Deanship of Graduate Studies
Al-Quds University

Determinants of Women's Compliance to Oral Contraceptives Usage among Current Users in The West Bank

Inas Ibrahim Khalil Al-Amad

M.Sc. Thesis

Jerusalem-Palestine

1430-2009

Determinants of Women's Compliance to Oral Contraceptives Usage among Current Users in The West Bank

Prepared by:

Inas Ibrahim Khalil Al-Amad

B.Sc Pharmacy, An-Najah National University- Palestine

Supervisor: Dr. Ayesha Al Rifai

A Thesis Submitted in Partial Fulfillment of Requirements for the Degree of Master of Public Health

School of Public Health

Al-Quds University

1430-2009

Al-Quds University

Deanship of Graduate Studies

Public Health Program – Track Environmental Health

Thesis Approval

Determinants of Women's Compliance to Oral Contraceptives Usage among Current Users in the West Bank

Prepared by: Inas Ibrahim Khalil Al-Amad

Registration number: 20411674

Supervisor: Dr. Ayesha Al Rifai

Master thesis submitted and accepted on the 22nd, February 2009.

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

1- Head of Committee:	**Dr. Ayesha Al Rifai.**	**Signature:**
2- Internal examiner:	**Dr. Nuha EL Sharif.**	**Signature:**
3- External examiner:	**Dr. Sa'adah Sobhi.**	**Signature:**

Jerusalem-Palestine

1430-2009

Dedication

To My Father's Soul….

To My Beloved Mother….

To My Dear Sister Rasha….

Declaration

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

Signed:

Inas Ibrahim Khalil Al-Amad

Date:

30th, August 2009

Acknowledgement

First of all, my thanks, gratitude and regards to God who helped me finish this trip and facilitated all the troubles and eliminated all the obstacles in the track of completing my Master degree.

Then my thanks go to my father, Ibrahim Al-Amad, -God bless him and may his soul rest in peace-. He was my supporter all the way long beginning in school days, then in the first university degree and finally in the Master degree. He used to encourage me after each accomplishment I achieve. He was always beside me with all the friend's aspects and behind me in all the father's aspects. His advice and opinions always kept me on the right way and I will always try to be as he wanted me to be. Loosing him by itself was hard and difficult adding to this that he left me in the most critical part of my research: in the field work part. His absence at first frustrated me, but after sometime, it re-encouraged me to fulfill my research and get the degree to please him as I always did and will always do.

I would like also to thank my mother, Bushra who passed the nights beside me all the way long and planted in me not only the best morals and ethics, but also the importance of education. From my mother I learnt what patience means and how to be patient while smiling all the time for the light is always their but one should work hard to accomplish dreams.

As for my best friend ever, my sister Rasha, I would like to thank her for being my right hand and my assistant in everything. She was beside all the time with her sense of humor encouraging me sometimes and chiding me sometimes.

I can not forget my brothers Ala and Ahmad who were with me along the trip. Their advice and opinions will always be with me as long as I will live.

I would like also to express my love to my dear Aunts Hanifeh and Ghada who supported me along the trip.

I would like also to thank my supervisor Dr. Ayesha Al Rifai for her guidance to me and her patience with me to finish my research and get my master degree.

Many thanks go to Dr. Nuha EL Sharif for her great effort and help for me in order to present this thesis in a better shape.

And finally, I would like to thank my friends and colleagues and the staff in The School of Public Health at Al-Quds University for their sincerity in work and helping all the students in every aspect they need.

Abstract

Oral contraceptives are of the hormonal contraceptives that prevent pregnancy through their action on hormones in the woman's body. They have high efficacy and their failure is due to discontinuation and inconsistence use. Compliance and continuation are important factors so that oral contraceptives exert their effects in high efficacy. Poor compliance to oral contraceptives affects the desired effects of oral contraceptives negatively and unwanted outcomes may result in. Improvement of oral contraceptives compliance is the responsibility of the health team side by side with the users. Knowledge about oral contraceptives helps provide good compliance and thus high efficacy. Provision of information to women using oral contraceptives is a very important issue that needs effort and focus in order to improve knowledge and increase compliance. Oral contraceptives are widely used in Palestine. Oral contraceptives are the second most used contraceptive method, whereby 50.6% of married women use the oral contraceptives in Palestine distributed as 55.1% in the West Bank and 43.0% in Gaza Strip.

The study aim is to investigate compliance to oral contraceptives usage and its determinants among current users in the West Bank

The study objectives are to evaluate level of women's knowledge of oral contraceptives and how it affected compliance, examine the relation between compliance and oral contraceptives use pattern, examine the effect of women's health status and maternal history on compliance to oral contraceptives and identify the effects of demographic and socioeconomic factors on compliance to oral contraceptives.

This is a cross sectional study that was carried out at the Palestinian Family Planning and Protection Association in Bethlehem, Halhoul, Hebron, Ramallah and Tulkarem from December 1, 2007 to March 31, 2008. All women visiting the association and were current users of oral contraceptives were asked to fill in the study questionnaire. During the study period, 149 women filled in the study questionnaire.

Women participating in the study were distributed as follows between districts: 39.60% from Halhoul, 32.21% from Hebron, 11.41% from Tulkarem, 10.07% from Bethlehem and 6.71% from Ramallah. As for distributions according to locality; 69.8% of the women were from cities, 29.53% were from villages and 0.67% were from camps. Age of studied women was categorized into groups where 2% were younger than 18 years old, 6.7% were between 19 and 23 years old, 24.2% were between 24 and 28 years old, 26.2% between 29 and 33 years of age while 40.9% were 34 years old or more. The mean (SD) of live children born to a woman was 4.19 (± 2.117) children; minimum number born was one child while maximum number born was 13 children. About 59.7% of women were using oral contraceptives to space between children, whereas 32.9% were using them to stop having children and 4.7% used oral contraceptives due to health problems. Nearly 54.4% of the studied women had intension to stop oral contraceptives' use while 45.6% did not intend to stop oral contraceptives' use. Concerning compliance to oral contraceptives, 89.3% were taking pills regularly all the time, 10.1% were taking the pills regularly most of the times and 0.7% of them were rarely taking the pills regularly. In the

same context, 15.4% of the studied women were missing pills whereby 10.1% missed one pill monthly, 5.4% missed two pills monthly and 0.7% missed three or more pills monthly. The overall compliance in taking pills was described by women as high compliance (87.9%), moderate compliance (10.7%) and poor compliance (1.3%). Occurrence of pregnancy in women using oral contraceptives 4% of the studied women got pregnant while using oral contraceptives. The major source of information for studied women was the nurse (59.7%) followed by the obstetrician (34.2%). The majority of women (85.9%) described the received information to be clear and understandable.

Results of the study showed that knowledge about oral contraceptives by studied women was general and shallow. Specific knowledge of different aspects of oral contraceptives was poor and need to be worked on. Compliance to oral contraceptives was high pointing to the real desire of women to achieve the contraceptive effect of oral contraceptives.

As a result for the study, the researcher recommends that women using oral contraceptives need to receive more oral information in addition to written information in Arabic about oral contraceptives in a way covering all the important aspects women need to know. Educational programmes for oral contraceptives and other contraceptive methods are also recommended in order to help provide women with knowledge about available methods and choices for contraception.

محددات الالتزام نحو أستخدام أقراص منع الحمل بين النساء المستخدمات لها في الضفة الغربية

إعداد: إيناس إبراهيم خليل العمد.

إشراف: د. عائشة الرفاعي.

ملخص:

أقراص منع الحمل هي من وسائل منع الحمل الهرمونية التي تمنع الحمل من خلال العمل على الهرمونات في جسم المرأة. هذه الأقراص لديها كفاءة عالية وسبب فشلها يعود لقطع استخدامها و الاستخدام الغير منتظم. يعتبر الاستخدام المنتظم والمداومة عليه من العوامل الهامة لتقوم أقراص منع الحمل بإعطاء نتائجها المرجوة وبكفاءة عالية. قلة الاستخدام المنتظم لأقراص منع الحمل يؤثر على الآثار المرجوة منها سلباً مما قد يؤدي إلى حدوث نتائج غير مرغوب فيها. تحسين الانتظام في استخدام أقراص منع الحمل هي مسؤولية الفريق الصحي جنبا إلى جنب مع المستخدمين. المعرفة عن أقراص منع الحمل تساعد على توفير استخدام منتظم أفضل وبالتالي كفاءة عالية. تزويد النساء بمعلومات حول أقراص منع الحمل هي قضية هامة جدا تحتاج إلى جهد وتركيز من أجل تحسين المعرفة وزيادة تناول الأقراص بانتظام. تستخدم أقراص منع الحمل على نطاق واسع في فلسطين. وتعتبر أقراص منع الحمل كثاني أكثر وسائل منع الحمل المستخدمة في فلسطين، حيث تستخدمها 50.6 ٪ من النساء المتزوجات موزعة على النحو التالي: 55.1٪ في الضفة الغربية و 43.0 ٪ في قطاع غزة.

وتهدف الدراسة إلى فحص مدى التزام النساء المستخدمات لأقراص منع الحمل بها ومحددات هذا الالتزام بين المستخدمات الحاليات في الضفة الغربية.

الأهداف العامة للدراسةهي تقييم مستوى معرفة النساء المستخدمة لأقراص منع الحمل وأثرها على الالتزام بإستخدامها، دراسة العلاقة بين الالتزام ونمط استخدام أقراص منع الحمل، دراسة تأثير الوضع الصحي للمرأة التاريخ الإنجابي لها على الالتزام في استخدام أقراص منع الحمل

وتحديد الآثار الديموغرافية والعوامل الاجتماعية والاقتصادية على الالتزام في استخدام أقراص منع الحمل.

هذه الدراسة هي دراسة مقطعية تم أجراؤها في جمعية تنظيم وحماية الأسرة الفلسطينية في كل من بيت لحم، حلحول، الخليل، رام الله وطولكرم في الفترة من 1 كانون الأول / ديسمبر 2007 إلى 31 آذار / مارس 2008. كل النساء المراجعات للجمعية واللاتي كن يستخدمن أقراص منع الحمل طُلب منهن تعبئة استبيان الدراسة. وخلال فترة الدراسة، قامت 149 سيدة بتعبئة استبيان الدراسة.

كان توزيع النساء المشاركات في الدراسة بين المحافظات على النحو التالي: 39.60٪ من حلحول ، 32.21 ٪ من الخليل، 11.41 ٪ من طولكرم، 10.01 ٪ من بيت لحم و6.71 ٪ من رام الله. أما بالنسبة للتوزيع وفقا للتجمعات السكانية: 69.8 ٪ من النساء كن من المدن ، 29.53 ٪ من القرى و0.67٪ من المخيمات.تم تصنيف أعمار النساء المشاركة في الدراسة إلى مجموعات وكانت النتائج على النحو التالي: 2 ٪ تقل أعمارهم عن 18 عاما ، 6.7 ٪ تتراوح أعمارهم بين 19-23 عاما ، 24.2 ٪ بين 24-28 عاما ، 26.2 ٪ بين 29-33 سنة من العمر في حين 40.9 ٪ كانت34 عاما أو أكثر. كان متوسط عدد الأطفال للمرأة 4.19 (انحراف معياري ± 2.117) طفل، وكان الحد الأدنى لعدد الأطفال للمرأة طفل واحد بينما كان الحد الأقصى لعدد الأطفال 13. نحو 59.7 ٪ من النساء المستخدمة لأقراص منع الحمل كانت تستخدمها للمباعدة بين الأطفال، في حين أن 32.9 ٪ منها كانت تستخدمها لوقف إنجاب الأطفال و4.7٪ كانت تستخدم أقراص منع الحمل بسبب مشاكل صحية. ما يقارب من 54.4 ٪ من النساء المستخدمة لأقراص منع الحمل أردن إيقاف استخدامها في وقت ما بينما 45.6 ٪ لا تعتزم وقف استخدامها. بخصوص الاستخدام المنتظم لأقراص منع الحمل، 89.3 ٪ كن يأخذن الأقراص بانتظام طوال الوقت ، 10.1 ٪ كن يأخذن الأقراص بانتظام معظم الوقت و 0.7 ٪ منهن نادراً ما كن يأخذن الأقراص بانتظام. وفي السياق نفسه ، 15.4 ٪ من النساء في الدراسة كانت تنسى أخذ الأقراص حيث أن 10.1 ٪ منهن كن ينسين أخذ قرص واحد شهريا ً و5.4 ٪ تنسى أخذ قرصين شهرياً، في حين أن 0.7 ٪ تنسى أخذ ثلاث أقراص أو أكثر شهريا. بشكل عام، فإن الاستخدام المنتظم لأخذ أقراص منع الحمل تم وصفه النساء من قبل النساء على النحو التالي: انتظام عالي (87.9 ٪) ، انتظام متوسط (10.7 ٪) وانتظام ضعيف (1.3 ٪). حدوث الحمل في النساء اللاتي يستخدمن حبوب منع الحمل كان

قليلا؛ 4 ٪ فقط من النساء في الدراسة حدث لهن حمل بينما كن يستخدمن أقراص منع الحمل. المصدر الرئيسي المزود للمعلومات للنساء في الدراسة كانت الممرضة (59.7 ٪) يليها الطبيب أخصائي أمراض النساء والتوليد (34.2 ٪). غالبية النساء (85.9 ٪) وصفن المعلومات المتلقاة بواضحة ومفهومة.

تبين من نتائج الدراسة **أن** معرفة النساء بأقراص منع الحمل كانت معرفة عامة وسطحية. المعرفة الدقيقة للجوانب المختلفة حول أقراص منع الحمل كانت متواضعة و بحاجة إلى مزيد من العمل. الالتزام باستخدام أقراص منع الحمل كان عالياً وهذا يشير إلى الرغبة الحقيقية للمرأة في الحصول على النتائج المرجوة وهي منع الحمل نتيجة لاستخدام الأقراص المانعة للحمل.

نتيجة لهذه الدراسة، فإن الباحثة توصي بأن النساء اللواتي يستخدمن أقراص منع الحمل بحاجة للحصول على معلومات شفهية بالإضافة إلى معلومات مكتوبة باللغة العربية حول أقراص منع الحمل بطريقة تغطي جميع الجوانب الهامة التي تحتاج المرأة لمعرفتها. يوصى أيضاً بعقد برامج تعليمية حول أقراص منع الحمل وغيرها من وسائل منع الحمل من أجل المساعدة في تعريف المرأة بجميع الوسائل والخيارات المتاحة لمنع الحمل

Table of Contents

List of Tables

List of Figures

List of Appendices

Chapter 1

Background and Significance

1.1 Background

1.2 Problem Statement and Study Justification

1.3 Study Setting

1.4 Aim of the Study

1.5 Objectives of the study

1.6 Study Assumptions

1.7 Study Limitations

1.8 Thesis Structure

1.1 Background

Birth control and family planning are of the major public health hot issues discussed worldwide. Literature showed that there are several birth control methods that have different directions, mechanisms, effectiveness and both human and material costs. Birth control methods are usually classified into: physiologic methods, chemical barrier, mechanical barrier, intrauterine devices, subdermal implants and systemic hormonal control (Dunnihoo, 1992). Contraception was defined as the prevention of unwanted pregnancy and can be achieved by various means (Martin, 1996). The practice of contraception has been recognized by people since ancient times and different contraceptive measures have been used; some of these methods are counted to be natural while some are considered artificial (Dunnihoo, 1992).

The first hormonal contraceptive that was approved for marketing was in the United States in year 1960. This contraceptive was consisted of an estrogen and a progestin in tablet form designed to be taken orally by women (Petitti and Sidney, 2005). In the United States, the Food and Drug Administration has approved the use of different birth control methods starting with over the counter methods, passing by prescription medications up to surgical options. The choice of birth control methods depends on different criteria of which the most important are: woman's health, age, will to have children in future in addition to income (FDA, 1997).

Oral contraceptive or "pill" is a preparation consisting of synthetic female sex hormones taken by women to prevent conception (Martin, 1996). There are two types of oral contraceptives: combinations of estrogens and progestin, usually called "the pill", and progestin only tablets without the addition of estrogen, usually called "the mini pill" (Katzung, 2004). A large number of preparations are now available for oral contraception. When these medications are taken properly, the risk of conception is small; pregnancy rates are 0.5-1 for 100 women at risk (Katzung, 2004).

Like any other medication, oral contraceptives have side effects some of which are mild and reversible while others are severe and could be irreversible. Mild side effects are like: nausea, headache and breast tenderness. Moderate side effects include: break through bleeding, weight gain, increased skin pigmentation, acne, hirsutism, urethral dilation, vaginal infections and amenorrhea. Severe side effects are: vascular disorders like venous thrombosis or myocardial infarction, gastrointestinal disorders, depression and cancer (Kalant and Roschlan, 1998). Nevertheless, oral contraceptives have beneficial effects especially when using the low dose forms. These benefits include: reduced risk for ovarian cancer and benign breast tumor, lower incidence of ectopic pregnancy, decreased premenstrual symptoms, decreased menstrual cramps and bleeding and decreased risk for anemia and iron deficiency (Katzung, 2004).

In conclusion, since oral contraceptives are widely used and have benefits, adverse effects and risk factors; family and personal history of women using them should be completely attended to. Equally important is their provision with complete information

and instructions about them so as to prevent problems and overcome them in case of occurrence (Katzung, 2004).

The Palestinian Central Bureau of Statistics conducted a study using qualitative research methods on Palestinian Maternal and Child Health between February and December 1999. Results showed that the most popular methods of birth control used were the intra uterine devices (IUD) followed by oral contraceptives (PCBS, 1999).

According to Palestinian Ministry of Health, the percentage of oral contraceptives used of the total contraceptive in governmental family planning clinics is 33.2% (35.6% in GS and 31.9% in WB) (MOH, 2004).

Despite this fact, women's knowledge about oral contraceptives'; exact benefits, side effects, or directions remain notably limited. Uncontrolled missed doses often result in unwanted high-risk pregnancy when pills are being taken long before pregnancy has been ascertained.

1.2 Problem Statement and Study Justification

Since oral contraceptives are widely used and their use is on the rise, women using them should be well informed with every detail concerning them including : dosage, directions, benefits, side effects, interactions, precautions, risk factors and costs.

Smith and Whitfield conducted a study in 1995 to determine the factors associated with women's knowledge on how to take oral contraceptives correctly and then to examine improvement in their knowledge after providing them with leaflets about oral contraceptives and how to take them correctly so as to decrease the number of unplanned pregnancies in the United Kingdom. Data collected and analyzed revealed the improvement in women's knowledge and the possibility of reducing the number of unplanned pregnancies and abortion following the provision of information for women on oral contraceptives (Smith, 1995).

In 1994, Monash University at Box Hill Hospital in Victoria, a study was conducted to investigate whether medical practitioners were giving women important instructions concerning oral contraceptives as well as simple instructions. Results showed that information provided were mainly about: what to do if a dose was missed, if antibiotics were taken and if vomiting or diarrhea took place (Kovacs and Murtagh,1994).

According to Townsend (Network, 1993), the 70 million women in the world using oral contraceptives could be more if some regulations, medical practices or attitudes do not prevent them to. These regulations and practices are not scientifically justified and hinder even unrisky women from using oral contraceptives. Guidelines for oral contraceptives contraindications were put by WHO and other agencies, e.g., smoking women older than 35 years are at risk for using oral contraceptives and progestin-only tablets are the ideal ones for lactating women (Townsend, 1993).

In 1999, Sydney Centre for Reproductive Health Research conducted a study about interactions between oral contraceptives and antibacterials/antifungals. The findings indicated that women taking both antibacterials and oral contraceptives should be informed of their interaction and of the precaution steps to take (Weisberg, 1999).

Despite the fact that oral contraceptives are considered the most reversible birth control method used, they still have the possibility for the occurrence of unplanned pregnancy. A pilot study at the family planning centers in Australia revealed that the most common reasons for these pregnancies were missed doses, drug interactions or malabsorption due to vomiting or diarrhea. Results obtained from the study confirmed the effects of the mentioned factors on oral contraceptives effectiveness and the need for additional contraceptive method along with the first seven tablets taken to eliminate the possibility of decreasing the oral contraceptives effectiveness by the mentioned factors (Kovacs, 1998).

Due to the specific and difficult situations of the Palestinian people as a result of occupation itself and its consequences over years, the interests of Palestinian people and government differ from those of other countries. Other countries have adopted specific population policy while Palestine is categorized as a state without population policy. It is well noticed that countries adopting population policy have accomplished development by controlling population growth to meet their limited resources. In Palestine, fertility is high, resources are limited and health conditions are improving so that life expectancy has been increased. These factors resulted in delaying progress in the development process as revealed in demographic and health surveys (PCBS, 2004).

