who live in camps and especially villages.

Chapter Four
Discussion

3. Discussion

This study was conducted to investigate the prevalence of antibiotics use with/without prescription, and factors affecting using antibiotics without prescription.

4.1 Prevelance of Antibiotics Utilization in Nablus City With/Without Prescription few

studies consentrated the frequency of over the counter acquisition in developing countries. In order to provide an insight on this practice in Palestine we carried out this study in order to investigate the magnitude of self medication with antibiotics in Nablus city.

9207 customers visited the 24 community pharmacies in Nablus city during a consecutive 28 days. 2258 customers (24.5%) took antibiotics with prescription they have from their doctor. But 1702 (18.48%) took antibiotics without prescription.(over the counter).

These result are consistent with a study was done in Malta, this result aimed to investigate the prevalence of over the counter acquisition in Malta and it showed that 19% of the community took antibiotics without prescription.

Also the result we have are consistant with the result found in kerala state-south India which showed that 18 % of customers who visited a 12 community pharmacy during a consecutive 14 days took antibiotics without prescription.

Condition in Palestine encourage the proliferation of inappropriate antibiotics consumption, in discussing issue of supplying with medicine,

government policy encourage the expansion of pharmaceutical industry. Economic forces favor the growth of small drug shops (pharmacies) in urban and peri-urban area which compete for business and enticed by incentives of pharmaceutical companies to push their products for substantial rewards. Nearly half of the pharmacist interviewed admitted that they dispense antibiotics without prescription due to the pressure of financial competition from other pharmacies.

Economic constrains influence health seeking and self-medication among the poor. The cost of consulting practitioners and inconvenience of accessing public medical service " which often lack medical supplie led members of Palestinian household to engage in self treatment of. they use old medication script, consult attendant at pharmacies, or experiment with medication they have heard about through friends or relatives.

Poor control of drug distribution means that many restricted pharmaceuticals are easily available over the counter. easy access to restricted pharmaceutical promotes a popular health culture where people engaging self-diagnosis by noticing treatment outcomes, return to old prescription "medication" for what they see as recurring illness. Acquire medication in early stages of the illness to avoid more sever symptoms, and put of the expense and effort of seeing a medical practitioners until known medications fail.

Many causes can be blamed for the over use of antibiotics. Mostly the blame can be put on the consumer or patient and their over all lack of education. The physician is also at fall in some cases.

The result showed that 24.5% of the customers took antibiotics upon a prescription they have from their doctors, and 57% of antibiotics users use it upon prescription. In a study in USA it was found that half of antibiotics prescriptions which is prescribed by doctors is not necessarily meaning that the patient condition really do not need using antibiotics. other studies showed that 20-50% of all antibiotics prescription are unnecessary [57]. Unfortunately, doctors often prescribe antibiotics excessively and inappropriately for various reasons.

Some of those reason are:

1. Insufficient training or lack of education about diseases and antibiotics treatment.
2. Difficulty in selecting the appropriate antibiotics empirically.
3. Insufficient use of microbiological information.
4. Fear of litigation which promotes the use of broad spectrum drugs.
5. Patient expectations. It is easier and take less time to prescribe an
6. Antibiotics than it does to tell the patient why the doctors are not prescribing antibiotics.
7. Physician tend to skip the defining test to save time and money in the office. Although they knew that the use of testing device to gain knowledge about an illness is the only way in which the correct -if any- antibiotics is needed.
8. The doctors influenced by the competition between pharmaceuticals companies which provide them with free medical sample.

4.2 social profile

4.2.1 Gender

in our study 63.8% of the study sample (antibiotics users without prescription) were males, and 36.2% were females.

Females are a special case, they have a special problem of interactions (in case of using contraceptives) and toxicity during pregnancy and lactation, so they must not use antibiotics without prescription at all.

Besides this there is something increases the problem related to females, a study found that women who took antibiotics for more than 500 days or had more than 25 prescription over an average period of 17 years had double risk of breast cancer than women who had not taken any antibiotics. The risk was smaller for women who took antibiotics for fewer days. Even women who had between one and 25 prescription over average period of 17 years had an increase risk, they were about 1.5 times more likely to be diagnosed with breast cancer than women who did not take antibiotics. The risk increased in all classes of antibiotic [58].

Few possible explanation for the observed association between antibiotics use and increase breast cancer, antibiotics can affect bacteria in the intestine which may impact how certain food that might prevent cancer are broken down in the body.

Another hypothesis focuses on antibiotic effect on the body's immune response and response to inflammation, which could also be related to the development of cancer.

These results were about women using antibiotics with known number of prescription, and obviously the opportunity of having breast cancer will increase for women who use antibiotics without prescription.

4.2.2 Residence

According to study result 52.6% of antibiotics users without prescription live in the city, and 25.6% in camps, and only 19.7% live in village. These results may be affected by political situation at the time the study took place. Nablus city is considered as a main city it was closed in that time, no one from out side or from the surrounding village is allowed to enter at that time. Also for the same reason we could not expand our study to the surrounding villages.

4.2.3 Age

The results showed that 40.4% of antibiotics users without prescriptions where between 30-44 years old, 5.4% aged between 2 -6 years which means that we have a high percentage of children receives antibiotics unnecessarily or inappropriately, that could affect their health and their susceptibility for infections in addition to the antibiotics itself. the responsibility in this case lies upon the parents shoulders and also on the pharmacist who dispense the drug.

Also results showed that 2.8% are children aged less than 2 years, this was surprising because these children cant tell the symptoms they suffer from and parents decide to give antibiotics upon the signs they notice on their child. These children must not be given antibiotics without prescription at all, they must be taken to the specialist who decide, whether they need or not to be treated with antibiotics upon his diagnosis or upon a medical test he performs on them.

2.4% from antibiotics consumers without prescription were from the elderly people whose aged was 60 years and more, 9.4% were between 45-59 years old. From our background knowledge of our community, we know that, this category of (elderly) might have a chronic disease like hypertension, diabetes milletus, so the antibiotics they took may be contraindicated in their case or, will make drug interaction with the medication they use for their condition. So the antibiotics they take –if needed- must be under their practitioners supervision.

4.2.4 Type of work

The majority of antibiotics users without prescription 33% were workers, 31% were government employee with limited salaries. This is due to lack of economic resources and low income which prevent these people from consulting practitioners for their condition.

4.2.5 Level of Education

We were surprised that antibiotics administration without prescription increases with higher education background reaching about 47% for university educated. Normally, education is strongly connected with better employment chances, higher income and holding some forms of medical insurance. But in our community we notice that the limited salaries for employment may be the reason that they cant go to the practitioner and they take antibiotics without prescription. This category forget that or they do not know that using antibiotics in this way cost them more, because there might be no need to use antibiotics, so they will suffer from antibiotics resistance in the future, so they may need other antibiotics that will cost more for their conditions.

Also another reason for this practice may be due highly educated people thoughts of knowing the condition they suffer from, according to the symptoms they have there is no need to go to the doctor and they decide to use the antibiotics they thought it useful.

In contrast to our study, the study was done in India showed that the antibiotics consumers without prescription were illiterate or primarily educated. But our result are consistant with the study done in Malta which showed that increase in using antibiotics without prescription is among university educated persons.

4.3 Awareness Profile

About 23% of the antibiotics consumers without prescription were unable to identify the association between antibiotics and infections.

The result showed a high percentage of people identify the reason for using of antibiotics as for treatment of symptoms regardless these symptoms are associated with bacterial infection or not, like occasional headache and fever.

Although 79.2% said that antibiotics must be used as a full course. 43.2% said antibiotics used as one capsule when needed, meaning that when they have the symptoms only. 8.1% have no idea about this fact.

Distinguishing between different types of antibiotics have a great importance, because this will affect the patient using the drug directly, especially if he/she have no idea about the drug he/she is using, if it was antibiotic or not.

Study results showed that 36.5% from antibiotics consumers said they can distinguish between antibiotics from the color and shape. This mean they go to the pharmacy and give a description of the drug they want and choose it according to the color and shape. We notice that there are a similarity between some drugs “regardless they were other antibiotics or not” in color and shape, this will lead to health problem if one drug used instead of the another. For example:

Altracin which is antibiotics have the same color and shape of Ibufen 400 which is NSAID drug used as analgesic drug.
Ciprocare which is antibiotic have the same color and shape of Suproviran which is antiviral.

Brimocyclin 500 and amoxicare 500, despite both of them are antibiotic having the same shape and color, but every one of them have its special activity against type of bacteria it used for, and the symptoms indicate its use.

66.8% said there is a probably risk on their health if they use antibiotics inappropriately. Despite they knew this fact they use antibiotics without prescription.