Knowledge is a very important factor in the use of family planning methods since absence of knowledge limits the adoption of such methods. In Palestine, knowledge of family planning methods is high and was 99.4% in 2004 distributed as 99.3% in the West Bank and 99.6% in Gaza Strip. Variations of knowledge are seen with increasing level of education of women whereas place of residence barely showed a difference. The percentage of knowledge about intra uterine devices was 99.3% in 2004 while knowledge about oral contraceptive pills was 98.7% (PCBS, 2004). Although knowledge of family planning method in Palestine is high, 73.9% of ever married women ever used a family planning method. Reasons for not using family planning methods are varied including:

- desire to have children
- objection from in-laws
- religious reasons (9%)
- fear from side effects (9.5%)
- not convinced in family planning methods (5.3%)

These reasons show how the social attitudes and beliefs are the major reasons for not adopting family planning methods. In other words, about quarter of the stated reasons can be reduced by education and increasing awareness based on scientific information so as to increase family planning methods use (PCBS, 2004).

As seen in different demographic and health surveys, the intra uterine device is the most widely family planning method used in Palestine. Reasons for using the intrauterine device more are its convenience, its long term effectiveness and because it does not affect sexual relation (PCBS, 1998). In general, women depend on medical advice for choosing the contraceptive method which means that health care providers need to promote other methods in addition too the intrauterine device. Refusal to use oral contraceptive pills or injections is due to beliefs that they cause infertility. Other reasons behind that are that women believe that oral contraceptives cause obesity, nervousness, headache, swelling, a decrease in breast milk, irregular menstruation and cancer. (PCBS, 2000).

Regarding the perception of Islam to family planning, Palestinian religious leaders have stated in mosques and via mass media that contraception to ensure adequate child spacing and to ensure mother's health is supported by Islam (PCBS, 2000).

This study is concerned in exploring the level of knowledge women using oral contraceptives have. Women current users of oral contraceptives who obtain their pills from the clinics of The Palestinian Family Planning and Protection Association (PFPPA) will be surveyed to determine the quantity and quality of information they have on various aspects of oral contraceptives with particular reference to the ones they currently use. This is in addition to the adherence levels and motives of the women themselves. This way, gaps are detected and employed as grounds for determining suggested interventions. Anticipated deficits are expected to relate to: incomplete information by doctors, unclear instructions given by pharmacists and nurses or poor adherence and compliance by the women themselves.

1.3 Study Setting

Clinics of the PFPPA in Bethlehem, Halhoul, Hebron, Ramallah, and Tulkarem.

1.4 Aim of the Study

Investigate determinants of compliance to oral contraceptives usage among current users in the clinics of the PFPPA in Bethlehem, Halhoul, Hebron, Ramallah, and Tulkarem.

1.5 Objectives of the Study

1.5.1 General Objectives:

- Examine women's knowledge concerning oral contraceptives' use and its effect on compliance.
- Examine the relation between oral contraceptive use patterns and compliance.
- Explore the effect of women's general health status on compliance to oral contraceptives' usage.

- Explore the effect of women's maternal history on compliance to oral contraceptives' usage.

- Identify the effects of demographic and socioeconomic variables on compliance to oral contraceptives' usage.

1.6 Study Assumptions

- Compliance problems are due to poor knowledge.

- Poor knowledge is related to women's fear to communicate their problems or concerns with the health care team.

1.7 Study Limitations

1. Small sample size.

2. The study can not be generalized to the whole community since it only covered certain association and also because certain districts were covered.

3. Reaching Tulkarem are by the researcher was difficult, so data were collected their by the PFPPA.

4. The questionnaire used in the study was composed of nearly 90 questions; filling it in needed a long period of time.

5. Filling in the questionnaire depended mainly on respondents' memory leaving the researcher with the recall effect.

1.8 Thesis Structure

The thesis is presented in six chapters listed as follows:

Chapter One

This chapter contains background, problem statement and study justification, study setting, aim of the study, study objectives, research questions, study assumptions, study limitations and description for the study chapters.

Chapter Two

This is the literature review chapter in which studies about contraceptive use in general and coral contraceptive use in specific are discussed. Different studies are included from different regions. International, Arab and Palestinian statistics concerning contraception use and family planning are stated. This chapter also contains religion's point of view

towards family planning and contraception. In addition, oral contraceptives are discussed from different aspects like: their action and efficacy, factors behind their use, different behaviors and attitudes towards oral contraceptives use, the definition of compliance and how it affects oral contraceptives use and finally oral contraceptives related mortality.

Chapter Three

Terms used in the study are defined in this chapter in addition to conception and contraception definitions. Different contraceptive methods are also discussed in this chapter. Model used in the study according to which variables were connected and thus analysis was made is found in this chapter.

Chapter Four

This is the methodology chapter that talks about the study design, sample determination, inclusion and exclusion criteria, research field, ethical consideration, research tool, the pilot study, data collection, research obstacles and data analysis.

Chapter Five

This is the results chapter in which data analysis results are presented. Data analysis was made in two parts: descriptive analysis and univariate analysis. In the descriptive analysis, nearly all variables asked for in the study were analyzed into counts and percents and results were shown in tables and figures. Concerning the univariate part of the analysis, cross tabulation was made and Pearson chi square was the test used.

Chapter Six

This chapter includes discussion of the main results of the study. Comparison between findings of the study and findings of some regional and international studies are included in this chapter. The chapter also includes conclusions of the study and recommendations for future research plans.

Chapter 2

Literature review

2.1 Introduction

The issue of contraception is not a new one; it is considered to be as old as humanity. It has been practiced in its different forms throughout history. Reasons for contraception have been mainly classified as economic or political (Tindall, 1987; Dunnihoo, 1992).

Since ancient years, history has witnessed the use of different methods. Coitus interrupts, douches, vaginal insertion of some animal extracts have been used long ago. In a1350 B.C., Egyptians developed penile sheaths which were used till 1504 A.D. Afterwards, in the nineteenth century, rubber condoms became widely available. Around the beginning of the century, appeared the concept of family planning and population education in this issue became a career. By 1915, diaphragms and cervical caps were introduced into use. In 19650, contraceptive hormones were developed where the first study on contraceptive pills appeared in 1956. In 1960, the pill was approved by the FDA and then Searle Pharmaceutical Company marketed the first oral contraceptive pill (Dunnihoo, 1992).

As time goes on, the world population increases and thus humanity is put in challenge with the scarcity of resources. In the last century, there has been great development in the contraceptives production. It is expected that this development will be more in the years to come so that more efficient compounds and techniques are to be developed. The increase in the world population necessitates the recognition of governments to the importance of family planning and population growth control because of the scarcity of world's resources. It is anticipated that governments will oppose policies that will be forced by law in a way similar o that followed in China so as to control population growth in a more strict way (Dunnihoo, 1992).

Contraception is considered to have different consequences that affect the family itself, the community and the world in general. In the past, population growth was limited because of high death rates. But now, developments in sanitation and health facilities resulted in death control especially in infants and children and this resulted in increased rate in population growth. Contraception is usually an individual choice that couples choose for different reasons. Mainly, contraception is followed to help in family planning application either by birth spacing or by limiting family size and thus decreasing population growth. Some cases of husband or wife health problems enforce the use of contraceptive methods especially in conditions where the wife has a chronic systemic disease or when the disease in question can be transmitted to the fetus. In general, contraception is now followed in places around the world for different reasons that have an overall result presented in population growth decrease (Tindall, 1987).

The use of different methods of contraception has increased in the last 30 years all around the world. However, this increase is not directly related to reduction in unintended pregnancies nor has it shown better compliance in contraception use (Shields, 2006).

More than 100 million women depend on the oral contraceptive pill as a method for contraception worldwide. Half of the married women in Western Europe use the oral contraceptive pill and thus rendering it as the most popular contraceptive method in

Western Europe. However, in countries of southern east Asia like china, India and Japan, the oral contraceptive pill is used to a lesser extent (Blackburn, *et al.*, 2000).

2.2 Contraception and Religion

In the past religion, politics and law had been considered as limitations for the use of contraceptives whereas they do not nowadays have a significant effect (Jones, 1999).

Islamic literature has shown that the use of contraceptive methods was not forbidden by Islam since its early days. Islam has approved the use of nonpermanent contraceptive methods. *Table 2.1* shows several legal opinions in Islamic jurisprudence (Fatwa) and conferences against contraception in the twentieth century:

Table 2.1: Several Legal Opinions in Islamic Jurisprudence (Fatwa) and Conferences against Contraception in the Twentieth Century

Year	Fatwa (religious scholar) or conference	Major commentary
1937	*Fatwa* (*Sheik** Abdul-Majid Saleem, Mufti of Egypt)	The use of family planning through *al-azl* (coitus interruptus) and new contraceptive methods is sanctioned.
1964	*Fatwa* (*Sheik* Abdulllah Al-Qalqili, Mufti of Jordan)	There is clear indication in *Sharia* that contraception is definitely allowed.
1965	The academy (high council) of Islamic research in Cairo, Egypt	Couples are free to practice family planning according to individual conscience and sense of religion>.
1971	The "Islam and family planning" conference in Rabat, Morocco	The Islamic law gives the Muslim family the right to deal with sterility and to plan suitably spaced pregnancies using safe and lawful contraceptive methods.
1979, 1980	*Fatwa* (*Sheik* Jadel Haq, Mufti of Egypt	The contraception in not antagonistic to the truth of God, neither is it a contradiction to the will of God.
1988	*Fatwa* (*Sheik* Sayyid Tantawi, Mufti of Egypt	Family planning is sanctioned liberally for economic, cultural or health reasons.

Source: (Sueyoshi, et al, 2006)

According to Islam and based on sources of Shari'ah (Quran, Hadeeth and Qiyass), family planning is considered not forbidden. Where Quran is the word of God, Hadeeth is Prophet Muhammad tradition and words base on the revelation of God, Qiyass is analogy and Shari'ah is a complete detailed code of conduct based on rules and regulations revealed to the prophet Muhammad in the Quran and Hadeeth. However, different positions to family planning are seen by Muslim authorities (Mecca in Saudi Arabia, Al

Azhar in Egypt, and Qum in Iran). Opponents to family planning build their opposition on the fact that *Quran* described children as great assets and that larger number of Muslims means greater power. On the other hand, supporters of family planning state that family planning originated among Muslims fourteen centuries ago long before its appearance in the West. They quote that Imam Ali (the fourth Caliph) denied in the presence of the second Caliph Omar that "al azl" (coitus interruptus) was "wa'd (killing). In the same context, breastfeeding as mentioned in the *Quran* would last two years after delivery and breastfeeding is still one of the normal and traditional methods of family planning used till nowadays. (Hasna, 2003).

In one of his collected sayings "*Hadeeth*", Prophet Muhammad was asked about withdrawal and replied that it was permitted for if God wanted to create something no one could prevent it. Based on this it was interpreted by analogy "*Qiyas*s" that nonpermanent contraceptive methods are allowed to be used (Underwood, 2006).

So in other words, the idea that Islam is against contraception or family planning should be related to misunderstandings and misconceptions of Islam rules in this area where social and cultural aspects of Islamic world in general and Arab world in specific were behind this idea (Hasna, 2003). .

2.3 Contraception Internationally

Contraceptive methods use differs between developed and developing countries. Developed countries have high percentage of contraceptive use. For example, 98% of the sexually active females in United Kingdom in years 2004 & 2005 were reported to use a method of contraception (Shields, 2006).In developed countries, the oral contraceptive pills are the most widely use method where 16% of married women use the contraceptive pill followed by the intrauterine device and the condom with a percentage of 14% and finally come the traditional methods with a percentage less than 14%. As for the developing countries, 6% of married women use the pill, 13% use the intrauterine devices and 21% use the female sterilization method. However, since the oral contraceptive pill use in India and china has been limited, excluding them from these estimates changes the percentages of contraceptive methods use totally; i.e. oral contraceptives become the most widely used with a percentage of 10%, followed by female sterilization 9%, then traditional methods 8% and finally intrauterine devices 7% (Blackburn, *et al.*, 2000).

Oral contraceptives are the most widely used contraceptives in Europe and the world (Rosenberg, *et al.*, 1995). Oral contraceptives are the most commonly used method of contraception in the United States; 30% of women of reproductive age in USA use oral contraceptives (Huber et al., 2006). More than 10 million women in the United States use oral contraceptives in order to prevent pregnancy. Unintended pregnancy resulting while using oral contraceptives was mainly related to incorrect or inconsistent use, side-effects experience or women dissatisfaction (Hansen and Saseen, 2004).

Following a survey data on ever using a contraceptive method, the oral contraceptive pill was the most method to be used in 44 out of 68 developing countries. Excluding China

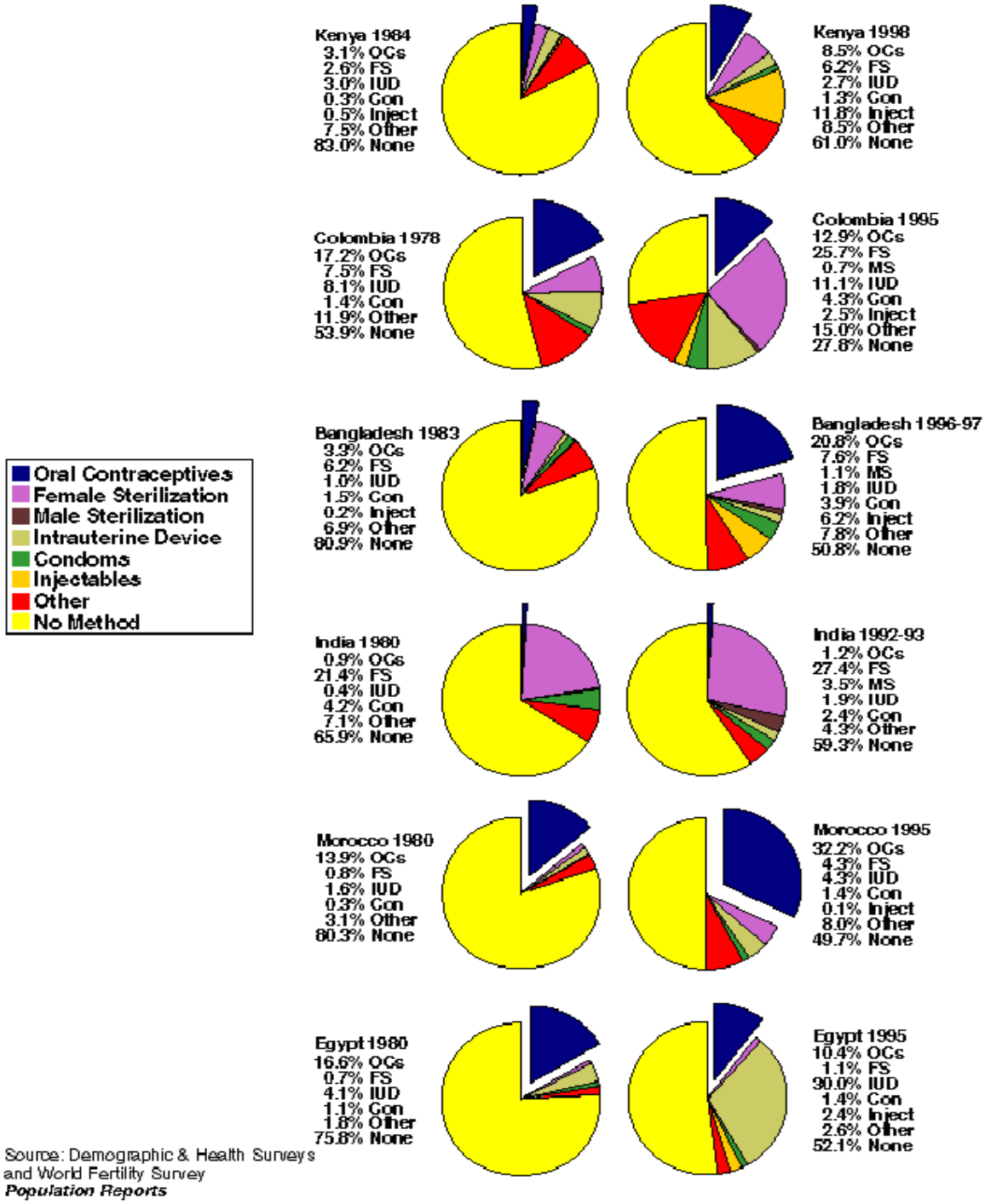
(no recent data of ever pill use), 40% of married women in these 68 developing countries had used the pill in their lives. Examples of oral contraceptive use in some developing countries:

- 80% of married women in Brazil have used the pills in their lives
- nearly 66% of married women in Morocco have ever used the pills
- 44% of married women in Algeria were using the oral contraceptive pill in 1995
- 23% of married women in Iran reported using the pills
- 24% of married women in Kuwait reported using the pills

However, oral contraceptives use is more common in developed countries than in developing countries, e.g.

- 94% of eastern German women have used the pill
- 86% of surveyed women in Canada in 1995 had used the pill
- 80% of women in the United States born since 1945 have used the pills (according to an estimate in 1990).

Patterns and percentages of use for the different types of contraceptive methods change constantly. *Figure 2.1* shows changes in distribution of contraceptive methods use in selected developing countries (Blackburn, *et al.* 2000).



Source: (Blackburn, *et al.*, 2000)

Figure 2.1: Change in Contraceptive Method Mix in Selected Developing Countries (1978–1998)

As for Arab countries, according to Demographic Health Survey (DHS) in 2003 fertility rate was 4.4 per Jordanian woman and contraceptive use was 37.7%. Intrauterine devices and oral contraceptives are the most popular methods of contraception among Jordanian women. According to Demographic Health Survey (DHS) in 2003; 22.3% of Jordanian women used intrauterine devices and 6.3% used oral contraceptives. This percentage for oral contraceptives use is due to women's beliefs and misconceptions of oral contraceptives (e.g. having side-effects like: cancer, weight gain or infertility). Concerning reasons for discontinuation of oral contraceptives among Jordanian women side-effects had the higher percentage with (33.4%), followed by health concerns (6%), inconvenience (3.8%) and finally fatalism (0.2%) (Kridli and Newton, 2005).

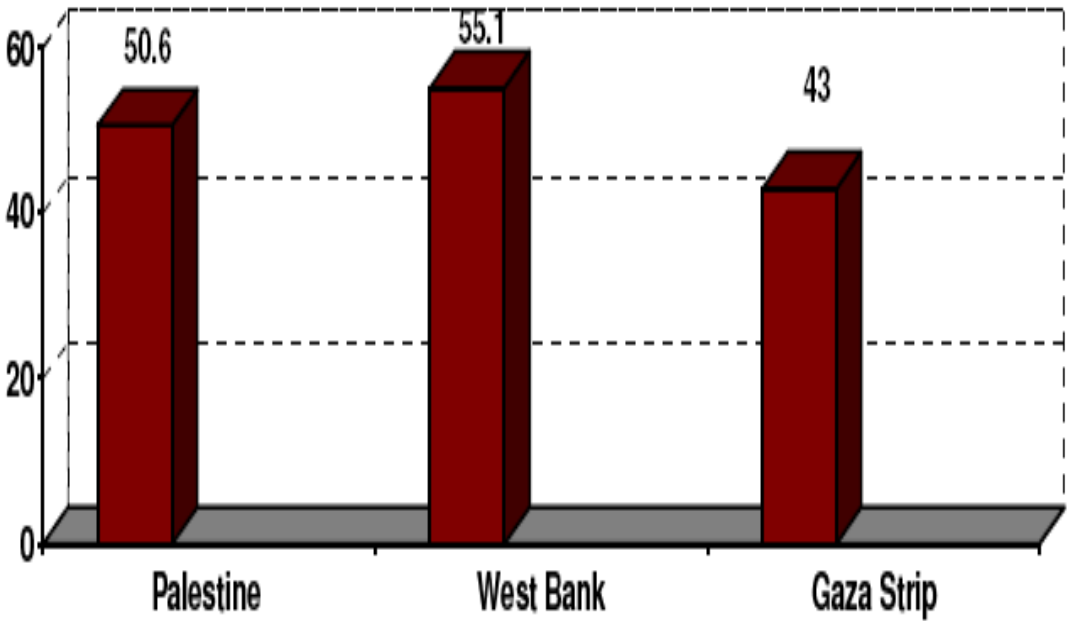
Talking about Palestine necessitates mentioning the status of Arab citizens in Israel. Families of Arab citizens in Israel are in general characterized by having five children or more. Fertility rate of Muslim women in Israel is 4.6 whereas that of Jewish women is 2.6 (Abu Ahmed, *et al.*, 2003).

Many studies have been conducted in Israel concerning contraceptive use addressing in particular the condition of women in the Arab population. However, Arab women attitudes towards family planning and contraception use have not been studied yet. A study was conducted in the Arab villages in which Arab women using contraceptives were the studied population. In this study, family planning and the use of contraceptives among Arab women in Israel was examined. Of the obtained results, 6.9% of the participating women (303) were using oral contraceptive pills, 60.8% were using IUDs and 11.2% had had tubal ligation (Abu Ahmed, *et al.*, 2003).

2.4 Contraception in Palestine

Concerning Palestine whose total fertility rate was calculated to be 4.6 (5.8 in Gaza Strip and 4.1 in the West Bank) 2005 (MOH, 2005), the most popular contraceptive methods used were: the intra uterine devices (IUD) followed by oral contraceptives (PCBS, 1999).

According to the Demographic Health Survey conducted by the PCBS in 2004, the contraceptive prevalence rate in Palestine was 50.6 %(55.1% in the West Bank and 43.0% in Gaza Strip) as shown in (*Figure 2.2*) (MOH, 2005).



Source: (The Status of Health in Palestine, Annual Report, MOH, 2005)

Figure 2.2: Percentage of Currently Married Women Aged 15-49 Years who are Using a Contraceptive Method by Region, 2005

Use of family planning methods was reported to be 55.3% by rural women, 50% by urban women and 44.7% by refugee camp women (MOH, 2005).

A significant increase (16.8%) in the use of contraceptive methods has been noticed in Palestine where the number of all beneficiaries' visits (new and repeated) from family planning services in the Ministry of Health was 110,478 visits in 2005 compared with 94,578 visits in 2004 (MOH, 2005).

In the West Bank, the increase was by 6.5%: from 52,249 visits in 2004 to 55,633 visits in 2005. In Gaza Strip, the increase was by 29.5% from 42,329 visits in 2004 to 54,845 visits in 2005. New beneficiaries getting family planning services of the Ministry of Health centers were 16,474 constituting 14.9% of the total beneficiaries and preferred to use the contraceptive pills among other contraceptive methods (MOH, 2005).

From regional distribution point of view, the most popular contraceptive method in the West Bank was intrauterine devices (40.2%), whereas oral contraceptive pills were the mostly used in Gaza strip (44.9%) as shown in (*Table 2.2*) (MOH, 2005).

Table 2.2: Distribution of Contraceptive Methods Used by New Clients in MOH-Palestine, 2005

Region	clients		Contraceptive methods used by new clients					
	new	repeated	Pills	IUDs	M. Condoms	Ovules	Injections	Total
West Bank	5,154	23,139	1,758	2,072	1,167	21	136	5,154
Percentage			34.1	40.2	22.6	0.5	2.6	100
Gaza Strip	3,887	36,192	1745	823	1129	0	190	3,887
Percentage			44.9	21.2	29.0	0.0	4.9	100
Palestine	9,041	59,331	3,503	2,895	2,296	21	326	9,041
Percentage in 2005			38.7	32.0	25.4	0.2	3.6	100
Percentage in 2004			33.2	39.5	23.7	0.1	3.5	100
Percentage in 2003			34.3	34.8	21.7	5.1	4.1	100
Percentage in 2002			71.9	13.4	13.4	0.2	1.1	100
Percentage in 2001			44.2	36.3	16.5	0.04	2.9	100
Percentage in 2000			48.5	26.5	23	0.1	1.9	100

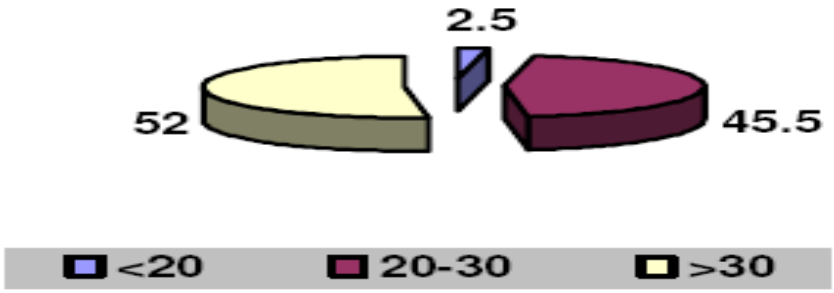
Source: (The Status of Health in Palestine, Annual Report, MOH, 2005)

Different health sectors provide the Palestinian community with family planning methods. Sources of family planning methods differ between the West Bank and Gaza Strip. The main source for family planning methods in the West Bank is the private sector (including hospitals, health centers specialized physicians) with a percentage of 47.6%. In Gaza Strip, the main source for family planning methods is the UNRWA hospitals and health centers with a percentage of 58.1%. (PCBS, 2004)

According to Palestinian Ministry of Health, the percentage of oral contraceptives used of the total contraceptive in governmental family planning clinics is 38.7% (44.9% in Gaza Strip and 34.1% in the West Bank) (MOH, 2005).

Ministry of health is not the only party providing family planning services in Palestine. United Nations Relief and Works Agency (UNRWA) clinics and Non Governmental Organizations clinics (NGOs) also provide family planning services. The most popular contraceptive method in the UNRWA family planning centers were the pills with a percentage of 44.8% followed by condoms with a percentage of 26.1% of total contraceptive methods. As for the NGOs, intrauterine devices wee the most popular method with a parentage of 40.0% of total contraceptive methods (MOH, 2005).

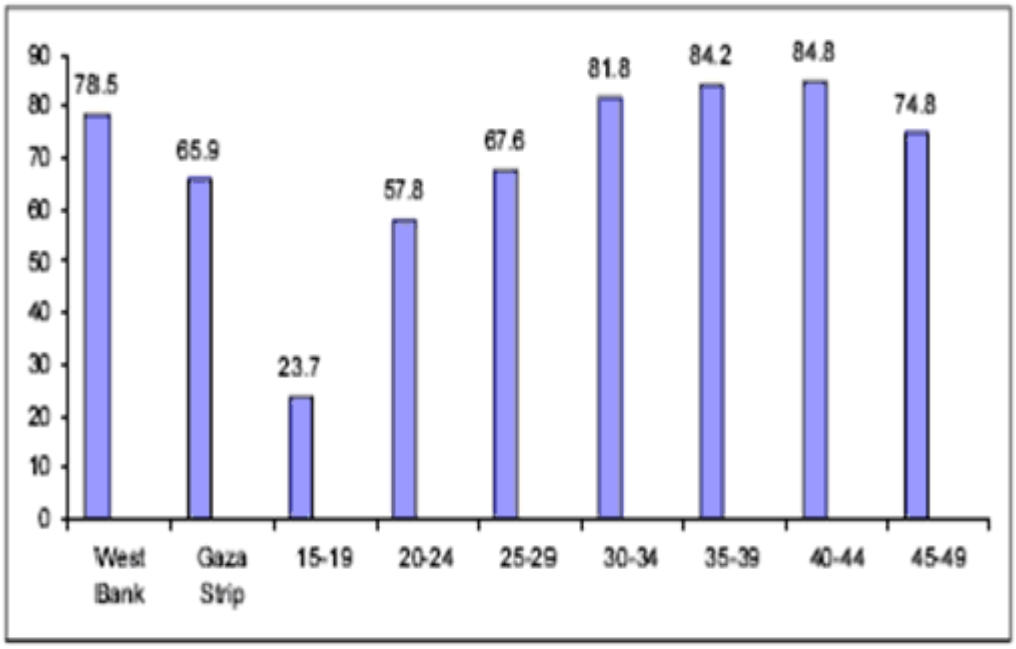
As for age distribution for women using family planning, in the West Bank 2.5% of users were less than 20 years, 45.5% were women between 20-30 years old and 52% were women more than 3o years old as shown in (*Figure 2.3*) (MOH, 2005).



Source: (The Status of Health in Palestine, Annual Report, MOH, 2005)

Figure 2.3: Percentage of Women Using Family Planning Methods by Age groups, West Bank, 2005

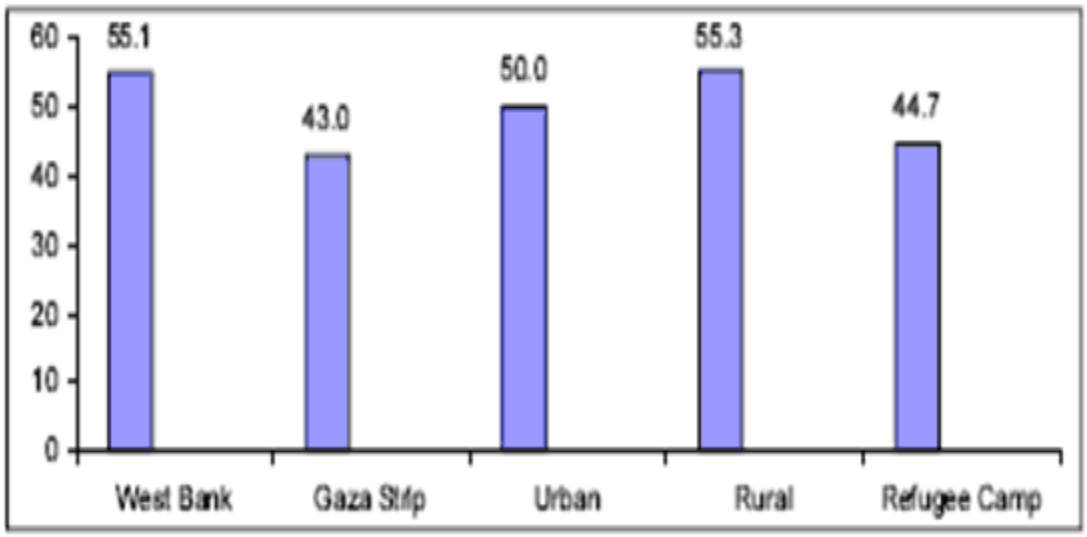
Results of the Demographic Health survey in 2004 showed the effect of age, level of education and place of residence on the use of family planning methods. These results are illustrated in the following figures:



Source: (PCBS, Demographic and Health Survey – 2004: Final Report, February, 2006)

Figure 2.4: Percentage of Women Aged 15-49 Years Ever-Used Family Planning Methods by Region and Age (PCBS, 2004)

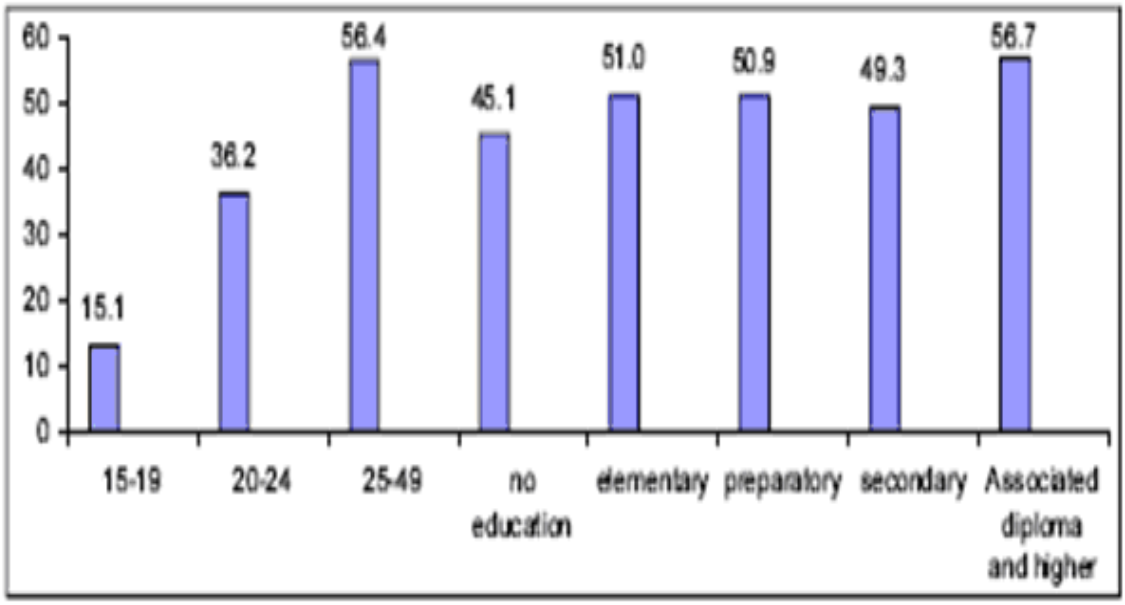
The percentage of women aged 15-49 years who ever-used family planning methods is 78.5% in the West Bank and 65.9% in Gaza Strip as shown in *(Figure 2.4)*. The figure also shows that use of family planning methods is increased with older ages with a peak of 84.8% at the ages 40-44 yrs (PCBS, 2004).



Source: (PCBS, Demographic and Health Survey – 2004: Final Report, February, 2006)

Figure 2.5: Percentage of Women Aged 15-49 Who Currently Use Family Planning Methods by Region and Type of Locality (PCBS, 2004)

The contraceptive prevalence rate in the West Bank is higher than that in Gaza Strip with percentages of 55.1% and 43.0% respectively as shown in *(Figure 2.5)*. It also shows that family planning methods are most widely used in rural areas than in urban areas or refugee camps with percentages of 55.3%, 50.0%, and 44.7% respectively (PCBS, 2004).



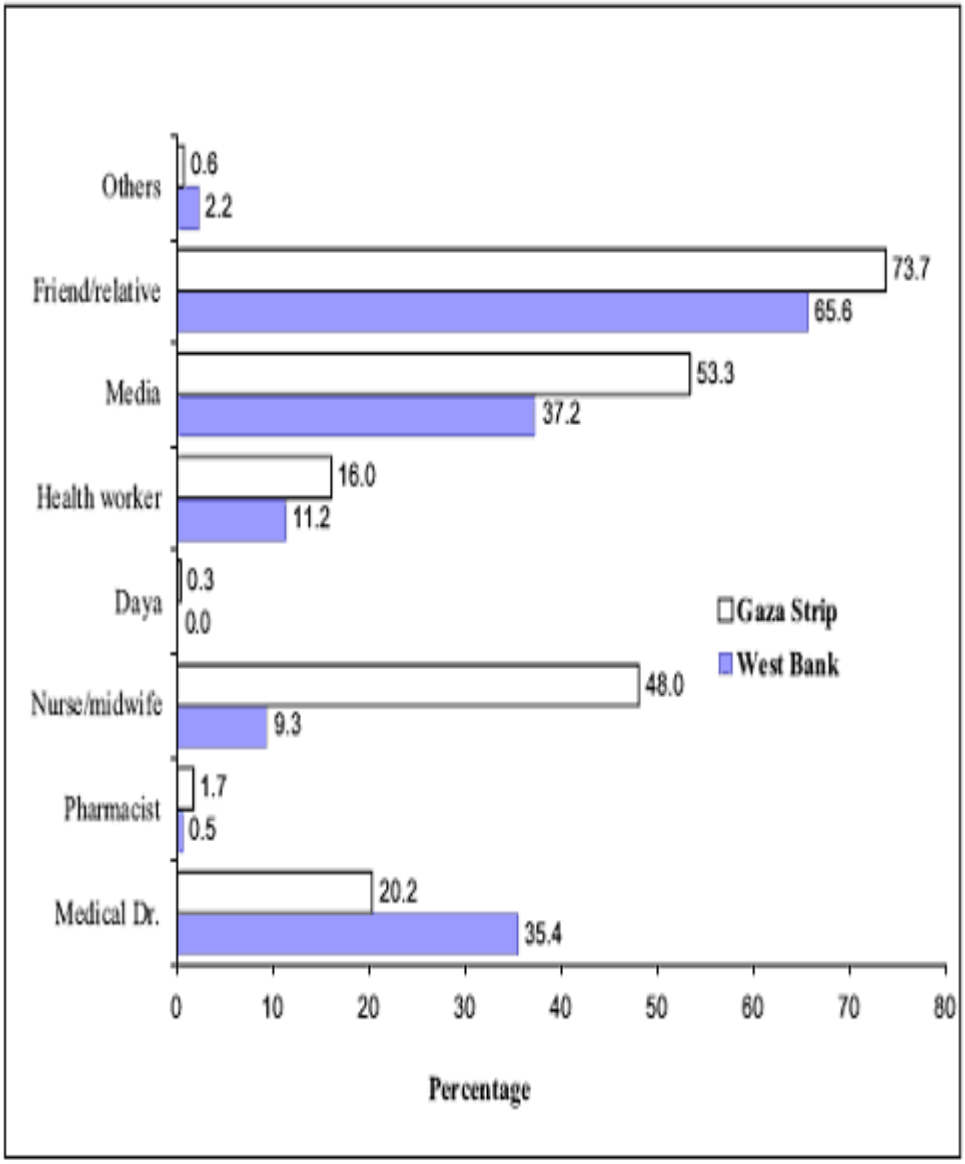
Source: (PCBS, Demographic and Health Survey – 2004: Final Report, February, 2006)

Figure 2.6: Percentage of Women Aged 15-49 Who Currently Use Family Planning Methods by Age and Education (PCBS, 2004)

Figure (2.6) shows that older women tend to use family planning methods more than younger ones. In the same context, women with higher education use family planning methods more than less educated women (PCBS, 2004).

Family planning methods are used to achieve one of two main outcomes: child spacing and/or stop having children. Most of women who ever-used a contraceptive method use it for spacing between children with a percentage of 76% (PCBS, 1998) Number of children the family has is decided by husband and wife with a percentage of (77.9%), the husband alone with a percentage of (13.8%) or the wife alone with a percentage of (6.9%). Nearly 50% of women at child bearing age want to stop having more children, 44.4% want to have more children, 2.4% are not able to have more children and 1.5% are not sure of what they want (PCBS, 2000).

Main sources of information about contraceptive knowledge were a friend or a relative for both West Bank and Gaza Strip followed by media as seen in *(Figure 2.7)*. This implies the needs to examine the quality and level of the information Palestinian women have. As for the main medical source of information, doctors with a percentage of (35.4%) were reported to be as a source of information in the West Bank, whereas nurses with a percentage of (48%) were reported as a source of information for women in Gaza Strip (PCBS, 2000).



Source: (PCBS, Palestinian Maternal and Child Health: A Qualitative National Study, July, 2000)

Figure 2.7: Percentages of Ever-Married Women Aged 15-49 Years by Source of Information about a Contraceptive Method and Region (PCBS, 2000)

Many reasons are behind not using any contraceptive method by Palestinian women *(Table 2.3).* The main reason is the fear of having side effects. Religious opposition for contraception is mainly related to misconception of Islam and should be related to Palestinian customs and social culture rather than Islam (PCBS, 2000).

Table 2.3: Percentage of Currently Married Women who are not currently Using Contraceptive Methods by Reason and Region (1996, 2000)

Reasons for not Using	Palestinian Territories		Gaza Strip		West Bank	
	2000	1996	2000	1996	2000	1996
Oppose Family Planning	0.8	12.6	0.2	14.3	1.2	11.2
Husband Oppose	5.7	17.7	5.9	21.8	2.6	14.5
Relative Oppose	0.2	1.3	0.4	1.0	0.1	1.5
Side Effects	13.1	10.8	10.1	10.3	15.1	11.2
Lack of Knowledge	0.3	2.1	0.3	2.3	0.3	2.0
Cost Too Much	0.2	0.6	0.0	0.7	0.4	0.6
Inconvenient	4.0	3.7	3.5	3.0	4.2	4.3
Menopause	10.3	43.6	11.9	39.9	9.7	46.5
Religious Oppose	1.6	7.3	1.2	6.7	1.9	7.8

Source: (PCBS, Health and Demographic Indicators of Census, Health and Demographic Surveys Data: Pocket Book, May, 2002.)

2.5 Oral Contraceptives Overview

Highly effective contraception methods are hormonal contraceptions like oral contraceptive pills, injections and implants. These methods have high efficacy and their failure is due to discontinuation and inconsistence use (Shields, 2006), (Cheung and Free, 2005).

Oral contraceptives are of the hormonal contraceptives that prevent pregnancy through their action on hormones in the woman body. The mechanism of action of oral contraceptives is through suppressing ovulation and controlling the levels of estrogen and progestin. When oral contraceptives are used consistently on a regular daily routine, they give 99.5-99.9% rate of effectiveness in preventing pregnancy and a failure rate of 0.5-3.0%. Oral contraceptives are of two types based on their composition: combined tablets of progestin and estrogen or progestin only tablets called "minipills" (Branden, November/December 1998).

Since first introduced in 1960, twenty different formulations of oral contraceptive pills have been developed. Early formulations had more side-effects than the formulations found nowadays because they had higher concentrations of estrogen (Moore, *et al.*, September 1996; Curtis, *et al.*, 2006).

Progestin only tablets or minipills prevent pregnancy by changing the nature of the cervical mucous and the uterine linings so as to prevent implantation. Progestin only tablets reduce the incidence of anemia by decreasing menstrual bleeding and are free of the estrogen side-effects like hypercoagulability. Progestin only tablets do not decrease milk supply and thus are suitable to be used by lactating women. However, progestin only tablets have side-effects like irregular bleeding, weight gain, breast tenderness, and increased risk of osteoporosis. Oral contraceptives have to be taken every day on the

same time so as to be effective with little failure rates of 0.5% (Branden, November/December 1998).