From the relationship study between awareness and level of education we conclude that, the person with post secondary and university education could define antibiotics and its characteristics more accurately than those with primary or not educated persons.

The main reason for over use and misuse of antibiotics is due to lack of education of the public. The general public does not have a grasp for the differences between a virus and microbial infection. With this simple bit of

knowledge, much of the misuse and overuse would be eliminated because antibiotics cant treat a virus.

People feel better after a week or so from taking the antibiotics this is because, that period is the normal life span of a virus, but people think that it is the effect of antibiotics, this encourage them to use antibiotics without prescription. This problem is quiet evidence in family setting, because both antibiotics and viruses are shared.

Educating the general public is one way in order to reduce the unnecessary antibiotic use, TV and radio spots, bus stops, and newspaper can be used as a vector to reach the general public. The massage will most likely to be ones of simple nature that the general public “one have no biological background” will be able to read and comprehended.

This will be a first step in education process. By putting this information about into the hands of the public it will cerate it’s own sense of awareness.

Verbal instructions is not necessarily the easier way for every one to learn therefore pamphlets and education sheets should prepared and given out. so that person will be given the opportunity to learn more about their situation.

Education in elementary stage would also be merited. Talking with children in such young ages could put the idea of differentiating between viruses & bacterial infection.

4.4 Antibiotics Consumption Profile

4.4.1 Source of Antibiotics

70% of the antibiotics consumers consider the pharmacy as the only source of antibiotics, but 30% have other sources beside the pharmacy like relatives and friends. they share them their antibiotics or take the antibiotics the relatives kept at home in order to use them when needed.

Relatives and friends have a great effect on person in our society. 5.9% from antibiotic users without prescription use them upon an advice from relatives and friends regardless they have a full knowledge about antibiotics or not.

17.9% visit the pharmacy and take antibiotics according to the pharmacist advice for using antibiotics. But 23.8% use the antibiotics on their own decision without waiting to have an advice from any one regardless of the source was pharmacy or relatives.

4.4.2 Indication and Way of use

Our study showed that upper respiratory tract infection (URTI) were the major reason why people took antibiotics without prescription with about 79.7% of non prescribed antibiotics sought for URTI symptoms. These symptoms include sore throat with a percent reaching up to 47%, Influenza symptoms 18.7% and common cold 14.2%.

These results are consistant with the study done in Malta which showed that, antibiotics were mainly self-administered for upper respiratory tract symptoms (75%) particularly sore throat.

10.7% of antibiotics consumers without prescription use them when they have toothache or any dental problems, 6.5% for treatment of symptoms of urinary tract infections (UTI).

These people think they can diagnose their condition from the symptoms they have and use antibiotics upon self-diagnosis but, what will happen if there was misdiagnosis and this was proven to be true since accuracy is a must in diagnosis.

Misdiagnosis have several adverse affects these includes:

The partial or complete failure to treat an infection such as therapy for presumptive UTI when the patient has sexually transmitted disease.
The failure accurately to identify or treat the presenting infection such as otitis media complicated by meningitis.

Exposure to the risks of antibacterial without benefits when no treatable bacterial infections is present.

Possible increase in number of patients receiving antimicrobial without consequent in ecological pressure for resistance.

Failure to recognize that an infection might be a manifestation of underlying disease (e.g sepsis in diabetes mellitus)

Antibacterials for oral administration have relatively good record of safety but there is a possibility of increasing in adverse reactions and drug interactions. The pharmacist should ascertain specific contraindicated. This could happen if the pharmacist give antibiotics to the patients according to a prescription the patient have, or when the pharmacist choose the antibiotics for the patient by himself acording to the symptoms the patient suffer from if the patient have no prescription.

But what will happen if the patient not only decide to use antibiotics by himself but he also decide the type of antibiotics that is suitable for him.

Our study showed that 32% of antibiotics consumers without prescription choose the type of antibiotics they want to use whether it is suitable for their condition-if needed- or not regardless what the pharmacist advice them.

This will lead to no treatment benefits from this antibiotic if we consider that this person really needs antibiotics because this type of antibiotics could be not suitable for the bacterial infection that the person have.

Considering resistance factors it is important to be clear what is meant by this term. Resistance is defined as a decrease in susceptibility to an antibacterial to the extent that therapy is likely to fail when it is used clinically for the recommended indication and at the usual dose. The degree of resistance arises from genetic or adaptive changes.