2.6 Oral Contraceptives Discussion

2.6.1 History of Oral contraceptives

In the beginning of the twentieth century, European scientists: Beard, Loeb and Prenant developed a concept saying that during pregnancy ovulation is suppressed due to the secretions of the corpus luteum. In 1927, Haberlandt, an Austrian physiologist, was able to produce temporal sterility in rodents by feeding them with ovarian and placental extracts (Brunton, 2006). In 1930s, scientists determined the structures of hormones and found that high doses of androgens, estrogens or progesterones inhibit ovulation (Wikipedia, 2006). In 1937, Makepeace and colleagues found that progesterone had blocked ovulation in rabbits and in 1939, Astwood and Fevold talked about the same effect in rats (Brunton, 2006). In 1939, Marker (an organic chemistry professor), developed a method for the synthesis of progesterone from plant steroid sapogenins (Wikipedia, 2006). The years of 1950s witnessed development in contraceptive research by many scientists. In 1950s, John A. Rock developed contraceptive hormones from a wild inedible Mexican yam and was given the name "father of the pill" (Wikipedia, 2006). Garcia, Pincus and Rock found in 1950 that progesterone and 19-nor progestins inhibit ovulation in females (Brunton, 2006). In 1956 Garcia and Rice-Way performed the first clinical studies in Puerto Rico (Dunnihoo, 1992). In 1960, "Envoid" (composed of norethynodrel and mestranol) was the first contraceptive pill approved by the Food and Drug Administration and was marketed by the Searle Pharmaceutical Company (Brunton, 2006; Wikipedia, 2006). In 1962, Ortho-Novum (composed of norethindrone and mestranol) was the second pill approved by the FDA (Brunton, 2006). In 1965, Pincus and Chueh-Chang published the first research studies on contraceptive pills (Brunton, 2006). By 1966, there were many oral and injectable contraceptives available in different formulations (Brunton, 2006). Although approved by the FDA, oral contraceptives were only approved for use in France in 1967 when the "Neuwirth Law" allowed contraception including the contraceptive pill (Wikipedia, 2006). In 1970s, reports concerning undesired side effects of oral contraceptives appeared. These side effects were seen to be dose related and thus a second generation of oral contraceptives with lower hormonal concentrations was developed (Brunton, 2006). In 1980s, non contraceptive health benefits of oral contraceptives were recognized (Brunton, 2006). 1n 1990s, a third generation of oral contraceptives was developed which was distinguished for containing progestins with reduced androgenic effects like norgestimate or desogestrel (Brunton, 2006). Although oral contraceptives have been available for use in USA and Europe, Japan Medical Association allowed their use in Japan only in 1999 (Wikipedia, 2006).

2.6.2 Social and Cultural Impact of Oral Contraceptives

Since their first introduction to use in 1960, oral contraceptives have had a wide social impact. Oral contraceptives have become very popular because of their effectiveness in

comparison to previously used methods of contraception and also due to the fact that they are used with no relation to intercourse. (Wikipedia, 2006).

In the1970s that witnessed the recognition of oral contraceptives side effects, breast cancer reports due to oral contraceptives appeared. This made oral contraceptives loose some of their reputation (Wikipedia, 2006).

Because of being a female contraceptive method, oral contraceptives gave rise to some gender related issues. Oral contraceptives were seen by the feminist movement as a male invention used by women and can possibly threaten their health while men themselves are free from this outcome (Wikipedia, 2006).

2.6.3 Environmental Impact of Oral Contraceptives

Synthetic estrogens undergo hepatic metabolism that result in active metabolites excreted in the bile, breast milk and urine (Katzung, 2004).

Synthetic estrogens like ethinylestradiol are excreted in the urine unchanged. Sewage treatment does not involve the treatment of these chemicals and thus are discharged in the water system resulting in chemical pollution that can affect aquatic organisms like fish, frogs or plankton (Wikipedia, 2006).

Synthetic progestins are excreted in the urine in the form of inactive metabolites after undergoing hepatic metabolism (Katzung, 2004).

2.6.4 Types of Oral Contraceptives

Oral contraceptives are categorized into two main categories based on their active constituents: *combination oral contraceptives* and *progestin-only oral contraceptives* (Berek, 2002; Brunton, 2006).

1. **Combination Oral Contraceptives**: these are composed of estrogen and progesterone derivatives in different concentrations and are in turn of three types:

    a. **Monophasic**: this type of oral contraceptives is composed of the same concentrations (doses) of estrogen and progesterone in tablets and is taken every day (Berek, 2002). Most oral contraceptives are monophasic. Monophasic oral contraceptives are found in two forms of packages. Some packages contain 21 tablets taken for 21 days and all are of the same colour. However, most packages contain 28 tablets for 28 days of which the first 21 tablets are active while the last 7 tablets (with different colour) are inactive for they contain inert matter and are included to facilitate use (Marks and Crandall, 2004; MedlinePlus, 2004).

b. **Biphasic**: these contain the same concentrations of estrogen but varying concentrations of progesterone so that the progesterone/estrogen ratio is different in the two phases (Brunton, 2006). Packages of biphasic oral contraceptives are found as 21 or 28 packages. Concerning the 21-packages; tablets are found in two different colors to differentiate the two phases: the first phase has tablets whose progesterone/estrogen ratio is lower in order to allow the thickening of the endometrium as it normally does; the second phase has tablets whose progesterone/estrogen ratio is higher to allow normal shedding of the lining of the uterus to occur. As for the 28-packages; additional 7 inert tablets of a third color are included to complete the 28 tablets (Marks and Crandall, 2004; MedlinePlus, 2004).

c. **Triphasic**: these contain varying concentrations of estrogen and progesterone in order to mimic the normal ratios of estrogen and progesterone in the body during the menstrual cycle (Brunton, 2006). Packages of triphasic oral contraceptives are found as 21 or 28 packages. Concerning the 21-packages; tablets are found in three different colors to differentiate the three phases. As for the 28-packages; additional 7 inert tablets of a fourth color are included to complete the 28 tablets (Marks and Crandall, 2004; MedlinePlus, 2004).

2. **Progestin-Only Oral Contraceptives**: these are generally referred to as "the mini-pill". They do not contain estrogen and are composed of progesterone alone (Berek, 2002, Brunton, 2006). Progestin only tablets are considered to be less effective then the combined oral contraceptives but are the best to use by lactating women since they are not excreted in milk nor do they reduce milk production (Hatcher, *et al.*, 2001; Katzung, 2004). They are also useful in women with liver problems, hypertension, psychosis or previous thromboembolism (Katzung, 2004).

2.6.5 Mechanism of Action of Oral Contraceptives

Combination oral contraceptives exert their effects through the effects of estrogen and progesterone together. Their mechanism of action is related to the negative feedback of estrogen on the pituitary gland that results in inhibiting the pituitary function i.e. the follicle stimulating hormone and luteinizing hormone release are inhibited and thus ovulation is inhibited (Taylor, *et al.*, 2003; Katzung, 2004; Brunton, 2006). This ovulation inhibition is accompanied by physiological changes in the uterus and cervix which are related to both hormones. Cervical changes are related to thickening of the cervical mucous which in turn limits sperm movement and prevents its penetration and thus decrease the possibility of conception. Uterine changes are seen as thinning of the endometrium so that implantation is inhibited (Taylor, *et al.*, 2003; Katzung, 2004; Brunton, 2006). Estrogen also accelerates ovum transport and thus decreases the chance for fertilization (Borgelt-Hansen, 2001).

Progestin-only contraceptives mechanism of action does not involve ovulation inhibition. It is mainly related to the cervical and uterine physiological changes responsible for conception and implantation inhibition (Taylor, *et al.,* 2003; Katzung, 2004; Brunton, 2006). By thickening the cervical mucosa, progestin slows sperm transport and inhibits the activation of enzymes that permit the sperm to penetrate the ovum (Borgelt-Hansen, 2001).

2.6.6 Effects of Oral Contraceptives on Different Body Organs

Oral contraceptives have effects on different body organs including reproductive and non reproductive organs.

2.6.6.1 Effects on Reproductive Organs

a. **Effects on the Ovary**: ovary function is changed and suppressed by the use of oral contraceptives where follicular development is diminished and the ovaries become smaller than before. Discontinuation of oral contraceptives makes the ovary retain its ovulatory function and thus the return of normal menstruation. However, normal menstruation and ovulation reoccurrence may need time after the discontinuation of oral contraceptives (Katzung, 2004).

b. **Effects on the Uterus**: cervix may undergo hypertrophy and polyp formation when oral contraceptives are used for long periods. Secretions of the cervical mucous become less and thicker (Katzung, 2004).

c. **Effects on the Breast**: enlargement of the breast occurs while using oral contraceptives. Lactation is suppressed in combined oral contraceptives as a result of estrogenic effect (Katzung, 2004).

2.6.6.2 Effects on Non Reproductive Organs

a. **Effects on the Cardiovascular System**: oral contraceptives have little effect on the cardiovascular system noticed as slight increase in blood pressure, heart rate and cardiac output. These changes are usually reversible and disappear upon discontinuation of oral contraceptives (Katzung, 2004).

b. **Effects on the Blood**: thromboembolism has been noticed to occur in women using oral contraceptives. This issue has been subjected to extensive research and theories since the first years of oral contraceptives use. Coagulation seen in women using oral contraceptives occurs in the same way as that occurring in pregnant women, but a clear image is still not available. Other blood effects are increased serum iron and folic acid deficiency anemia (Katzung, 2004).

c. **Effects on the Nervous System**: these effects are difficult to study or evaluate. There have been studies on the effects of progesterone and estrogens in animals more than in humans. However, mood changes occurring in the premenstrual syndrome have responded to the administration of estrogen (Katzung, 2004).

d. **Effects on the Endocrine System**: in addition to the inhibition of the pituitary function, estrogens result in adrenal function changes in a way that increases the excretion of cortisol in urine due to increasing the blood concentration of corticosteroid-binding globulin. In addition, aldosterone secretion is increased due to changes in the rennin-angiotensin-aldosterone system. As for the thyroid, total thyroxin levels in the blood are increased due to thyroxin-binding globulin increase (Berek, 2002; Katzung, 2004).

e. **Effects on the Liver**: oral contraceptives have serious effects on the liver functions. Estrogen and progesterone cause changes in the metabolism of drugs undergoing hepatic metabolism and excretion. They also affect lipids and carbohydrates metabolism. Estrogen increases the levels of triglycerides and high-density lipoproteins and decreases the levels of low-density lipoproteins. However, progesterone effects on lipid metabolism are the opposite of estrogen effects so that the net outcome in combination oral contraceptives is the decrease of triglycerides and high-density lipoproteins levels. As for carbohydrates metabolism, oral contraceptives reduce the rate of absorption of carbohydrates from the gastrointestinal tract. Progesterone increases insulin level. However, the oral contraceptives effects on carbohydrates metabolism are reversible and are similar to changes in carbohydrates metabolism occurring in pregnancy (Berek, 2002; Katzung, 2004).

f. **Effects on the Skin**: oral contraceptives increase skin pigmentation and can also result in acne development (Katzung, 2004).

2.6.7 Effectiveness of Oral Contraceptives

Combination oral contraceptives are more effective than progestin-only oral contraceptives. Combination oral contraceptives have pregnancy rate about 2-3 per 1,000 women per year; while progestin-only oral contraceptives have higher pregnancy rate about 3-4 per 1,000 women per year (Berek, 2002).

Combination oral contraceptives are very effective when used correctly and consistently with pregnancy rate equal to 0.1 pregnancies per 100 women in first year of use i.e. 1 pregnancy per 1,000 women. However, when combination oral contraceptives are commonly used (less level of correctly and consistently used), they are considered effective with a pregnancy rate of 6-8 pregnancies per 100 women in first year of use i.e. 1 pregnancy in every 17 to 1 pregnancy in every 12 women (Hatcher, *et al.*, 2001).

As for progestin-only oral contraceptives, they are very effective when used correctly and consistently with pregnancy rate equal to 0.5 pregnancies per 100 women in first year of use i.e. 1 pregnancy per 200 women which makes them less effective than the combination oral contraceptives (Hatcher, *et al.*, 2001).

2.6.8 Oral Contraceptives Efficacy

Most studies concerning oral contraceptives compliance and efficacy have been conducted on small numbers of subjects and mainly on adolescents (Rosenberg, *et al.*, 1995-a; Rosenberg, *et al.*, 1995-b).

The contraceptive efficacy of oral contraceptives if used properly is more than 99% in preventing pregnancy. However, the real rate of oral contraceptives efficacy rate is (92-97) % due mainly to misuse & inconsistent use of oral contraceptives (Rosenberg, *et al.*, 1995-b).

If taken daily and properly, combined oral contraceptives are about 100% effective. However, a failure rate of 8% in the first year of use reflects that pills are being missed (Curtis, *et al.*, 2006).

According to surveys from around the world, there are 60% irregular users among the combined oral contraceptive users (Potter and Oakley, July/August 1996).

Studies conducted in the United States and Europe to investigate reasons for the discontinuation of oral contraceptives showed that the majority of women stop using the contraceptive method because of its side-effects (Huber et al., 2006).

Nearly all studies addressing the issue of improving the effectiveness of hormonal contraceptives in general and oral contraceptives in particular have shown that knowing and understanding the reasons lying behind women discontinuation or inconsistence use of hormonal contraceptives helps in developing strategies that help to improve the expected and desired effectiveness (Cheung and Free, 2005).

Oral contraceptives have a high efficiency that is similar to the intrauterine devices, implants or injection in addition to the non-contraceptive benefits they provide. Non-contraceptive benefits of oral contraceptives include less menstrual bleeding and cramps, improvement of acne and hirsutism, decreased occurrence of ectopic pregnancies, and a decreased incidence of endometrial and ovarian cancers However, in order for oral contraceptives to be highly effective, they require compliance and proper use (Rosenberg, *et al.*, 1995-a; Branden, November/December 1998).

The most important step in the issue of contraceptive method effectiveness and achieving desired goals is choosing the suitable method of contraception. The method chosen should be suitable to the user's personal characteristics and lifestyle in order to use it properly and consistently; in other words, it should be effective and safe in a way that its benefits are far more obvious than its risks (Pinter, 2002).

Contraceptives' users are not the only party that needs to be worked on in order to improve compliance and encourage regular use, i.e. health-care providers should be able to promote contraceptives and encourage their use. In other words, in order to increase patients' knowledge and encourage their consistent use of oral contraceptives, many skills and attitudes in counseling patients should be followed (Davis and Wysocki, 1999).

Patient education is a very important step in this issue and can be achieved by providing patients with the needed information while concentrating on the social, intellectual and biological variations between patients. Written information in addition to the inserted leaflet can be helpful especially at the first visit after which oral information is rarely fully retained and applied (Davis and Wysocki, 1999).

In general, the patient and pharmacist or health team member communication may be difficult because of shyness or discomfort to discuss issues of sexuality or contraception. Women taking oral contraceptives especially in the first time need to be educated how to take the pills properly. They also need to learn how to use the calendar pack and to understand the presence of active and inactive tablets in the pack if any. In addition, backup methods are to be discussed with the emphasis on their importance in the cases of missing pills (Borgelt-Hansen, 2001).

The questions that health professionals need to ask in order to improve women's knowledge on contraception can be classified in three groups:

1- Factors associated to pill failure. Including: sever diarrhea, vomiting, missing pill by 12 hours, starting packet late, and use of antibiotics.

2- Subsequent action after pill failure. Continue taking the pill, using extra precautions especially during pill failure and for more seven days.

3- Emergency contraception. Emergency pill, 22 hours time limit (Little, *et al.*, 1998).

In a study conducted in England, results obtained showed that leaflets are most useful way for increasing the number of women knowing the pill rules since they need little time for health-care providers to support. In addition, the study showed that asking questions improve the knowledge of women. In other words, this study emphasis on the importance of improvement in knowledge of contraception for women using contraceptions because very few know the basic rules for avoiding pregnancy (Little, *et al.*, 1998).

2.6.9 Complications and Side Effects of Oral Contraceptives

Oral contraceptives have undesired side effects like other drug groups. Side effects reporting appeared shortly after the introduction of oral contraceptives. However, oral contraceptives available nowadays have lower hormonal concentrations than the first

used oral contraceptives. This is because it was noticed that the side effects were dose related and in the same time the newer generations of oral contraceptives have the same desired contraceptive effects as their ascendants (Brunton, 2006).

Oral contraceptives side effects range from mild to moderate to severe but are generally reversible and disappear upon the discontinuation of use. Toxicities related to oral contraceptives are rare (Katzung, 2004).

Major and more serious side effects of oral contraceptives are related to the cardiovascular system (e.g. hypertension, myocardial infarction or stroke), blood or circulatory system (e.g. embolism or venous thrombosis), cancers (e.g. breast cancer or cervical cancer) or endocrine system (Brunton, 2006).

So in other words, oral contraceptives side effects can be grouped according to their severity or according to the affected site in the body. Side effects listed below are according to their severity in different body sites.

2.6.9.1 Mild Side Effects: these side effects are temporary and related usually to estrogen concentration in the contraceptive pill and are treated by switching to another preparation (Katzung, 2004).

a. Headache: this is usually mild and temporary, but women having migraine may suffer migraine exacerbation (Katzung, 2004; Brunton, 2006).

b. Breakthrough bleeding: (bleeding in the middle of the cycle); this is related to estrogen concentration in the contraceptive pill (Katzung, 2004).

c. Absence of withdrawal bleeding: (no bleeding at all as in the normal menstruation); this causes confusion so that the woman may doubt pregnancy and usually occurs in combination oral contraceptives (Katzung, 2004; Brunton, 2006).

d. Nausea, muscle aches and edema: related to estrogen concentration in the contraceptive pill (Katzung, 2004; Brunton, 2006).

e. Changes in serum proteins seen as changes in the endocrine function (Katzung, 2004).

2.6.9.2 Moderate Side Effects: experiencing these side effects involves discontinuance of the oral contraceptive (Katzung, 2004).

a. Weight gain: common in combination oral contraceptives containing androgen-like progestins; solution involves switching to pills with less progestin effect and also following diet (Katzung, 2004).

b. Menstrual irregularities: these are common in women using oral contraceptives with amenorrhea being the most common. Breakthrough bleeding is also common especially in women using progestin-only oral contraceptives, treated usually by switching to biphasic or triphasic preparations because their estrogen content decreases breakthrough bleeding (Katzung, 2004).

c. Acne and hirsutism: androgen-like progestins worsen acne and hirsutism while pills with high concentrations of estrogen result in acne improvement (Katzung, 2004).

d. Increased skin pigmentation: this increases with time and is seen in women with dark skins in particular, but is usually reversible and fades away upon discontinuation of the pills (Katzung, 2004).

e. Urethral dilation: occurs usually in pregnancy and involves bacterial infections (Katzung, 2004).

f. Vaginal infections (Katzung, 2004).

2.6.9.3 Severe Side Effects

a. Cardiovascular problems: these were of the earliest reported oral contraceptives side effects. Cardiovascular side effects are numerous and can occur at all ages with no relation to smoking status; but the risk is increased in heavy smoker women above 35 years (Berek, 2002; Katzung, 2004). Cardiovascular side effects include:

i. Thromboembolism: the incidence of thromboemolic problems in women using oral contraceptives is three times greater than women not using oral contraceptives. Thromboembolism is related to estrogen concentration in the contraceptive pill. Thromboembolism may be pulmonary or venous depending on some genetic factors and predisposing condition of the women. The risk for thromboembolism is increased during the first month of contraceptive use and hence remains constant and can return to normal only by discontinuation of the contraceptive within a month after that (Katzung, 2004).

ii. Myocardial infarction: smokers, obese women, diabetic, hypertensive or hyperlipoproteinemia women have higher risk for developing myocardial infarction. Myocardial infarction

occurrence is associated with increased levels of low-density lipoproteins, decreased levels of high-density lipoproteins and increased platelet aggregation which are changed due to the metabolic effects of oral contraceptives (Katzung, 2004).

iii. Stroke: current users of oral contraceptives are in risk of having stroke while past users are not (Katzung, 2004). In a study conducted by the World Health Organization from 1989 to 1993 in 17 countries from Europe and the developing world, increased risk for stroke was seen in women from the developing world and in European women using high-dose oral contraceptives (Berek, 2002). The same study showed increased risk for stroke in smokers using oral contraceptives compared to smokers not using oral contraceptives (Berek, 2002).

iv. Hypertension: this is a does-related side effect depending on the estrogen-induced effects (Berek, 2002).

b. Gastrointestinal problems: these are liver related disorders. Jaundice, gallbladder problems or hepatic adenomas have been reported in oral contraceptives users (Katzung, 2004).

c. Nervous system disorders: depression is the main nervous system side effect reported in oral contraceptives users (Katzung, 2004).

d. Cancer: relation between oral contraceptives and cancer in female reproductive organs has been extensively studied and is still controversial. Breast cancer risk in oral contraceptives users and in the whole population do not show great variation; however some studies have shown an increased risk for younger women (Katzung, 2004). In a study conducted in Britain, a small increased risk of breast cancer was seen in women using oral contraceptives containing more than 50mcg estrogen before 36 years of age (Berek, 2002). However, the study showed that progestin-only contraceptives formed a protective factor against breast cancer (Berek, 2002). So the conclusion of most studies addressing the relation between oral contraceptives and breast cancer can be summarized in that duration of use of oral contraceptives, dose, age at first use have small increased risk (Brunton, 2006). As for cervical cancer, some studies showed that this type of cancer has increased risk in oral contraceptive users having human papillomavirus cervical infection and still the issue is controversial. On the other hand, it is proved now by many studies that oral contraceptives decrease the risk of endometrial and ovarian cancers (Katzung, 2004). Combination oral contraceptives decrease

the incidence of endometrial cancer by 50% for 15 years after the pills have been stopped (Brunton, 2006).

2.6.10 Contraindications of Oral Contraceptives

Oral contraceptives of newest generations are considered to be safe in most healthy women for they contain low hormonal concentrations and thus lower risk of side effects. However some cases in which exacerbations of some health problems have been reported, so these health problems have been considered as risk factors in which oral contraceptives use is contraindicated (Brunton, 2006).

Oral contraceptives are contraindicated in women with the following health conditions:

- Asthma.
- Before undergoing surgery (to eliminate the possibility of post surgery thromboembolism).
- Brittle diabetes: (when a person's blood glucose (sugar) level often swings quickly from high to low and from low to high) (Wikipedia, 2008).
- Cancers including: malignant endometrial neoplasm, suspected breast carcinoma, malignant melanoma, leukemia, pituitary adenoma.
- Cardiovascular problems including: history of thromboembolic disease, thrombophlebitis, atherosclerosis, stroke, myocardial infarction, history of cerebrovascular disease, coronary artery disease, coronary thrombosis, angina pectoris, hypertension.
- Depression.
- Familial hyperlipidimia
- Heavy cigarette smoking.
- Hyperprolactinemia
- Known or suspected pregnancy
- Liver problems including: acute liver disease, history of cholestatic jaundice, previous gall bladder disease.
- Migraine headaches.
- Prolonged immobilization.

- Psychosis.

- Sickle cell anemia.

- Systemic lupus erythematosis.

- Undiagnosed vaginal bleeding.

- Varicose veins.

Oral contraceptives of high hormonal concentrations are contraindicated in all the mentioned cases above; however, oral contraceptives of low hormonal concentrations can be given in some cases when benefits are more than undesired outcomes but under continuous supervision (Dunnihoo, 1992; Katzung, 2004; Brunton, 2006).

2.6.11 Drug Interactions of Oral Contraceptives

Oral contraceptives like any drug family have drug interactions. These interactions may result in increased/decreased effects of the oral contraceptive itself or the other drug used with it depending on the mechanism of interaction (Berek, 2002; Wikipedia, 2006).

- Alcohol: reduces the efficacy of oral contraceptives.

- Allopurinol (*Zylol*®): can potentiate the adverse effects of oral contraceptives.

- Analgesics: levacetylmethadol may reduce oral contraceptive effect while paracetamol (*Acamol*®) may increase plasma-oral contraceptives concentrations.

- Angiotensin Converting Enzyme (ACE) Inhibitors like enalapril (*Convertin*®) and Angiotensin-II Antagonists like losartan (*Ocsaar*®): combination oral contraceptives can antagonize the hypotensive effects of these antihypertensive drugs.

- Antibacterials: Rifampin (*Rimactan*®) and broad spectrum antibacterials like ampicillin (*Penibrin*®) and tetracycline (*Tevacycline*®) can reduce the efficacy of both combination and progestin-only oral contraceptives by accelerating their metabolism. Whereas chloramphenicol can potentiate the adverse effects of oral contraceptives.

- Anticoagulants: oral contraceptives can antagonize the anticoagulant effect of acenocoumarol (*Sintrom*®), phenindione and warfarin (*Coumadin*®).

- Anticonvulsants: carbamazepine (*Tegretol*®), phenobarbitone (*Luminal*®), phenytoin (*Epanutin*®), primidone (*Prysoline*®), ethosuximide (*Zarontin*®) and topiramate (*Topamax*®) can reduce the efficacy of both combination and progestin-only oral contraceptives by accelerating their metabolism.

- Antidepressants: oral contraceptives can antagonize the antidepressant effect; side effects of tricyclic antidepressants like imipramine (*Tofranil*®) can be increased due to higher plasma concentrations when administered with oral contraceptives.

- Antidiabetics: oral contraceptives antagonize their hypoglycemic effects.

- Antifungals: griseofulvin (*Grifulin Forte*®), itraconazole (*Sporanox*®) and ketoconazole (*Nizoral*®) can reduce the efficacy of oral contraceptives by accelerating their metabolism.

- Antihypertensives: combination oral contraceptives can antagonize hypotensive effects.

- Ascorbic Acid (*Vitamin C*): increase plasma-oral contraceptives concentrations.

- Beta-Blockers like propranolol (*Deralin*®): combination oral contraceptives can antagonize their hypotensive effects.

- Benzodiazepines like diazepam (*Valium*®): oral contraceptives reduce their plasma clearance and thus increase their effects.

- Cimetidine (*Tagamet*®): potentiate the adverse effects of oral contraceptives.

- Coticosteroids and Glucocorticosteroids: oral contraceptives increase their plasma concentrations.

- Cyclosporine (immunosuppressant): increased plasma–cyclosporine concentration when administered with oral contraceptives.

- Diuretics: combination oral contraceptives antagonize the diuretic effects.

- Modafinil (*Provigil*®): reduce the efficacy of oral contraceptives by accelerating their metabolism.

- Phenothiazines: potentiate the adverse effects of oral contraceptives.

- Proton pump inhibitors like lansoprazloe (*Zoton*®): can possibly accelerate the metabolism of oral contraceptives.

- Retinoids: oral tretinoin (*Roaccutane*®) can reduce the efficacy of both combination and progestin-only oral contraceptives by accelerating their metabolism.

- Tacrolimus (*Prograf*®) (immunosuppressant): possible reduction of oral contraceptives efficacy.

- Theophylline (*Theotard*®): increased plasma-theophylline concentration due to delayed excretion by combination oral contraceptives. (Berek, 2002, Wikipedia, 2006).

2.6.12 Non-Contraceptive health benefits of Oral Contraceptives

Oral contraceptives use has resulted in health benefits other than contraception usually referred to as "Non-contraceptive Health Benefits". These health benefits include:

- Reduced risk of ovarian cysts
- Reduced risk of ovarian cancer
- Reduced risk of endometrial cancer
- Reduced risk of colorectal cancer
- Reduced risk of ectopic pregnancy
- Reduced risk of endometriosis
- Improvement of premenstrual symptoms
- Decreased frequency of dysmenorrhea
- Decreased number of bleeding days
- Decreased incidence of pelvic inflammatory disease
- Reduced risk of iron deficiency anemia
- Less hirsutism
- Improved acne
- Preservation of bone mass (Dunnihoo, 1992; Borgelt-Hansen, 2001; Berek, 2002; Berga, 2002; Katzung, 2004; Brunton, 2006).

2.6.13 Oral Contraceptives Choice Strategy

There are many oral contraceptives preparations available for use with different hormonal concentrations. Choice for an oral contraceptive is different between individuals according to personal differences. However, the chosen oral contraceptive should provide users with the effective contraceptive action and least side effects (Berek, 2002; Brunton, 2006).

Choosing a suitable contraceptive depends on many factors including:

- The desire for reversible or irreversible contraception
- Age

- Cost
- Medical condition
- Cultural and religious beliefs (Berga, 2002).

Lactating women and certain women with health problems in which combination oral contraceptives are contraindicated and so progestin-only tablets are a better choice (Brunton, 2006).

Concomitant use of other drugs influences the choice of the oral contraceptive to be used because of drug interactions (Brunton, 2006).

2.6.14 Oral Contraceptives in Lactating Women

Choose of a hormonal contraceptive method in lactating women is restricted due to the possible hormonal effects on milk quality and quantity and the secretion of hormones in the milk and thus affecting the infant (Truitt, *et al.*, 2003).

According to a trial conducted by the WHO, significant decline in breast milk quantity was seen in women taking combined oral contraceptives compared to women taking progestin-only oral contraceptives. However, no difference in infant growth was observed in both groups (Truitt, *et al.*, 2003).

2.6.15 Oral Contraceptives Use

Proper and correct use of oral contraceptives along with good compliance make oral contraceptives highly effective.

2.6.15.1 Combination Oral Contraceptives

The initiation of combination oral contraceptives usage depends on the woman's position in respect to her menstrual cycle or time after delivery (Hatcher, *et al.*, 2001).

Normally menstruating woman can initiate her pills on any day of the first seven days after her menstrual bleeding begins though the first day to begin on makes it easier for her to remember (Hatcher, *et al.*, 2001).

For lactating women, combination oral contraceptives use should be delayed six months after delivery. If the woman is not lactating and wants to use combination oral contraceptives, she can use them three to six weeks after delivery at any time she wants with no respect to menstruation (Hatcher, *et al.*, 2001).

Combination oral contraceptives are taken on daily basis: one pill at the same time each day (Hatcher, *et al.*, 2001).

Packages with 28-pills should be taken continuously i.e. a woman has to start a new packet just after the finished one with no free days. As for packages with 21-pills, a woman should wait seven days between the last tablet from the used packet and the first tablet from the next packet (Hatcher, *et al.*, 2001).

Missing pills results in decreased oral contraceptive efficacy and increased failure rates. Dealing with missing pills differs between monophasic and multiphasic types. Missing a tablet from a monophasic oral contraceptive inquires taking the tablet once remembered and taking the next tablet on its regular time. When using a multiphasic type and a tablet has been missed, dealing with this situation depends on the tablet missed and its order in the packet. When missing one tablet of the active tablets of the multiphasic combination oral contraceptive, it should be taken once remembered and the rest taken as usual. However, if the tablet missed is inactive (inert), it should be thrown away and the rest taken as usual. If two or more tablets lying in the first fourteen tablets of the packet were missed, one tablet should be taken at once and the rest continued as usual with the use of an additional contraceptive method for seven days. If two or more tablets form the mid-tablets are missed (after the first fourteen tablets), one tablet should be taken once remembered and the rest of the active tablets should be continued while the inactive tablets should be throw away and a new packet should be started (Hatcher, *et al.*, 2001).

2.6.15.2 Progestin-only Oral Contraceptives

Progestin-only contraceptives are less effective than combination oral contraceptives and so their use is restricted to some cases.

Progestin-only oral contraceptives are usually used by lactating women. If a woman is fully breastfeeding, she can start progestin-only oral contraceptives after six months of delivery or after she has her first menstruation. If the woman is partially breastfeeding, she can start progestin-only oral contraceptives six weeks after delivery. On the other hand, non lactating women can start progestin-only oral contraceptives in the first four weeks after delivery (Hatcher, *et al.*, 2001).

Progestin-only oral contraceptives are taken on daily basis: one pill at the same time each day. When one packet is finished, the next one is started on the next day with no free days in-between (Hatcher, *et al.*, 2001).

If one or more pills were missed, the woman should take a pill once she remembers and continue taking one pill a day as usual with the use of an additional contraceptive method for two days if not breastfeeding (Hatcher, *et al.*, 2001).

2.7 Attitudes and Behaviors towards Oral Contraceptives

Although oral contraceptives have great efficacy and safety, they are still surrounded by some myths and misconceptions. This implies the need for massive communication between health-care providers and patients in order to correct the false information and elevate fears so as to encourage oral contraceptives use (Davis and Wysocki, 1999).

Women's perceptions of the safety of contraceptive methods affect their use in a way that makes those women have little motivation to use contraceptive methods if they perceive them unsafe (Kridli and Newton, 2005).

Many factors affect beliefs and attitudes concerning contraceptives. One of these factors is the media which plays a very important role in developing different attitudes towards contraceptives in general and towards oral contraceptives in particular. This effect is obvious in the decreased use of intrauterine devices and implants. In addition, different demographic factors including age, race and ethnicity affect contraceptive use. According to data from the National Survey of Family Growth (NSFG) conducted in 1982, 1988, 1995 in USA, the percentage of women between 15-44 years using contraceptives increases with age. As for race and ethnicity, their effect on contraceptive use has diminished since 1982 (Jones, 1999).

2.8 Factors Affecting Contraceptives' Use

There are many choices among which a method for contraception can be chosen. Choosing the most suitable method of contraception helps to maximize the benefits of the method chosen and to minimize non-compliance problems. One contraceptive method can be suitable for a woman and not suitable for another. Oral contraceptives have been available since 1960s and ever since research has been directed towards lowering the concentration of estrogen and using different dosages and types of progestins (Schwartz and Gabelnick, November/December 2002).

Factors affecting contraceptive behaviors have been classified into demographic factors and non-demographic factors. Demographic factors include: number of children, gender of children, habitat, religion, level of education, maternal age, employment status and source of contraceptive services. Demographic factors showed no obvious impact on Jordanian Muslim women use of oral contraceptives. Non-demographic factors include: knowledge about contraceptive methods, pressure to have children, husband's position or wanting more children. Jordanian Muslim women who have used oral contraceptives previously have positive attitudes and beliefs towards oral contraceptives and are more compliant than women who have not used oral contraceptives before (Kridli and Newton, 2005).

Using or not using contraceptive methods is affected by different demographic factors. Factors affecting contraceptive usage in Palestine are summarized in *Table 2.4*, (PCBS, August, 2003)

Table 2.4: Percentages of Currently Married Women at Child Bearing Age Using a Contraceptive Method according to different Criteria

Criteria	Using a Contraceptive Method	Not Using a Contraceptive Method
Level of Education		
Illiterate	45.3%	54.7%
Elementary	52.3%	47.7%
Preparatory	51.9%	48.1%
Secondary and more	53.6%	46.4%
Type of Residence		
Urban	51.1%	48.9%
Rural	52.9%	47.1%
Camp	50.1	49.9%
Age (years)		
Less than 20	16.1%	83.9%
20-24	41.1%	58.9%
25-49	57.3%	42.7%
Number of Live Children		
0-3	75.7%	31.5%
4-7	16.9%	49.0%
≥ 8	7.3%	19.5%
Region		
West Bank	54.3%	45.7%
Gaza Strip	46.1%	53.9%
Palestine	**51.4%**	**48.6%**

Source: (PCBS, Fertility Determinants in the Palestinian Territory: Dissemination and Analysis of Census Findings, In-depth Analysis Study Series, August, 2003)

As seen in *(Table 2.4)*, women of secondary and higher levels of education use contraceptive methods than less educated women with a percentage of (53.6%). Women from rural areas use contraceptive methods more than urban women or camp women with a percentage of (52.9%). Concerning age groups, older women (57.3%) use contraceptive women more than younger women (PCBS, 2003).

Jordan is an Arab Muslim country located in the Middle East who has quite similar demographics to Palestine. In the Demographic Health Survey (DHS) of 1992, Jordan's population was 4 millions; it has a birth rate of 45.3 per 1,000 population and a fertility rate of 6.2 per woman. This fertility rate is considered high and is related to the modest use of contraceptives and also to the short intervals between births. Like other countries in the Middle East, studies concerning family planning in Jordan have investigated the relationship between demographic factors on women's contraceptive behaviors. One of these studies was conducted by Abdel-Aziz and colleagues in 1986 which looked for the effects of women's level of education, socioeconomic status and number of children on contraceptive behavior. Moreover, the Demographic and Health Survey in 1992 studied the effect of location of residence of Jordanian women's on their contraceptive behavior.

However, the effects of non-demographic factors like psychosocial factors were not identified and their effects on women's contraceptive behaviors were not determined. It is important to investigate the women's attitude about using contraceptives, the effect of significant others on their contraceptive use and their perceived ability to use them (Kridli and Libbus, 2002).

The Arab Islamic culture affects fertility in a way resulting in high fertility whose benefits are seen from the economic and social values of the children. Children generally and males particularly contribute in the family income by performing a variety of tasks or jobs like farming or construction. This contribution provides the family with physical security, political strength, social prestige and economic security for the parents in their old age (Kridli and Libbus, 2001).

According to Farsoun et al. (1996), three types of pressure are responsible for having children in Jordan:

1- Traditional pressure: this pressure is based on the inherited traditions that imply the importance of having children since they help their parents in work and take care of them when they get old.

2- Familial pressure: it is the pressure the family members impose for having more children particularly boys so as to preserve the family name.

3- Religious pressure: this depends on the belief that Muslims should have many children that God will take care of no matter how bad the economic status of their parents was (Kridli and Libbus, 2001).

The Palestinian society has different factors affecting the family size and the total fertility. One factor is familial pressure. Like other societies, a newly married couple lies under the pressure of quickly having children by family members and especially in-laws. Having a child strengthen the relation between the wife and husband and in many cases infertility was behind polygamy or divorce among Palestinians. Another factor is the political factor. Statistics have shown that the Palestinian fertility rate in countries other than Palestine has fallen while it remained relatively high within Palestine due to the political conditions in Palestine. According to the Palestinian Ministry of Health (MOH), a sharp increase in birth rate was seen between the years 1987 and 1994 due to the instability of the political situation. However, this was followed by a decrease in birth rate between the years 1995 and1997 (PCBS, 2000).

The number of living children a woman has affects her to desire to have more children or stop having children and thus affects the contraceptive behavior. In 1986, The United Nations population assessment found that the mean numbers for children desired by women in Jordan, Mauritania, Sudan, Syria and Yemen ranged from 5.5 to 6.4 children per woman. Having a second child is due to the family pressure imposed due to the fear that the only child might die and thus leave the parents childless. This sequence affects the contraceptive behavior negatively because parents seek having a second child to

protect themselves from being childless. After having a second child, the pressure to have additional children is reduced resulting in changed contraceptive behavior and thus a decision to use contraceptive method may be taken (Kridli and Libbus, 2001).

Gender of children affects the contraceptive behavior in Arab Muslim societies. Having sons is preferable in Jordan as well as in other Arab countries for the importance of sons over daughters as perceived from cultural points of view. Sons are supposed to help the family economically, help and secure their parents in their old ages and for sure they carry the family name and preserve the family from vanishing. In other words, married couples fall under the pressure of their families to have sons which in turn affects family planning and contraceptive use negatively (Kridli and Libbus, 2001).

In Palestine, there is also preference to have male children than female children where 10% of women having four male children are willing to have more male children; while only 2% of women having female children are willing to have more female children. This is because maintain the continuity of the family, improve economic conditions of the family by earning income and are considered as a source of security and strength for their families (PCBS, 1998).

Location of residence is also related to contraceptive use by Jordanian women. Lifestyle in rural areas requires having more children than urban areas to help families in field work. In addition, rural areas suffer from inadequate educational programmes concerning contraceptives which results in lower rate of contraceptive use (Kridli and Libbus, 2001). As for contraceptive use in Palestine, differences between rural, urban and camp areas are little. However, the percentage of women using contraceptives in the West Bank is higher than that in Gaza Strip (PCBS, 1998).

In Jordan, religion is considered a very effective factor in the issue of contraception and affects the contraceptive behaviors of both men and women. In a study conducted by Warren et al. in 1990, 50% of Jordanian husbands said that God decides the family size. According to a study conducted by Farsoun et al. in 1996, men and women's beliefs concerning contraception and family planning were studied. Participants had different opinions concerning family planning. Some believed that Islam is against family planning and forbids the use of contraceptives. Others believed that Islam accepts the idea of family planning in its spacing concept not in preventing birth. Others believed that family planning is acceptable if natural methods (like rhythm or breast feeding) are followed and that contraceptive methods are only applicable if the natural methods fail. Others believed that family planning is not prohibited by Islam especially if there is a good reason like poor health of the mother (Kridli and Libbus, 2001).

According to the Demographic Health Survey (DHS) in 1994, the level of education effect on contraceptive behavior of Jordanian women is vague; in other words, the rate of contraceptive use did not increase as the women's level of education increased. Regardless to education level, the most popular methods of contraception in Jordan were found to be intrauterine devices and oral contraceptives. In contrast to level of education, age appeared to be strongly related to contraceptive use among Jordanian women.

According to Demographic Health Survey (DHS) in 1994, percentage of Jordanian women using different contraceptive methods increased with increasing age groups studied. As for employment status, differences in contraceptives use between working women and housewives were seen with no specific trend to distinguish the effect of employment status in general on contraceptives use (Kridli and Libbus, 2001).