Also the reduction of susceptibility to a lower degree is considered as an important consideration since it may presage a great loss of susceptibility. The antibiotic resistance is affected not only by use of antibiotics when not needed, but also by the way of these antibiotics are used. Consuming that patient who took antibiotic really need them-he have bacterial infection- so he must buy a full course and use the whole course of this antibiotic in order to get rid of all the bacteria causing the infection. But when he stops using the antibiotic before the end of the course he make this type of bacteria more stronger and more resistant against this type of antibiotics.

Our results showed that 50.4% buy a full course, 22%do not, 23% only sometimes do,. more important 22% admitted that they do not use a full course at all, 23%said sometimes they do, Fortunately 54% said they

usually use a full course of antibiotic.

4.5 Factors and Reasons Affecting Consuming Antibiotics without Prescription Profile.

The study which was done in India showed that there is different reasons for taking antibiotics without prescription like low satisfaction with medical practitioners, and the financial resources, meaning it is expensive to consult a doctor.

The study which was done in Malta also showed some reasons for this practice. some of them is saving money and time 12%, 44% said their doctors had always prescribed the same type of antibiotic for similar condition, 22% reported that they had been treated successfully by the same type of antibiotics in the past.

Our study results are consistant with the results in these studies from the reasons that affect using antibiotics without prescription with slight differences in frequencies.

Our study showed that:

22.1% of antibiotics consumers use antibiotics without prescription because they do not have enough money to go to the doctors.

23.1% said lack of money sometimes affects their decision by taking antibiotics without prescription.

This is might be normal because the major consumers of antibiotics without prescription in our study were workers and government employee with limited salaries.

The doctors may have an effect on the patient. in our study 45.4% of antibiotics consumers copied the drug name from old prescription given to them or to other members of the family and they felt secure in taking this antibiotic, because their doctor always describes the same type of antibiotics every time they consult him. So they felt there is no need to go and see the doctor.

About 60% said they always use the same type of antibiotics which give them benefits in the past (they have successful treatment with this antibiotic) so they think it will work effectively this time and all the times. This practice have negative effects, like increasing bacterial resistance to this type of antibiotics, also it could be not beneficial because these consumers use this type of antibiotics wither this antibiotics is suitable for treatment of the symptoms they suffer from –if needed- or not.

Low satisfaction with medical practitioners has an effect on consuming antibiotics without prescription. In our study 47% said that they always can identify the problem they have and the type of antibiotics they need. So there is no need to consult a practitioner because the already diagnose the problem they have.

53% of antibiotics consumers without prescription have health insurance. despite this they go to the pharmacy or any other source and take antibiotics on their own decision. In this condition lack of money is may be the reason behind, these people do not want to waste time in waiting their turn in order to see the doctor, or because of lack of practitioners in these clinics, or lack of medical resources mostly drugs.

4.6 Questions Answered By Pharmacist Profile

The mostly used antibiotic Our study results are consistant with results of the study done in India, which showed that amoxycilline, is the most popular self-medicated antibiotics. In that study also results showed other types of antibiotics that is mostly used as self-medicated antibiotics like, ciprofloxacin, the combination “amoxycilline+calvulanic acid”, cefalexin, tetracyclin, and ampicilline.

Our study showed that amoxycillin is the most popular antibiotics used without prescription reaching up to 53.1%, followed by, cefalexine 10.3%, “amoxycillin+clavulanic acid” 7.2%.

From these results we can sow that we will have or we already have bacterial resistance against amoxycillin. Also we can notice this from the prescription given by the doctors because they turn now for using other antibiotics in the same conditions they use amoxycillin as drug of choice in these condition in the past.

Pharmacies also have an effect on the antibiotics using without prescription. 17.3% of the customers was given the antibiotics upon their demand –without prescription- by the pharmacist who knows that these patient did not need antibiotics for their condition.

Also in 25% of the cases, the pharmacist gave them antibiotics without knowing if their condition needs to be treated with antibiotics or not.

Our study showed that the price ranging from 5 NIS to 120NIS with a mean of 22.4NIS, the most frequent price was 13NIS, which was the price of amoxycillin alternatives.

The dose that the pharmacies advice the consumers to use varies from once daily to 6 times daily with a mean of 3 times daily which is mainly related to amoxycillin antibiotic.