Intrauterine devices and oral contraceptives are the most popular methods of contraception in Jordan. Between 1976 and 1983, there was a clear change in the pattern of contraceptives methods use in Jordan. The use of intrauterine devices increased from 2% to 8%, while oral contraceptives use decreased from 12% to 8%. Despite being the most popular method of contraception used in Jordan, intrauterine devices are surrounded by fears from their complications. As for the second popular method, oral contraceptives are believed to have adverse effects on health like cancer, hair loss or weight gain in addition to fetal abnormalities and infertility. These beliefs affect their use and their use effectiveness negatively (Kridli and Libbus, 2001). In Palestine, intrauterine device is the most widely s\used contraceptive method with a percentage of (27.8%) followed by oral contraceptive pills with a percentage of (7.2%). Among users of intrauterine device in Palestine, (53.6%) complain from menstrual problems and (48.3%) complain from vaginal discharge (PCBS, 2004).
Besides the demographic factors, contraceptive use is also affected by non demographic factors including:

- husband position
- knowledge vs. lack of knowledge about contraceptive methods
- reported side-effects
- religious reasons
- health reasons (Kridli and Libbus, 2001).

2.9 Fears from Oral Contraceptives' Side-Effects

Women fears from oral contraceptives arise from the fact that they are associated with increased risk in breast and ovary cancers. On the other hand, most women do not know that oral contraceptives use provides protection against ovary and uterus cancers. Mainly, women beliefs about oral contraceptives come from others experiences (e.g. relatives especially mothers) when oral contraceptives formulations used to contain high concentrations of estrogen (50-150mcg). However, nowadays pills contain 35 mcg estrogen or less and thus have fewer side-effects (Davis and Wysocki, 1999).

Table 2.5: What to Tell Women about Risks of Cancer and Cardiovascular Disease:

Risk	Current knowledge regarding low-dose (<35 mg) OC use
Breast cancer	Slightly increased risk of diagnosis in current users. No difference in risk of diagnosis >= 10 yr after discontinuing use; compared with non-OC users,[6] similar to that associated with pregnancy
Endometrial cancer	OC use decreases risk by 50% compared with nonusers[4]
Ovarian cancer	OC use decreases risk by >=40% compared with nonusers[5]
Myocardial infarction (heart attack)	Only women. age 35 yr who smoke are at increased risk[9]
Cerebrovascular accident (stroke)	Rare among women of childbearing age: low-dose OC do not increase risk[8]
Venous thromboembolism (blood clots)	Three- to fourfold increased risk associated with OC[7]

(Based on data from WHO, 4 Cancer and Steroid Hormone Study, 5 Collaborative Group, 6 World Health Organization, 7 Petitti et al, 8 and World Health Organization.9 OC, oral contraceptives. (Davis and Wysocki, 1999))

A survey of 336 young women at Brown University in 1997 showed that more than 75% did not know that oral contraceptives use can protect against ovary and uterus cancers (Tessler and Peipert, 1997).

The primary reason for which women discontinue taking oral contraceptives is "feeling ill" rather than a specific side effect of oral contraceptives like nausea or break through bleeding (Davis and Wysocki, 1999).

Many contraceptive methods produce changes in the menstrual cycle that vary between different women according to the method used and the duration of use. Intrauterine device's side-effects may be seen as increased bleeding and cramping. Irregular menstrual patterns like increased periods of bleeding or amenorrhea may occur while using implants or injections. Different studies have examined the relationship between menstrual changes and discontinuation of contraceptive methods (Tolley, *et al.*, March 2005).

Concerning oral contraceptives disadvantages, the two major ones are the increased incidence of thrombophlebitis and pulmonary embolism as a result of hypercoagulability and cardiovascular disease including hypertension. These effects are due to the high levels of estrogen hormone in the earlier introduced pills. Other side-effects include: nausea, vomiting, headaches, weight gain, menstrual changes, enlarged breasts and depression (Branden, November/December 1998).

In a study conducted in Egypt by Declerque et al in 1986, Egyptian women's beliefs about modern contraceptive methods were studied. The study results showed that about 80% of Egyptian women heard that oral contraceptives cause side-effects like morning sickness and 40% of them believed that these symptoms were reversible and that they disappeared once the method had been stopped. The study also showed that few Egyptian

women were using oral contraceptives daily and correctly whereas fewer than half were able to tell if a pill was missed by a back-up routine. Misuse of oral contraceptives by Egyptian women was due to adverse beliefs about them (Kridli and Newton, 2005)

Jordanian women believe that oral contraceptives have serious side-effects like cancer, back pain, headaches, dizziness, hair loss, weight gain, fetal abnormalities, and infertility. These unfavorable beliefs about oral contraceptives affect their use and use effectiveness negatively (Kridli and Libbus, 2002).

2.10 Compliance vs. Non-Compliance

In order for a contraceptive method to exert its desired effects properly and effectively, the contraceptive use should comply with two principles: continuation and compliance (Pinter, 2002).

"Compliance rates measure the percentage of users who take all doses as prescribed and indicate the degree to which patients adhere to a prescribed regimen (Pinter, 2002).

Continuation is defined as "the rate of women still using a contraceptive method after a certain period of time with regard to reasons for discontinuation". Thus, continuation of use is related to the acceptability of the contraceptive method. Continuation rate describes the proportion of women continuing to use a contraceptive method at the first year. Contraceptives with high continuation rates are considered to be of the most appropriate contraceptives. Continuation/discontinuation rates are based on data from clinical trials or data from the National Survey of Family Growth (NSFG) in the USA (Pinter, 2002).

Modern methods of contraception have low failure rates and are highly effective if used constantly and properly according to the simplest compliance rules. But when there is misuse or no compliance, unintended pregnancies result in giving the impression that the method used has higher failure rates than documented. Arising from the fact that contraceptives prevalence is high, providers should concentrate on providing users with the information needed to improve their compliance and to correct their use. Many studies have been conducted to evaluate contraceptives compliance and improve the level of knowledge concerning the correct use of contraceptives by the inclusion of certain interventions. The results obtained showed the success of these studies but they shared the limitation that follow up was for a short time interval; this is because long periods of follow up are required to prove that the effect is sustained. Knowledge of contraception is very important to provide better contraceptive use and improve compliance and thus less unintended pregnancies. Poor knowledge or lack in knowledge may be an important factor resulting in contraception failure and unintended pregnancies (Shields, 2006).

Users of oral contraceptives are like users of other chronically used drugs in their suffering from compliance difficulties which may be greater than expected. For example, 20% of the annual unintended pregnancies in the United States are related to non-compliance or discontinuation of oral contraceptives. According to recent research, compliance problems are found among users of all ages and may be due to the occurrence

of side-effects, lack of knowledge or low evaluation of personal health. In contrast, good compliance is related to the absence of side-effects, satisfaction with the health-care team and to a high level of knowledge about oral contraceptives issues. Health-care team is considered the most important party in strengthening the issue of compliance to oral contraceptives. They are supposed to provide women with simple and clear information concerning instructions for correct use of oral contraceptives, explanation of possible side-effects and what to do when missing a dose (Rosenberg and Waugh, 1999).

Compliance is an expression used to describe the level of patients' adhesion to a prescribed treatment. When speaking about poor compliance to oral contraceptives, this may be manifested in different forms including missing pills, taking pills out of order, starting a package early or late, discontinuing a method without using a backup method or due to the cost of the medication (Rosenberg and Waugh, 1999).

Health team may be able to improve oral contraceptives' compliance and thus efficacy by exploring the factors lying behind missing pills (Smith and Oakley, 2005).

In a study conducted in Slovenia in 1990, the continuation rates were calculated in a sample of 469 women aged 15-44 years included in the Fertility Survey in Slovenia. The highest continuation rates were found for intrauterine devices (86%), followed by pills (63%). 22% of discontinuation rates were related to medical reasons or dissatisfaction with the method followed by 10% due to unintended pregnancies (Pinter, 2002).

In a population-based survey of women in New Zealand, out of 252 of injections users, the most important reason for discontinuation within 21 months of use was irregular bleeding followed by heavy bleeding while amenorrhea was a reason for discontinuation for users after 2-5 years of use (Tolley, *et al.*, March 2005).

Factors like menstrual irregularities or experiencing other side-effects are related to discontinuous and inconsistence of hormonal contraceptive methods (Cheung and Free, 2005).

Missing one or more pills in each cycle of oral contraceptive's use may result in higher incidence of breakthrough bleeding which is one of the major reasons behind oral contraceptives' discontinuation (Borgelt-Hansen, 2001).

Compliance problems in general maybe due to the fact that treatments are complicated, expensive, inconvenient and are to be followed for a long period and may be forever. Many researches studied the issue of compliance and have grouped patients into three groups:

- 1/3 patients always comply.
- 1/3 never complies.
- And 1/3 sometimes comply

But motivation and depressant factors that guide patients into those groups are still not fully determined. Poor compliance to oral contraceptives is manifested in missing pills, taking pills out of order or starting a package early or late. Consequences of oral contraceptives misuse may be nothing, minor like spotting or profound like an intended pregnancy (Rosenberg, *et al.*, 1995-a; Pinter, 2002).

Factors to which non-compliance is related to have been widely studied and three models have been used to identify them:

1- Individualistic Model: many factors and behaviors are measured in nonspecific model in order to determine patients with poor compliance.

2- Health Belief Model: in this model the benefits of compliance to oral contraceptives versus the costs of non-compliance are studied. This comparison between costs and benefits depends on:

   a) the patients' perception of their susceptibility to the unwanted outcome result accompanying poor compliance which is pregnancy in this case and its consequences
   b) the patients' beliefs of the benefits that compliance has.

3- Patient-Provider Model: this model studies the interaction between patient and provider in order to determine compliance. The quality of information given by the physician and his attitude towards the patient along with the patient's questions all determine compliance (Rosenberg, *et al.*, 1995-a).

Improving compliance is not the responsibility of patients alone; it is also the responsibility of health-care providers and drugs manufacturers. Health-care providers' role in improving oral contraceptives compliance may be manifested first of all in helping women to choose the suitable contraceptive method depending on their background and special needs. They should also discuss the possible side –effects of oral contraceptives as well as their non-contraceptive benefits. Health-care providers should help women express themselves clearly and to ask any question they consider important in order to keep them provided with the needed information; especially how to act and what to do when missing a pill. They should also emphasize on the importance of reading and understanding the leaflets well and on follow-up visits to evaluate compliance and solve arising problems early. As for oral contraceptives manufacturers, they have to perform researches in order to determine factors related to compliance. Packages used should be designed in a way that encourages compliance and the leaflets should be written in simple language that is understandable by women from different social and educational backgrounds. Concerning oral contraceptives users, they should set themselves a specific time to take the pill. They should also read the leaflets carefully and know what to do in emergency cases and to be aware enough to use back-up methods when necessary (Rosenberg, *et al.*, 1995-a).

In a study conducted in five European countries: Denmark, France, Italy, Portugal and United Kingdom, poor compliance and oral contraceptives discontinuation were studied and related to some factors. Women participating in the study were of different age groups and from different social status (Rosenberg, *et al*, 1995-b).

According to this study, 81% of women used oral contraceptives consistently and effectively, 19% missed one or more pills per cycle and 10% missed two or more pills per cycle. Users in this study were found to be grouped into three groups according to factors that were found to affect proper use of oral contraceptives: user characteristics, contraceptive services side-effects and dosing regimen of oral contraceptives. The strongest factor was the user characteristics of which failure to take the pill at the same time each day was the most strongly related (Rosenberg, *et al.*, 1995-b).

As for the contraceptive service care system characteristics, 47% of women reported that they did not receive enough information and help concerning oral contraceptives usage from their health-care providers when oral contraceptives were first prescribed and thus these women were nearly 1.5 times more likely to use oral contraceptives inconsistently than women who received more information on oral contraceptives (Rosenberg, *et al.*, 1995-b).

As for side-effects, inconsistent use was related to some side-effects in different ratios:

- Relative risk of 2.1 for women experiencing hair growth
- Relative risk of 1.2 for women having breast tenderness
- Relative risk of 1.4 for women having nausea (Rosenberg, *et al.*, 1995-b).

Age, pill brand used, where to keep the pills, knowledge of non-contraceptive benefits and type of doctor prescribing the pill were factors that were not significantly related to the consistent use of oral contraceptives (Rosenberg, *et al.*, 1995-b).

According to this study, health-care providers represent the most important factor helping women to be more compliant and consistent in using oral contraceptives. They should provide women with the correct use of oral contraceptives in their initial counseling and make sure that they understand the instructions well so as to guarantee their compliance and proper use (Rosenberg, *et al.*, 1995-b).

When looking at compliance from a general point of view, it is noticed that non-compliance exists no matter how severe its consequences are. Even when these consequences can be fatal patients do not take their medications exactly as prescribed 25% of the time. As for the contraceptive pills, the fear of pregnancy does not result in taking the pill every day and regularly (Pinter, 2002).

Consequences of non-compliance can be:

1- Unintended pregnancy

2- Experiencing side-effects

3- Diminished non-contraceptive health benefits (Pinter, 2002).

Compliance has different elements to form its dimensions:

1- Contraceptive efficacy and effectiveness: effectiveness of a birth control method is measured methods developed by researchers and method developers depending on how frequently pregnancy would occur if used exactly as instructed; "perfect use"; while, "typical use" reflects contraceptive use by the average woman according to factors affecting the way a prescribed regimen is followed, such as occasionally forgetting to use the method as directed (Branden, November/December 1998). Patients usually comply more to more effective methods and less with less effective ones (Pinter, 2002).

2- Contraceptive safety: compliance is directly related to the safety of the contraceptive method (Pinter, 2002). Patient's perceptions of a contraceptive's method safety affect compliance to this method. Women continue using a contraceptive method and comply with it as long as they see it is safe and free of side-effects (Branden, November/December 1998).

3- Side-effects: adverse effects may result in contraceptive method non-compliance (Pinter, 2002). Sometimes women experiencing side-effects of contraceptives and consider them as signs of failure for the contraceptive method used and thus discontinue using the method and increase the risk of unplanned pregnancy. According to many studies, compliance is improved when fewer side-effects are experienced (Branden, November/December 1998).

4- Patient comprehension of use of a contraceptive method: according to studies over the years, women are more consistent to a contraceptive method when they understand the method well. Continuous follow up and counseling by health-care providers increase compliance and improve knowledge (Branden, November/December 1998). Recounselling sessions and follow-up visits support the education of women by the health professionals so as to stick more to the contraceptive method used (Pinter, 2002).

5- Personal characteristics and considerations: compliance with a contraceptive method is affected by patient characteristics such as: lifestyle, level of health literacy, partner involvement, capability to understand information and instructions and socioeconomic status (Pinter, 2002). Many studies have mentioned that different personal patient considerations and characteristics affect compliance to contraceptives. Some of these conditions are: lifestyle, socioeconomic status, medical problems, level of domestic violence, partner involvement, level of health literacy and intellectual capability to understand information received and ability to apply it everyday (Branden, November/December 1998).

6- Non-contraceptive benefits: most contraceptives have non-contraceptive health benefits like those of oral contraceptives or dual protection associated with condom use most of which are not known by users (Pinter, 2002). Oral contraceptives have a wide range of non-contraceptive benefits including: protection from ovarian and endometrial cancers, reduction of the risk of cardiovascular disease and decrease of menstrual irregularities (Branden, November/December 1998).

7- Health-care provider preferences: based on personal experiences, informal patient surveys, or formal research health-care providers frequently have a number of contraceptive methods and brands that they prefer for their patients (Branden, November/December 1998; Pinter, 2002).

Women using oral contraceptives are usually young and healthy women who may not be fully aware of the consequences of non-compliance to oral contraceptives and thus may get involved in unintended pregnancies or menstrual problems. In order to understand compliance well, it is needed to look for a model that explains women's behaviors towards it. The most appropriate model that reflects the beliefs and behaviors of women using oral contraceptives is "The Health Belief Model". This model is based on the patient's perceptions of being susceptible to the consequence of non-compliance, their severity and costs on one hand and the benefits of compliance on the other hand (Rosenberg and Waugh, 1999).

Compliance and commitment to preventive treatments are usually evaluated by the Health Belief Model as a theoretical framework. Oral contraceptives are used mainly for pregnancy prevention and thus Health Belief Model is the used to evaluate and predict compliance with contraceptive use. Health Belief Model components reflected in the compliance issue are presented as:

1- Patient perceptions of susceptibility to getting pregnant which is the consequence of non-compliance in this case.

2- Severity of non-compliance consequences.

3- Comparison between costs and benefits associated with the use of contraceptive and its consequences.

4- Difficulties in using contraceptives (e.g. side-effects, understanding the contraceptive’s mechanism of action) (Pinter, 2002).

In the United States in 1995, 15.5% of oral contraceptives users reported missing one pill and 13.3% reported missing two or more pills in the last three months (Abma, *et al.*, May 1997).

The issue of compliance has been subjected for lots of intensive research. In one study conducted among adolescents using oral contraceptives, an average of three pills were missed in each cycle and 50% discontinued the pills in the first three months. In another study, missing one pill per cycle was reported by third of oral contraceptive users (Rosenberg and Waugh, 1999).

Compliance to contraceptive methods is a complicated issue that is affected by many factors thus affecting the efficacy rate of the contraceptive method. Efficacy rate for a contraceptive method is presented by the percentage of avoided pregnancies when using a contraceptive for one year, while failure rate is the percentage of occurring pregnancies in one year as well. Success and failure rates are based either on perfect use or typical use. Perfect use of a contraceptive is related to the contraceptive use exactly as recommended by the producer while typical use is when a contraceptive method is frequently used inconsistently (Branden, November/December 1998).

Missing oral contraceptives and poor compliance are related to many factors including:

- Absence of daily routine reminder to take the pill on time
- Problems in reading and understanding the leaflet in the oral contraceptive's package
- Lack of information provided and explanation from the health care provider
- Experiencing side effects (Rosenberg, *et al.*, 1995-b).

In a study conducted in the United States, concerning compliance and satisfaction with oral contraceptives, 47% of pill users reported missing one or more pills per cycle and 22% missed two or more pills. It was noted in the study results that compliance difficulties were associated with user characteristics and experienced side-effects. Women who did not have a specified routine for taking the pill were 3.6 times more likely to miss two or more pills per cycle when compare to women having such a routine. Women who understood little or none of the information in the inserted leaflet and women who understood some of the information were 2.8 and 2.3 respectively more likely to miss pills than those who read and understood all that written information. Women reporting heavy or extended periods or those reporting spotting were 1.6-1.7 times to miss two or more pills per cycle than those not reporting those side-effects. 22% of women using pills called their providers complaining of related side-effects; 54-55% of them complained from breast tenderness or mood changes and 44-46% complained from nausea and spotting. However, 9% of women using pills returned to their providers because of side-effects; 60% complaining about weight gain, 53-54% complaining about mood changes, breast tenderness or nausea. Concerning care and counseling received from health-care providers, 34% reported care given to be very good, and 30% reported it to be good whereas 11% reported dissatisfaction from their providers. Dissatisfaction was reported by women having side-effects, women compliant and women paying the highest prices for the pills (Rosenberg, *et al.*, March/April 1998).

2.11 Oral Contraceptives Related Mortality

In a 25 year cohort study conducted in Britain that covered 46,000 women, health records and death certificates were monitored. Obtained results had shown that the risk of death from all causes was similar in ever users and never users of oral contraceptives and the risk of death for most particular causes did not differ significantly in the two groups. This means that oral contraceptives have their main effect on mortality while being used and in the 10 years after use is stopped. Ten or more years after use stops mortality in past users is similar to that in never users (Beral, *et al.*, 1999).

2.12 Summary

Use of contraceptive methods has been present since ages. However, excessive use has been seen in the last decades. In this duration of time, a big progress in development of contraceptive methods has occurred. Different types of contraceptives are now found and available for use.

Use of contraceptive methods varies between countries depending on many factors. In general, developed countries use contraceptive methods more than the developing countries. Not only this, they also differ in the most preferable method used and the distribution of methods used.

Hormonal methods of contraception are considered the most effective methods out of which the oral contraceptives are the most to be used. Different formulations of oral contraceptives have been found and a massive development in this field has occurred so as to produce highly effective oral contraceptive pills with limited side effects. This was achieved by the use of new hormonal formulations in small concentrations. Oral contraceptives have high efficacy reaching up to 99% if used properly.

Choosing a contraceptive method in general depends on many factors that differ from region to another. In addition, choice of a contraceptive method depends in the first degree on the characteristics of the woman herself so that the suitable method of contraception for the woman makes her a specific case.

Use of a contraceptive method depends on many factors among which the demographic factor is a very important one. Place of residence of woman (rural or urban), number of children a woman has, woman's age and work status; all are factors affecting contraceptive methods use and choice.

Oral contraceptives are the type of contraceptives that need compliance and consistent use to give their desired effect in prevention of pregnancy. Good knowledge of the contraceptive mode of action, benefits, side effects and strategy when missing pills all help in better compliance and thus better effects and more efficacy.

Women using the oral contraceptives also need to be supported by a health team that helps them always to stay compliant. Every aspect about oral contraceptives needs to be

discussed with users so that clear and simple information are provided to ensure and guarantee compliance.

Oral contraceptives side effects are truly present alongside their health benefits. Mortality related to oral contraceptives use does not exist as used to be when oral contraceptives were newly introduced to use. Many studies have proved that the risk of death from all causes was similar in ever users and never users of oral contraceptives.

Chapter 3

Conceptual Framework

3.1 Introduction

Contraception is achieved by many ways nowadays. Oral contraception is one way of the ways used. It involves the use of oral pills composed of certain hormones that are responsible for the consecutive steps that finally lead to contraception. In order to understand contraception well, one has to know how the normal system works in order to be able to counter act it. The female body undergoes many changes that precede and prepare for pregnancy. Systemically used contraceptives target these changes. The effectiveness of contraceptive methods not only depends on the method itself; it also depends on the user as well. It is important to know that the used contraceptive methods impose good and consistent use to result in the desired outcomes in contraception.

3.2 Terms Definitions

Different terms are used in the study. Definitions of certain terms were based on definitions mentioned in the Demographic and Health survey conducted in 2004 by the Palestinian Central Bureau of Statistics. These definitions are as follows.

Age at Marriage	The age of the individual in years at the time a person is actually married.
Breastfeeding	Refers to the method of feeding infants and children and is defined as feeding a child breast milk directly from the breast or expressed
Contraceptive Pill	One of the methods used by women for delaying or avoiding the coming pregnancy by taking a tablet every day
Family Planning Method	A method used for delaying or stopping pregnancy. Modern methods include pills, IUD, injection, vaginal methods, female jelly, female sterilization, male sterilization and condoms.
Health Care Provider	An individual whose responsibility involves one or more of the following: the provision, administration, teaching and development of health services, activities or supplies. The provider may have direct or indirect interest in health industry.
Illiterate	A person who cannot read or write a short abstract about his or her life and understand it.
IUD	A flexible, plastic intrauterine device. It often has copper wire or sleeves on it. It is inserted into the women's uterus through her vagina.

Place of Residence	Place of residence is divided into urban, camps and rural. A population outside municipal boundaries and camps are considered a village population.
Reproductive Health	Defined by WHO as a state of physical, mental and social wellbeing in all matters relating to the reproductive system at all stages of life. The term implies that people are able to have the capability to reproduce and the freedom to decide if, when and how often to do so. Implicit in this are the rights of men and women to be informed and to have access to safe, effective, affordable and acceptable methods of the family planning method of their choice and the right to appropriate health-care services that enable women to safely go through pregnancy and childbirth.

3.3 Definition of Contraception and Contraceptive

Contraception is the opposite of conception; in other words the prevention of conception. It is the intentional prevention of fertilization of an ovum by a spermatozoon. The major goal of contraception is birth control in which family size is being limited and thus family planning is achieved (Tindall, 1987).

Contraceptive is the mean or method used to result in contraception. Contraceptives used may be classified into:

1. Physiologic methods
2. Chemical barriers
3. Mechanical barriers
4. Intra uterine devices
5. Hormonal control
6. Subdermal implants.

Choice between these methods depends mainly on woman's health condition and personal will (Dunnihoo, 1992).

3.4 Contraceptive Methods Classification

Contraception is the prevention of unwanted pregnancy using various means (Blackburn, *et al.*, 2001).

Contraceptives are classified into groups in many ways.

- Classification according to the *mechanism of action*:

- Ovulation prevention: these are the hormonal contraceptives composed of the combination of progesterone and estrogen hormones. These are taken on regular basis and are found in different formulations. Pills are taken orally on a daily basis, injections and subcutaneous implants taken every three months (Hatcher, *et al.*, 2001).

- Fertilization prevention: these prevent the fertilization of the ovum by the sperm. These are usually mechanical methods like condoms, diaphragms or surgical intervention (Hatcher, *et al.*, 2001).

- Implantation prevention: these prevent the implantation of the fertilized ovum in the uterus like intrauterine devices (Hatcher, *et al.*, 2001).

- Classification according to *composition*:

  - Physiologic methods: these methods depend on the physiology of the human body. The main method in this group is the rhythm method in which intercourse is avoided in the fertility period of the menstrual cycle. Fertility period is when ovulation occurs and the ovum is available for fertilization (Hatcher, *et al.*, 2001).

  - Mechanical methods: these are mechanical barrier methods like condoms, diaphragms, cervical caps and intrauterine devices (Hatcher, *et al.*, 2001).

  - Chemical methods: these include the use of agents containing spermicidal agents. Spermicides are found in different formulations including suppositories, gels, foams or creams (Hatcher, *et al.*, 2001).

  - Hormonal control methods: these involve the use of hormones as a birth control method. Hormones are found as oral pills, injections and subdermal implants (Hatcher, *et al.*, 2001).

- Classification according to *reversibility*:

  - Reversible method: this means that the method chosen can be stopped at any time without long-term effects on fertility and that the woman can become pregnant after stopping the method use. Intrauterine devices oral contraceptives condoms and injectable contraceptives are examples for reversible contraception (Ozalp, *et al.*, 2000).

  - Irreversible method: this means that the method used can not be reversed, most likely because it involved surgery. Surgical sterilization can be performed on women and is called in this case "tubal ligation", or it can be performed on men and is called "vasectomy" (Ozalp, *et al.*, 2000).

- Classification according to *nature*:

- Natural method: the rhythm or safety period method for prevention of pregnancy and the natural contraception caused by lactation period during which pregnancy usually doesn't occur (Wikipedia, 2006).

- Unnatural methods: all methods other than the safety period method and the lactation period are considered to be unnatural or artificial (Wikipedia, 2006).

3.5 Study Conceptual Model

A model was constructed for the study based on the aim and the objectives of the study. Different variables and outcomes were connected according to the objectives. The main goal of the study was to examine the extent and depth of information given to current women users of oral contraceptives alongside their level of adherence and compliance behavior in administration and usage. Relations between variables themselves from one side and between variables and outcomes were constructed based on the objectives of the study. Main objectives of the study were to evaluate the quality of information provided to women about oral contraceptives and their degree of compliance to oral contraceptives use. Variables measuring information studied women have and their compliance to oral contraceptives were tested to see their dependence on other variables like women's age, locality, educational level, income and source of information. Knowledge and compliance are related so that compliance is better with better knowledge. As for knowledge, it is affected by factors like: lack of information, source of information, level of education, current age, age at marriage and locality. As for compliance, it is affected by economical status, number of children and the experience of side effects. Relations between these variables were put together in a model in order to be tested and measured.

Variables in the study were categorized into categories in order to meet the study objectives. These categories are as follows:

1. Demographic and socioeconomic background: this category covers demographic variables including place of residence (district and locality), family income, woman's and husband's level of education and employment status.

2. General health status: this category covers health status variables including weight, height, having chronic diseases, taking chronic medications, smoking, lactation.

3. Maternal history: this category covers maternal history variables including woman's age at marriage, woman's age at first pregnancy, woman's age at first delivery, number and sex of children, number of abortions.

4. Use of oral contraceptives: this category covers variables related to oral contraceptives use including reason for using the oral contraceptive, oral contraceptive prescriber, use of the calendar pack and use of a backup method.

5. Knowledge about oral contraceptives: this category covers variables related to women's knowledge about oral contraceptives being used including the name of the oral contraceptive used, nature of oral contraceptive, knowledge of oral contraceptive side effects, knowledge of oral risk factors, knowledge of oral contraceptives interactions with other medications or substances and knowledge of oral contraceptives health benefits

6. Compliance to oral contraceptive use: this category covers variables measuring compliance to oral contraceptives including taking the oral contraceptive regularly, missing taking the oral contraceptive (frequency and number per month), use of backup methods and use of reminder.

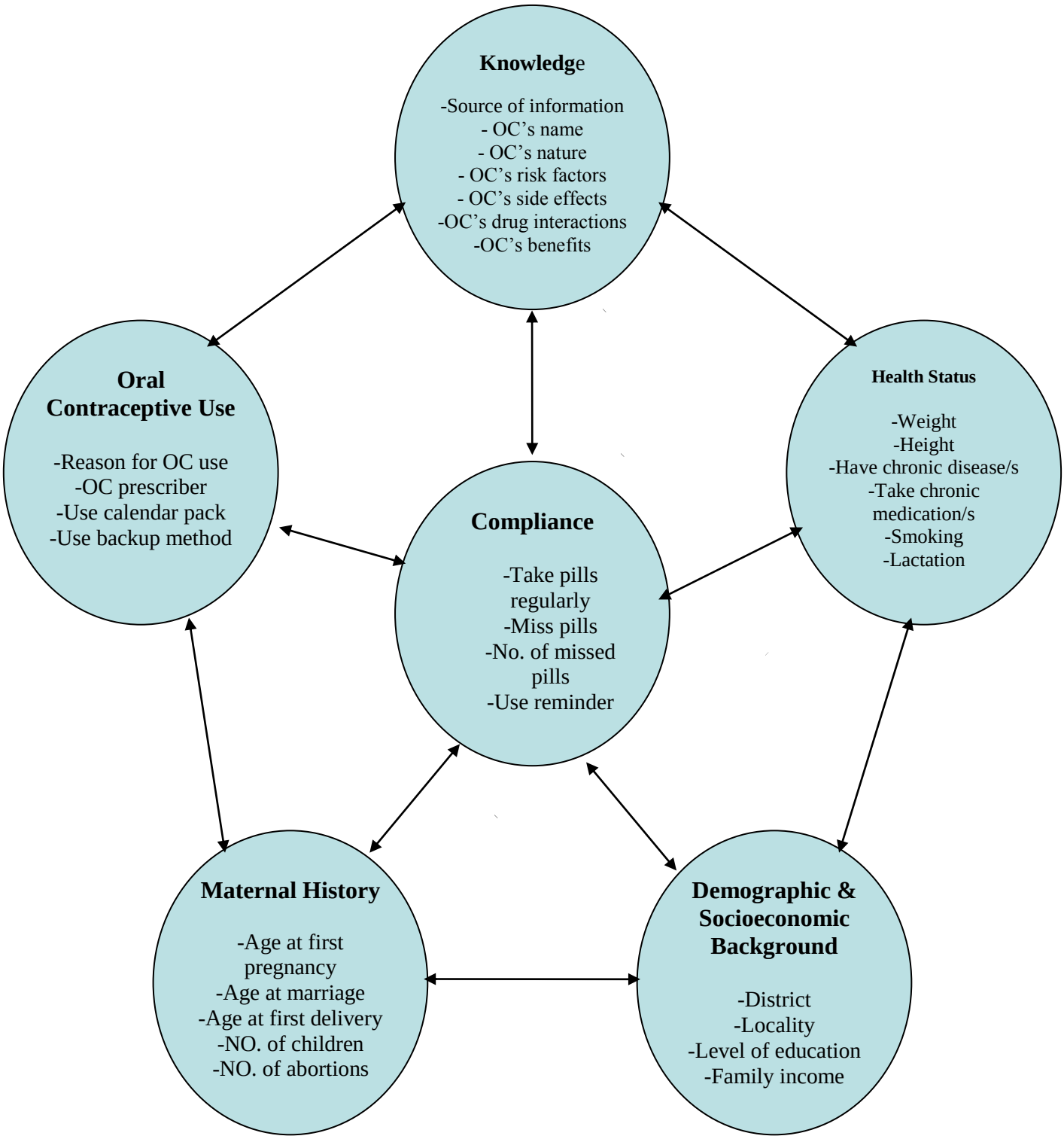


Figure 3.1: Study Conceptual Model

3.9 Summary

Different methods of contraception available can be grouped into categories depending on different points of view like mechanism of action in the body, mode of application, industry or active components. Although contraceptive methods have been known and used long time ago, the massive development in this field is only decades aged now. On the other hand, quick development is going on and is also expected in the years to come.

Contraceptives are used in the first place to prevent pregnancy in an action to stop having children or to space between them. However, cases having different reasons for contraceptive use are also available. Among these cases is the presence of a chronic disease that makes it danger for the woman to become pregnant or the fear to transport a congenital disease to the children.

Despite the fact that oral contraceptives are preferred by many women for the ease of use and the other health benefits they have, oral contraceptives are still surrounded by different myths and misunderstandings.

Oral contraceptives action depends on the hormonal cycle of the woman. Oral contraceptives are found as combination of estrogen and progestin hormones or as progestin hormone only pills. Each of these hormones has a different mechanism of action resulting eventually in prevention of conception.

Oral contraceptives are like other drug groups that have desired beneficial effects besides their original action and also have undesired effect and complications. The most desired beneficial effect of oral contraceptives may be the decreased bleeding experienced by women and thus less occurrence of anemia. In contrast to their possibility of developing breast or cervical cancers, oral contraceptives play the role of protective factor against ovarian and endometrial cancers.

Use of oral contraceptives is forbidden in many cases in which their use may exacerbate current health conditions like cardiovascular problems and varicose veins.

Interactions of oral contraceptives with other medications result in decreasing their effect by the acceleration of their metabolism by other medications or increased level of side effects by increasing their concentrations in the body through decreased metabolism. Also, oral contraceptives themselves can affect the concentrations of other medications in the same way.

Choosing a contraceptive method in general and oral contraceptive in specific depends on factors that need to be taken into consideration so as to be able to maximize their effect and decrease their undesired outcomes. Different formulations of oral contraceptives are now available. Some of which are combination oral contraceptives with estrogen and progestin hormone derivatives and others contain only progestin hormones. Many brands are now available thus providing a wide range of choices to choose from. Lactation is one of the important factors affecting the choice of the oral contraceptive. In this case a

progestin only pill is usually chosen to preserve the production of breast milk. Combination oral contraceptives are found in more varieties than the progestin only pills.

Missing pills is a problem facing oral contraceptive users. Women using oral contraceptives should be taught not to miss pills and also taught to act properly when missing pills. Reaching the high effectiveness of oral contraceptives requires corporation from women using contraceptive pills and from the health team providing this service in order to fulfill the anticipated results from their use.

Chapter 4

Methodology

4.1 Introduction

Objectives of this study were best to be reached by a descriptive cross-sectional study. The Official approval for data collection was obtained from The Palestinian Family Planning and Protection Association centers in the West Bank based on an official letter from the researcher and the supervisor through the team of The School of Public health at Al-Quds University. Preparing for the questionnaire that was used as the research tool followed the scientific methodology. Inclusion and exclusion criteria for participants in the research were developed so that women currently using oral contraceptives were included in the study. Ethical consideration was followed in sample determination and during data collection. Data were collected in a four months period between December 2007 and March 2008 where 149 women filled the questionnaire. Data entry and data analysis for the filled questionnaires were performed using version 15 of The Statistical Package for Social Sciences program (SPSS 15).

4.2 Study Design

This is a descriptive cross-sectional study. The study was done in the clinics of the PFPPA in Bethlehem, Halhoul, Hebron and Ramallah and Tulkarem. The questionnaires were filed by the women who were visiting the clinics for the provision of oral contraceptives.

4.3 Sample Determination

The research objectives and problem statement implied that the women participating in the research should be currently using oral contraceptives. So, after the approval of The Family Planning and Protection Association, women currently using oral contraceptives were determined as the sample population.

4.4 Inclusion and Exclusion Criteria

Women currently using oral contraceptives were defined as those who have been using the oral contraceptive for at least one month before the research commenced and visited the clinic for the provision with the oral contraceptive for the next month.
Women who were prescribed the oral contraceptive for the first time and wanted to commence using them after that visit were not included in the study, unless they visited the center once again during the four months research duration and asked for further supply of the oral contraceptive.

On the other hand, women using oral contraceptive who visited The Family Planning and Protection Association centers to get advice for changing from oral contraceptives to another contraceptive method were not included in the research.

So, every woman visiting any of The Family Planning and Protection Association centers in Bethlehem, Halhoul, Hebron, Ramallah and Tulkarem from December 2007 to the end of March 2008 who was currently using any oral contraceptive as defined above was

asked to fill in the questionnaire. During this period, 149 women agreed to fill the questionnaire and thus data were collected.

4.5 Research Field

Research field was determined after getting the approval from The Family Planning and Protection Association to collect the data and fill the questionnaires from women visiting their clinics in Bethlehem, Halhoul, Hebron, Ramallah and Tulkarem. A written letter for this purpose was sent from the researcher through supervisor and the university and approval was the answer.

4.6 Ethical Considerations

A description for the study and its objectives was found with each questionnaire and thus studied women were able to know the reason for the study. The questionnaires were filled by the women with complete privacy without asking for their names. No one had been given access to the completed questionnaires other than the researcher to ensure privacy and accuracy.

4.7 Research Tool

While developing the questionnaire, many questionnaires for researches concerning oral contraceptive use and compliance were explored. One of these questionnaires was a questionnaire used in a study with the title "Jordanian Married Muslim Women's Intentions to Use Oral Contraceptives" by Suha Kridli and Sarah Newton in Jordan (Kridli and Newton, 2005). The researcher used the questionnaire as a basis for developing her own questionnaire to meet the research aim and objectives. Then questionnaire was given to a validation committee, i.e.an obstetrician gynecologist, two midwives and a nurse, for evaluation. Suggestions given by the committee were studied by the researcher and the supervisor and were taken into consideration and worked on. Some suggestions asked to change way of asking some questions in order to avoid leading questions, add some choices to the answers of some questions or delete some questions.

The questionnaire was translated to the Arabic language to ensure understanding the questions and avoid misunderstanding.

The questionnaire was composed of 90 questions in order to cover the research objectives. This issue was seen by some of the women who filled the questionnaire as a limitation since filling the questionnaire took sometimes fifteen to twenty minutes.

The questions in the questionnaire were categorized into six parts according to the study aim and objectives.

The parts and its questions are the following:

1. Demographic and socioeconomic background: these questions asked for information concerning:

    - place of residence
    - age
    - religion
    - family income
    - woman's and husband's level of education
    - woman's and husband's employment status.

2. General health status: these questions asked women about:

    - weight
    - height
    - having chronic diseases
    - taking chronic medications
    - previous surgery
    - family history of certain diseases
    - smoking status
    - lactation.

3. Maternal history: this category looked for information including:

    - woman's age at marriage
    - woman's age at first pregnancy
    - woman's age at first delivery
    - number and sex of children
    - number of abortions.

4. Use of oral contraceptives: in this category, women were asked to give information concerning:

    - their use of oral contraceptives at previous occasions in numbers and durations if any
    - their intentions to continue using oral contraceptives or to quit in the coming months
    - reason for using the oral contraceptive
    - oral contraceptive prescriber and provision site

5. Knowledge about oral contraceptives: in this category women's knowledge about oral contraceptives being used was explored through asking them about:

    - the name of the oral contraceptive used
    - source and level of information supplied

- knowledge of oral contraceptive risk factors
- knowledge about oral contraceptives side effects
- knowledge about oral contraceptives health benefits
- knowledge of oral contraceptives interactions with other medications or substances
- nature of oral contraceptives
- whether they lack information concerning oral contraceptives and in which area
- means for filling information gaps

6. Adherence to oral contraceptives use: these questions covered women's compliance to oral contraceptives use by asking questions concerning:

    - taking the oral contraceptive regularly
    - missing taking the oral contraceptive (frequency and number per month)
    - actions and backup methods if oral contraceptive was missed
    - reminder means for taking the oral contraceptive
    - action upon experiencing side effects from the oral contraceptive
    - the occurrence of pregnancy while using the oral contraceptive.

4.8 Pilot Study

After developing the questionnaire and inspecting the by the validation committee, a pilot study was performed. In this study, ten women currently using oral contraceptives but from area other than the research field were asked to fill the questionnaire. These women were from Jerusalem which was not included in the research field. These women were currently using oral contraceptives i.e. were using them before filling the questionnaire and intended to continue using them after filling the questionnaire. These questionnaires were not included in the sample analyzed. After the pilot the needed modifications were done.

4.9 Data Collection

Data collection commenced on the first of December 2007 till the thirty first of March 2008 in a period of four months.

The researcher visited the PFPPA centers in Bethlehem, Halhoul, Hebron, on Saturdays and in Ramallah on Sundays where the researcher colleted the data by herself.

By the help of the team work in the stated centers, the researcher was freely able to talk to women currently using oral contraceptives. The women who approved to participate in the research were given the questionnaire to fill it by themselves.