4.7 Implication for Intervention

Solution of problem of antibiotics misuse need to proceed on several fronts: among practitioners, suppliers and markets of medicines and among population of potential pharmaceutical consumers. The problem need to be approached both in term of supply and demand, health policy and popular practice.

Based on our study it would appear that the majority of antibiotics self-medicated are people from low economic class (workers and employee with limited salaries). A question is raised, whether they would make better use of the government health care system if the availability of essential drugs was more reliable and if dissatisfaction with doctor-patient relationship was addressed?

Another question is, will patient be satisfied if government doctors inform them that their illness is viral in original and self-limiting and do not prescribe them valued drugs such as antibiotics. Or, will they continue existing pattern of self-medication? A boost in public confidence toward both government doctors, and government medicines in necessary.

Since the role of pharmacist is significant influencing self-medication practices, no program aimed at improving the use of antibiotics can succeed without their involvement. For example, the pharmacy itself may serve as a conduit of consumer education (poster, brochures), wile dispensing guidelines and pharmacy training for pharmacy attendants may reduce some risky practice.

Campaigns to maximize the benefits of antimicrobial use will need to address existing pattern of self-medication. Information about side effects of these drugs and drug losing efficacy if taken incorrectly, this could serve as the basis for community education campaign making clear (for example) the importance of completing a whole course of antibiotics.

The high literacy and newspaper circulation rate in Palestine suggest that the print media could be an important tool for such education.

4.8 Limitations

The study may suffer from several basis or limitation

First, the seasonal occurrence of certain diseases could effect prevalence estimates.

Second, we could not identify the drugs kept at home.

Third, a problem in some pharmacies was that the over crowded counter, was not a practical venue for administrating a questionnaire, so we do not have a large number of answered questionnaire.

Forth, we also feared a change in behavior of pharmacist during the time of the study, about counting and about giving antibiotics without prescriptions.

Fifth, the political condition, Nablus is a city not easy to access nowadays, so the people from surrounding village and rural area cant enter it easily so conditions and factors in rural area are not clear to us.

Sixth, also the assitances were distributed to the Palestinian community have several type of drugs, antibiotics was a type of them which is used by people without asking doctors or pharmacist.

4.9 Conclusions

This is the first study regarding antibiotics utilization without prescription among population in Palestine. The following are important study results:

1. A high prevalence utilization of antibiotics without /without prescription reaching up to 43% during 28 days.

2. A high prevalence utilization of antibiotics without prescription reaching to 18.48%.

3. Positive association between utilization of antibiotics with prescription and type of work(workers, employee with limited salaries).
   weak awareness regarding antibiotics definition and characteristics among illiterate people.

4. Most users of antibiotics without prescription were university educated people.

5. No significant association between antibiotics utilization, awareness toward antibiotics with residence.

6. Economic factors affect using antibiotics without prescription, in addition to low satisfaction with doctors, governmental clinics.

7. Amoxycycline is the mostly self-medicated antibiotics.
   Pharmacist and doctors have a role in increasing the antibiotics utilization without prescription.

8. Community education for general public about antibiotics, their users and limitation are needed to improve rational use of antibiotics

4.10 Recommendations

Palestine is one of the developing countries where there is an increase in using antibiotics with/without prescription which will lead for bacterial resistance problem in addition to financial problem.

During the study, we tried to sought light on the size of the problem in Palestine and factors affecting it.

These are some recommendations and suggestions for further evaluation, we hope to take them in consideration,

1. Further studies regarding using antibiotics without prescription in other cities, especially the rural area.

2. further studies regarding using antibiotics in hospitals especially governmental hospital.

3. We recommend the ministry of health (MOH) to put a clear law about sailing antibiotics in order to prevent sailing antibiotics without prescription.

4. Organize campaign with two objectives:

    - Reduce inappropriate antibiotics use.

    - Reduce the spread of resistance to antibiotics.

To accomplish these Objectives, the Campaign must use the Following Approaches:

- Developing strategies and materials that will lead to changes in antibiotic use.

- Serving as a resource to groups undertaking their own campaigns.
  Forming partnerships to harness the resources of collaborating organizations.

- Assessing impact on antibiotic use, resistance, and patient/physician satisfaction.

Current Campaign Activities Include:

1. Developing and distributing educational materials promoting appropriate antibiotic use.

2. Funding states to develop, implement and evaluate local campaigns.

3. Evaluating and promoting a medical school curriculum on appropriate use of antibiotics.

5. Use a clear and ones educational material containing information about antibiotics and their use and limitation, like giving procures containing instructions such as:

- Talk with your health care consultant about antibiotic resistance.
- Ask whether an antibiotic is likely to be beneficial for your illness.
- Ask what else you can do to feel better sooner.
- Do not take an antibiotic for a viral infection like a cold or the flu.
- Do not save some of your antibiotic for the next time you get sick.
- Take an antibiotic exactly as the doctor tells you.
- DON'T share other people's antibiotics. Only use those prescribed specifically for your current illness. Since individual antibiotics are effective against specific bacteria, don't assume the leftover you have in the medicine cabinet will do the trick once again. Get rid of any leftover antibiotic as you would any other old, unused drugs: return them to your pharmacist for safe disposal.
- DON'T ignore unexpected side effects; tell your doctor or pharmacist about severe or unusual reactions. Sometimes, your doctor may prescribe a different antibiotic, or a change in the schedule or dosage, that may make it easier to take.

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Appendixes

Appendix 1. الصيدليات المشاركة

الرقم	اسم الصيدلية	الصيدلي المسؤول	الموقع
1	الرازي	د.سامي العنبتاوي	مركز المدينة
2	الشرق	د.أيمن الخماش	مركز المدينة
3	العودة	د.معاوية الشكعة	المنطقة الشرقية
4	عنان	د.عنان عبد العزيز	شارع السكة
5	ساهر	د.ساهر دويكات	شارع القدس
6	ابن سينا	د. رمزي أبو حجلة	مركز المدينة
7	لبنى	د. ديما الشنار	مركز المدينة
8	العالول	د.خالد العالول	مركز المدينة
9	البدوي	د.عبد الهادي البدوي	مخيم بلاطة
10	زكي	د.امجد الأسمر	مخيم عسكر الجديد
11	اولى القبلتين	د.منال الحاج حمد	مخيم بلاطة
12	الرشيد	د.عبير العزوني	مركز المدينة
13	النجاح	د.صفاء عبد الفتاح	مخيم عسكر
14	الشعار	د.فواز الشعار	شارع عمان
15	قادري الجديدة	د.تغريد قادري	رفيديا
16	النور الجديدة	د.سرى العزوني	مركز المدينة
17	لينا	د.مها النابلسي	مركز المدينة
18	الكمال	د.علام كمال	مركز المدينة
19	جواد	د.لبنى المصري	المنطقة الشرقية
20	هاشم	د.عدي هاشم	مركز المدينة
21	هنا	د.هنا الخليلي	مخيم عسكر
22	الجامعة	د.ياسمين المصري	شارع الجامعة
23	فراس	د.فراس عرقاوي	رفيديا
24	بلسم	د.وضاح قناديلو	مركز المدينة

Appendix 2. The Counting Sheet

موقع الصيدلية

سنة انشاء الصيدلية

سنة تخرج الصيدلي المسؤول

اليوم	التاريخ	عدد الزبائن	عدد الوصفات المحتوية على مضاد حيوي	عـــدد مستخدمي المضادات الحيوية بدون وصفة

Appendix 3. The questionnaire

استبانة مسح دوائي
خاص باستخدام المضادات الحيوية في صيدليات المجتمع في نابلس/فلسطين

جامعة النجاح الوطنية
كلية الدراسات العليا
قسم الصحة العامة : التعزيز الصحي

تهدف هذه الاستبانة إلى معرفة مدى استخدام المضادات الحيوية بدون وصفة طبية في المجتمع الفلسطيني والأسباب التي تؤدي إلى ذلك . ولأن هذه الاستبانة تستخدم للغرض العلمي وجميع الإجابات سوف تكون في غاية الخصوصية أرجو منكم التكرم بالإجابة عن الأسئلة بكل موضوعية وصدق .

علماً بأن هذه الاستبانة سوف تستخدم لأغراض البحث العلمي وستحاط بالسرية التامة .

من فضلك ضع دائرة حول الرقم الذي ينطبق عليك لكل معلومه فيما يلي :

١- العمر

١. أقل من سنتين ٣. (٧-١٤) ٥ . (٣٠-٤٤) ٧. ٦٠ فاكثر
٢. (٢-٦) ٤. (١٥ -٢٩) ٦. (٤٥-٥٩)

٢- الجنس

١- ذكر ٢- أنثى

٣- مكان السكن

١-مدينة ٢- قرية ٣- مخيم ٤- غير ذلك

٤- مستوى التعليم

١- غير متعلم ٢- تعليم مدرسي فقط ٣- جامعي

٥- نوع العمل

١- موظف/حكومي ٢- عامل/تاجر ٣- طالب ٤- متقاعد
٥- ربة منزل

٦- الحالة الاجتماعية

١- متزوج ٢- أعزب ٣- غير ذلك

ضع دائرة حول الإجابة الصحيحة :

١- المضاد الحيوي هو دواء يمكن استخدامه كبسولة عند اللزوم
١- نعم ٢- لا ٣- لا ادري

٢. المضاد الحيوي دواء يمكن تناوله لعلاج الصداع العابر.
١- نعم ٢- لا ٣- لا أدري

٣. المضاد الحيوي دواء يمكن تناوله في حالات الالتهابات الجرثومية.
١- نعم ٢- لا ٣- لا أدري

٤. المضاد الحيوي دواء خافض للحرارة.
١-نعم ٢- لا ٣- لا أدري

٥. المضاد الحيوي دواء يجب تناول كمية كاملة منه لفترة زمنية محددة.
١- نعم ٢- لا ٣- لا أدري

٦. جميع المضادات الحيوية متشابهة من حيث القوة و طريقة الاستخدام.
١- نعم ٢- لا ٣- لا أدري

٧. يمكن تمييز أنواع المضادات الحيوية المختلفة بالشكل و اللون.
١- نعم ٢- لا ٣- لا أدري

٨. المضادات الحيوية الخاصة الأطفال (الشراب) تبقى صالحة بعد إضافة الماء لها لمدة أسبوعين.
١- نعم ٢- لا ٣- لا أدري

٩. كمية الماء الواجب إضافتها لتجهيز المضاد الحيوي عند الأطفال محددة.
١- نعم ٢- لا ٣- لا أدري

١٠. هل تعتقد أن استخدام المضاد الحيوي بدون وصفة طبية قد يعرضك لمشاكل صحية .
١-نعم ٢- لا ٣- لا أدري

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١. كم عدد المرات التي اشتريت به مضادات حيوية خلال الشهر الماضي.
١. (١ >) ٢. (٢-٣) ٣. (٤-٥) ٤. (٦ فأكثر)

٢. من الذي ينصحك باستخدام مضاد حيوي.
١- الصيدلي ٢- قريب ٣- صديق ٤- الطبيب ٥- على عاتقي الشخصي

٣. هل تختار مضاد حيوي بنفسك.
١- نعم ٢- لا

٤. **ما هي الأعراض التي استدعتك لاستخدام مضاد حيوي على عاتقك الشخصي**
١ - رشح ٢- انفلونزا ٣- التهاب الحلق ٤- التهابات المجاري البولية
٥- التهابات اللثة و الأسنان

٥. **هل تحتفظ بالمضادات الحيوية في المنزل لحين الضرورة.**
١- نعم ٢- لا ٣- أحيانا

٦. **هل تشتري كمية كاملة من المضاد الحيوي.**
١- نعم ٢- لا ٣- أحيانا

٧. **هل تستخدم كمية المضاد الحيوي التي تشتريها كاملة.**
١- نعم ٢- لا ٣- أحيانا

٨. **هل تستخدم مضادات حيوية من مصادر أخرى غير الصيدلية مثل قريب أو صديق**
١- نعم ٢- لا ٣- أحيانا

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١. **هل تقوم بشراء مضاد حيوي لدى تكرار الأعراض لديك مع وجود وصفة طبية سابقة لهذا الدواء لنفس الأعراض**
١- نعم ٢- لا ٣- أحيانا

٢. **هل تقوم باستخدام مضاد حيوي سبق لك استخدامه لأعراض معينة و قد أعطاك نتيجة إيجابية**
١- نعم ٢- لا ٣- أحيانا

٣. **هل عدم توفر النقود اللازمة لاستشارة الطبيب هو الدافع لاستخدامك مضاد حيوي بدون وصفة طبية**
١- نعم ٢- لا ٣- أحيانا

٤. **هل ايمانك بقدرتك على تشخيص المرض لديك هو الذي دفعك لاستخدام مضاد حيوي بدون وصفة طبية**
١- نعم ٢- لا

٥. **هل تمتلك تامين صحي**
١- نعم ٢- لا

شكرا لتعاونك

بسم الله الرحمن الرحيم

الأسئلة الخاصة بالصيدلي لاستهلاك المضادات الحيوية بدون وصفة طبية

الرجاء الإجابة عن ما يلي

- **ما هو اسم المضاد الحيوي الذي تم صرفه؟**

- **ما هي كمية المضاد الحيوي التي تم صرفها؟**
- **ما هي الجرعة الموصاة باستخدامها ؟**
- **كم سعر الدواء الذي تم صرفه ؟**
- **ما هي الحالة المرضية التي أعطي لها الدواء؟**
- **هل تعتقد أن الحالة تستدعي استخدام مضاد حيوي؟**
  ١- نعم ٢- لا ٣- لا أدري

شكرا لتعاونك

بسم الله الرحمن الرحيم

جامعة النجاح الوطنية
كلية الدراسات العليا

استخدام المضادات الحيوية في مدينة نابلس

إعداد
مرام زكريا عبد الله حجاج

إشراف
الدكتور سليمان خليل
الدكتور وليد صويلح

قدمت هذه الأطروحة استكمالا لمتطلبات درجة الماجستير في الصحة العامة بكلية الدراسات العليا في جامعة النجاح الوطنية في نابلس، فلسطين.
2005م

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الملخص

تعتبر المضادات الحيوية من أهم الأدوية التي تستخدم في الدول العربية، و لقد تم انجـــاز غدد قليل من الدراسات حول هذه النوعية من الأدوية في الدول العربية خاصة استخدامها من غير وصفات طبية.

لقد تم حديثا تسليط الضوء على مدى أهمية هذا الموضوع في العالم، و لقد تم انجاز هذه الدراسة من أجل معرفة نسبة استخدام المضادات الحيوية في المجتمع الفلسطيني خاصة استخدامها من غير وصفات طبية. و قد تم اختيار مدينة نابلس لانجاز هذه الدراسة.

لقد تم اختيار 24 صيدلية موزعة في جميع أنحاء المدينة و مخيماتها، و من ثم تم تسجيل عدد زوار هذه الصيدليات الذين يشترون الأدوية فقط بجميع أنواعها سواء بناء على وصفة طبيـــة أو بدونها خلال 14 يوما متتالية. و قد تم تسجيل عدد الأشخاص الذين يشترون المضادات الحيوية بناء على وصفة طبية، و كذلك عدد الأشخاص الذين يشترونها من غير وجـــود وصـــفات طبيـــة معهم، و قد تم طلب تعبئة نموذج استبيان من الأشخاص الذين يشترون المضادات الحيوية بـــدون وصفات طبية يحتوي على أسئلة تتعلق بمعلومات شخصية، معلومات عن المضادات الحيويـــة و طرق استخدامها، و أسئلة تتعلق بالأسباب و العوامل التي تؤدي الى هذه الظاهرة كافة البيانات تم تحليلها باستخدام البرنامج الإحصائي SPSS.

بالرغم من أن بعض النتائج لم تتوافــق مع ما سبقتها من دراسات فيما يتعلــق بالفئــات العمرية و الاجتماعية التي تستخدم المضادات الحيوية من غير وصفات طبية عالميا، فاننا حصلنا على نتائج هامة لهذه الدراسة.

فيما يلي أهم النتائج التي تم التوصل إليها خلال هذه الدراسة

- بينت الدراسة ان نسبة استحدام المضادات الحيوية من غير وصفات طبية فــي المجتمــع الفلسطيني 18.48%.
- بينت الدراسة ان نسبة استحدام المضادات الحيوية من غير وصفات طبية بين مســتخدمي المضادات الحيوية هي 43% .
- بينت الدراسة ان نسبة استحدام المضادات الحيوية من غير وصفات طبيــة تــزداد مــع ازدياد مستوى التعليم لتصل الى ذروتها لدى مستوى التعليم الجامعي.
- المعلومات المعرفية فيما يتعلق بالمضادات الحيوية ضئيلة نســبيا بــين أفــراد المجتمــع الفلسطيني.
- الحاجة إلى حملات تثقيفية حول المضادات الحيوية و طرق استخدامها.
- الحاجة إلى دراسات أخرى تتعلق بالمضادات الحيوية و طرق استخدامها في فلسطين.