Data collection in Tulkarem was made through the nurse at the center due to the difficulty in reaching the clinic by the researcher. The nurse at the PFPPA center at Tulkarem distributed the questionnaire for women currently using oral contraceptives

according to the above stated criteria. The women took the questionnaire, filled it and returned it in the next visit. At the end of the research period, all the questionnaires (filled and unfilled) were returned to the researcher for analysis.

4.10 Research Obstacles

Difficulty in transportation and reaching the city of Tulkarem made the researcher send the questionnaires to the PFPPA center there where the women took the questionnaire, filled it and returned it to the center. Same criteria in inclusion and exclusion of women were followed. The researcher then collected the questionnaires form the center for analysis.

4.11 Data Analysis

Data collected was analyzed using the Statistical Package for the Social Sciences (SPSS 16). Methods of analysis used were chosen to meet the objectives of the study and to look for areas of significance.

Based on the study objectives, descriptive and univariate analysis for the data was accomplished.

In the descriptive part of data analysis, frequencies for different variables were done. Results were presented either in tables or bar figures. Variables analyzed in this part were:

- Demographic variables to determine differences in demographic factors on compliance to oral contraceptives.
- Variables determining women's general health status and maternal history.
- Variables determining the use patterns of oral contraceptives.
- Variables investigating reason for oral contraceptives use or cessation.
- Variables detecting oral contraceptives providers and information provision sources.
- Variables studying the level of knowledge of oral contraceptives women had.
- Variables exploring information provided to women using oral contraceptives and information gaps.
- Variables measuring compliance to oral contraceptives usage.

The univariate analysis part studied the relation between different variables and the main outcome. Compliance to oral contraceptives use was the main outcome of the study and

thus cross tabulations and Pearson Chi-Square Test were calculated for factors affecting compliance directly and indirectly. Relations between compliance determinants were accomplished. Based on the study conceptual model, compliance determinants were analyzed:

- Relation between compliance and demographic and variables were studied.
- Relation between compliance and socioeconomic variables were studied.
- Relation between compliance and knowledge variables were studied.
- Relation between compliance and women's health status variables were studied.
- Relation between compliance and women's maternal history variables were studied.
- Relation between compliance and patterns of oral contraceptives use were studied.

4.12 Summary

The study was accomplished by cross sectional design. The designed questionnaire was developed depending on previous questionnaires studying oral contraceptives' use and compliance and was subjected to changes according to the objectives studied. Then the questionnaire was submitted for evaluation by health professionals. The questionnaire was originally designed in English and was later translated to Arabic.

A pilot study was performed on women with the same criteria of women participating in the study but from a different setting. Women who passed the pilot study were from Jerusalem city while women participating in the study itself were from the Wes Bank districts. Data was collected in a three months period from women using oral contraceptives visiting the PFPPA clinics in Bethlehem, Halhoul, Hebron, Ramallah and Tulkarem.

Studied women were asked to fill a questionnaire. The questionnaire asked for information concerning demographic and socioeconomic background, general health status, maternal history, use of oral contraceptives, knowledge about oral contraceptives and adherence to oral contraceptives use.

Collected data were treated and analyzed using The Statistical Package for the Social Sciences (SPSS 16).

Chapter 5

Results

5.1 Introduction

The aim of the study was to investigate compliance to oral contraceptives usage and its determinants among current users of oral contraceptives in the clinics of PFPPA in the West Bank. One hundred forty nine questionnaires were completed by women visiting the PFPPA clinics in Bethlehem, Halhoul, Hebron, Ramallah and Tulkarem from 1-12-2007 to 31-03-2008.

Data analysis in this chapter is categorized into two parts:

- Descriptive analysis for the study population.
- Univariate analysis to study the associations between the outcome and the various determinants.

5.2 Data Analysis

5.2.1 Descriptive Analysis

5.2.1.1 Demographic Distribution

In this study, 39.60% of the studied women were from Halhoul, 32.21% from Hebron, 11.41% from Tulkarem, 10.07% from Bethlehem and 6.71% from Ramallah (*Figure 5.1*). The studied women came from cities, villages and camps. As shown in (*Figure 5.2*), 69.8% of the women were from cities, 29.53% were from villages and 0.67% were from camps. Concerning locality in each district, studied women were mainly distributed among cities and villages with only one woman from Bethlehem district coming from camp; (*Figure 5.*3) shows these results. From Ramallah district, 10.00% were from the city itself and 90.00% were from Ramallah villages. As for Hebron district, 77.08% came from the city itself, 22.92% from Hebron villages. 93.22% of the women from Halhoul came from the city itself whereas 6.78% came from villages. Concerning Bethlehem, 40.00% were from the city itself, 63.33% from villages and 6.67% from camp. Studied women from Tulkarem district were from the city itself: 29.41% and the villages: 70.59%.

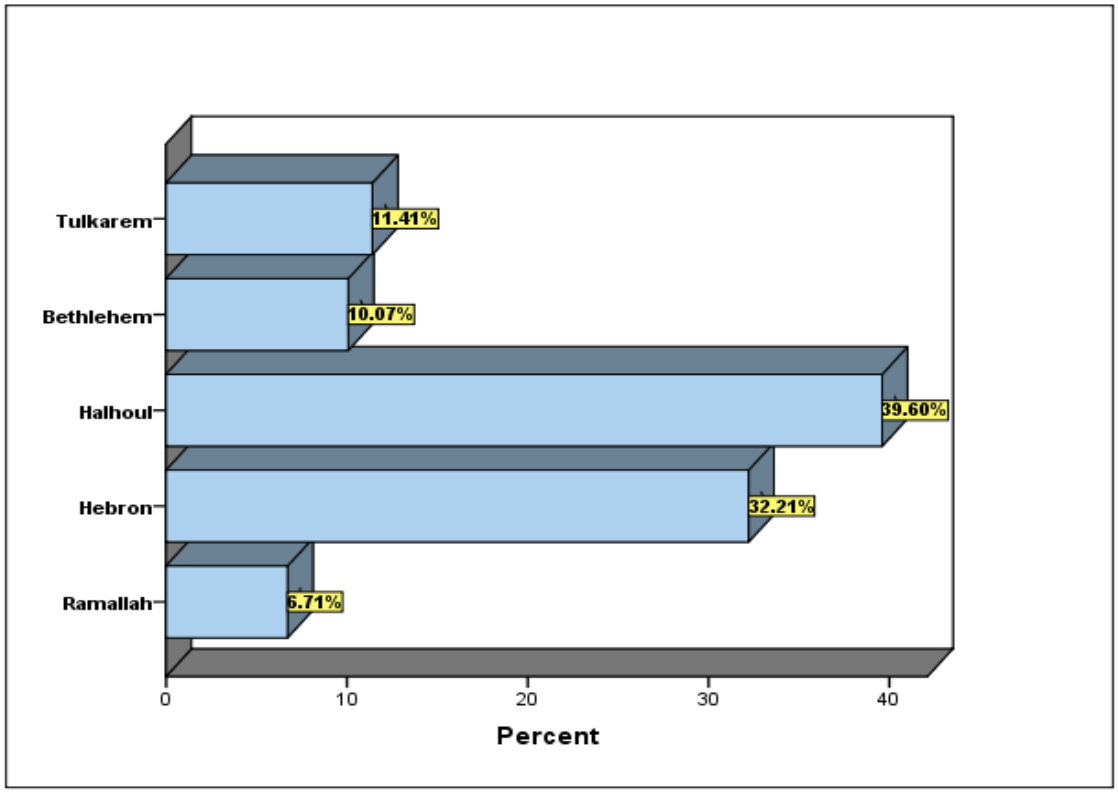


Figure 5.1: Distribution of Women Studied according to Districts

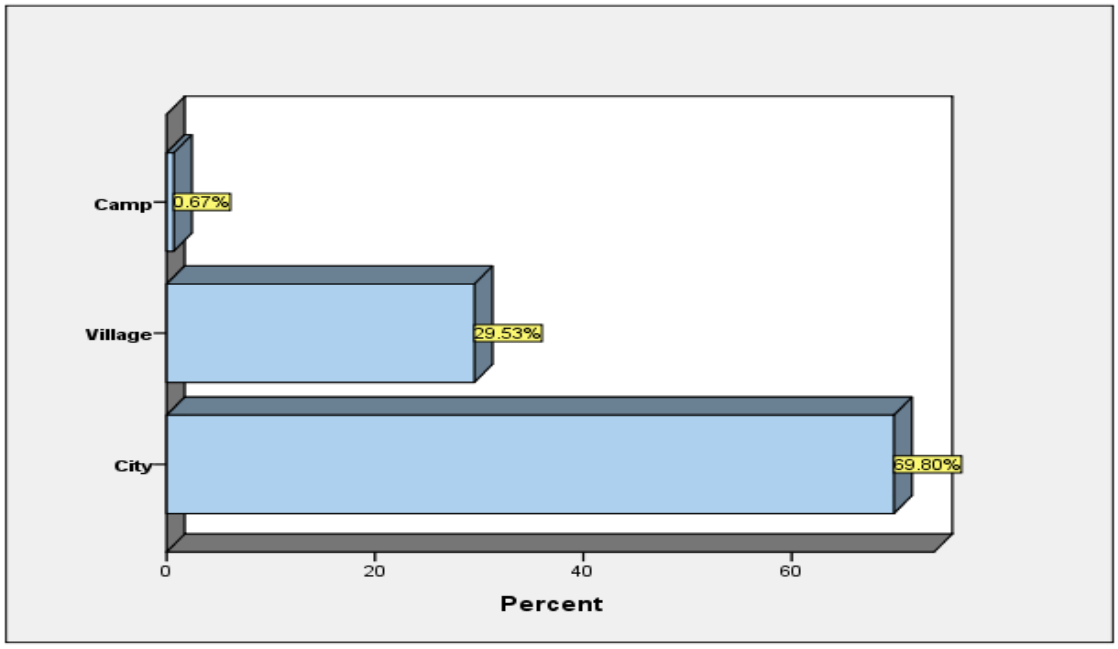


Figure 5.2: Distribution of Women Studied according to Locality

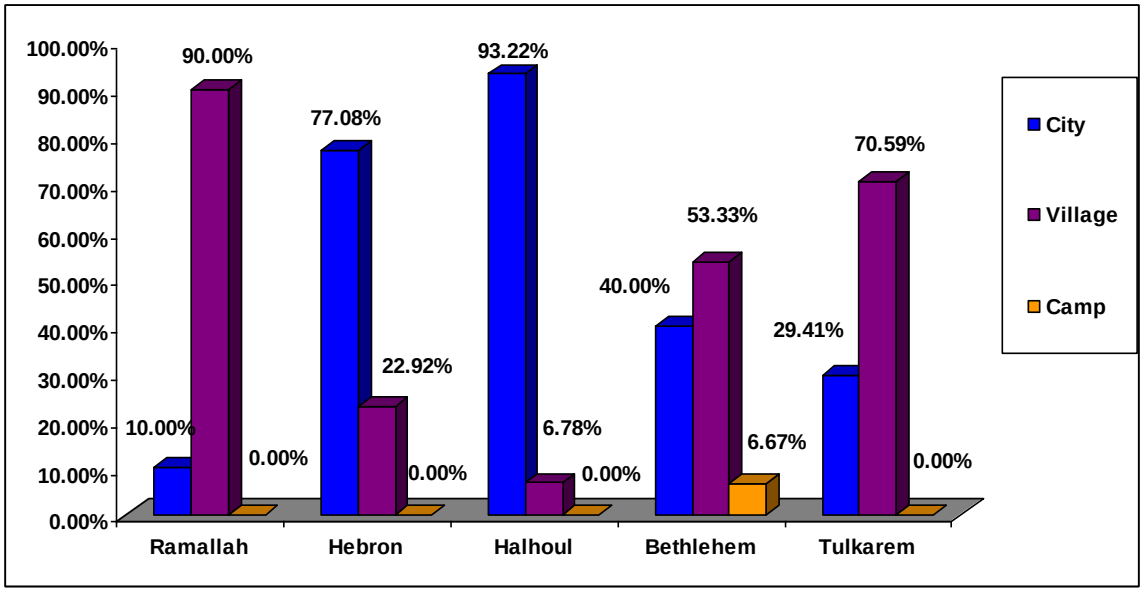


Figure 5.3: Distribution of Women Studied according to Districts and Locality

5.2.1.2 Distribution according to Age

Age was asked for in the questionnaire based on groups for both the studied women and their husbands. As displayed in (*Figure 5.4*), 2% of studied women were younger than 18 years old, 6.7% were between 19 and 23 years old, 24.2% were between 24 and 28 years old, 26.2% between 29 and 33 years of age while 40.9% were 34 years old or more. As for their husbands: no one of them was younger than 18 years, and most of them were 34 years old or more with a percentage of 67.1%.

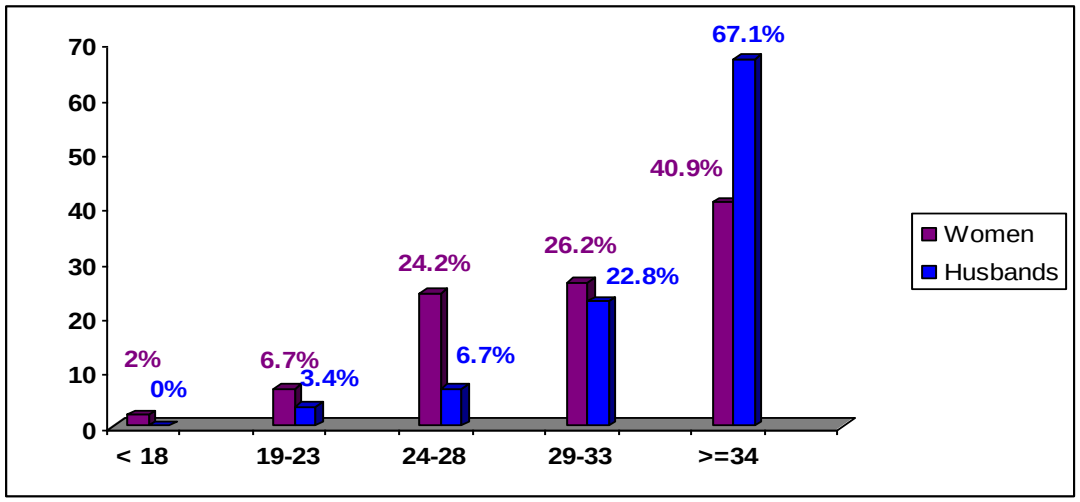


Figure 5.4: Distribution of Women Studied and their Husbands according to Age Groups

5.2.1.3 Distribution according to Employment Status

Employment status distribution as illustrated in (*Figure 5.5*) shows that most of the women in the study were unemployed with a percentage of 88.6% which is the contrary to the husband's employment status whose unemployed percentage is 8.7%. As for other sectors of employment, 4% of the studied women were government employees, 6.7% private sector employees and 0.7% only were self employed. The majority of husbands (36.2%) were self employed, 33.6% were private sector employees and 21.5% were government employees.

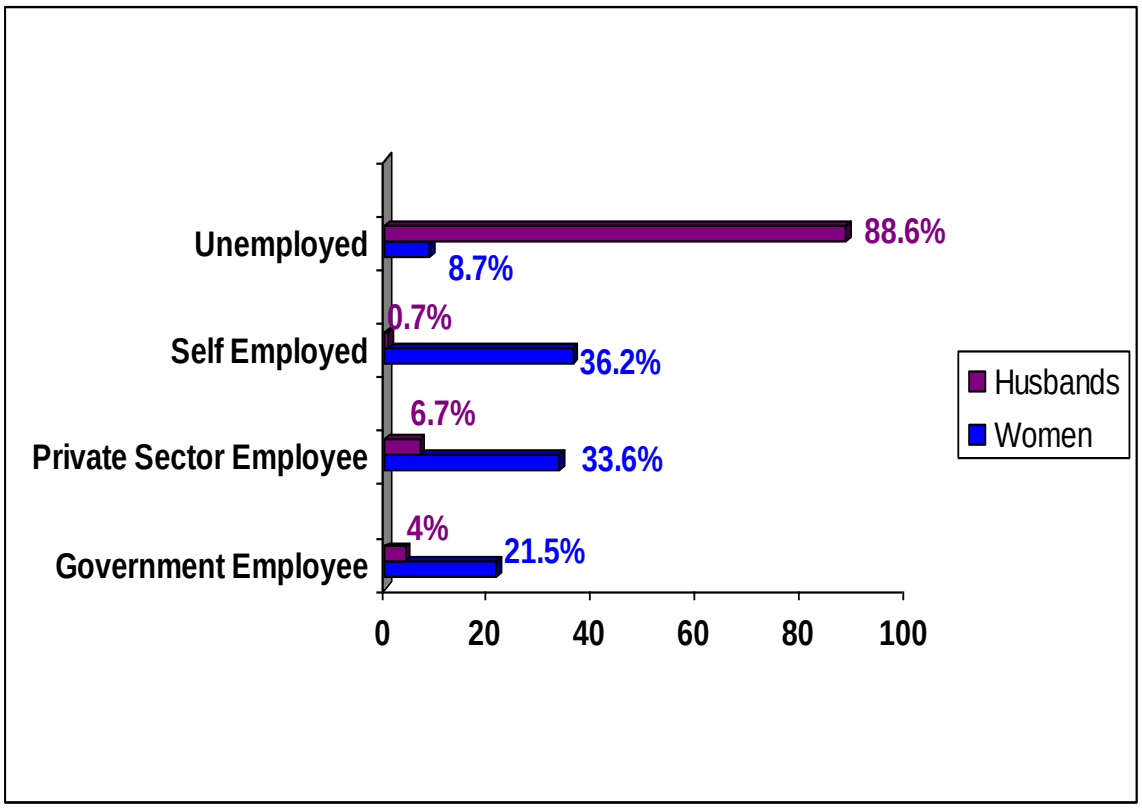


Figure 5.5: Distribution of Women Studied and their Husbands according to Employment Status

5.2.1.4 Distribution according to Family Income

Women studied were distributed into different groups measuring family income with the higher percent of 49% for monthly income between 1,000 and 2,000 NIS income so that 70.5% of the women studied came from families whose monthly income was 2,000 NIS or less (*Figure5.6*).

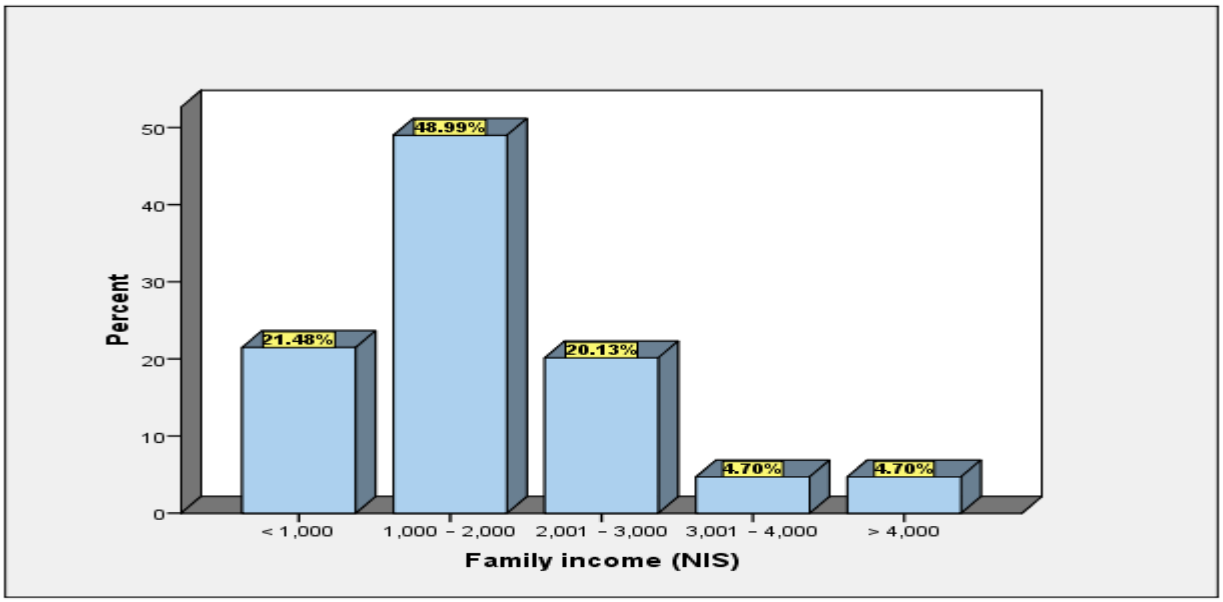


Figure 5.6: Distribution of Sample according to Family Income

5.2.1.5 Distribution according to Women's and Husband's Level of Education

In this study, only two women (1.3%) and one husband (0.7%) reported being illiterate (*Figure 5.7*). however, nearly half of both categories women and husbands finished the secondary level of education with percentages of 47% and 46.3% respectively.

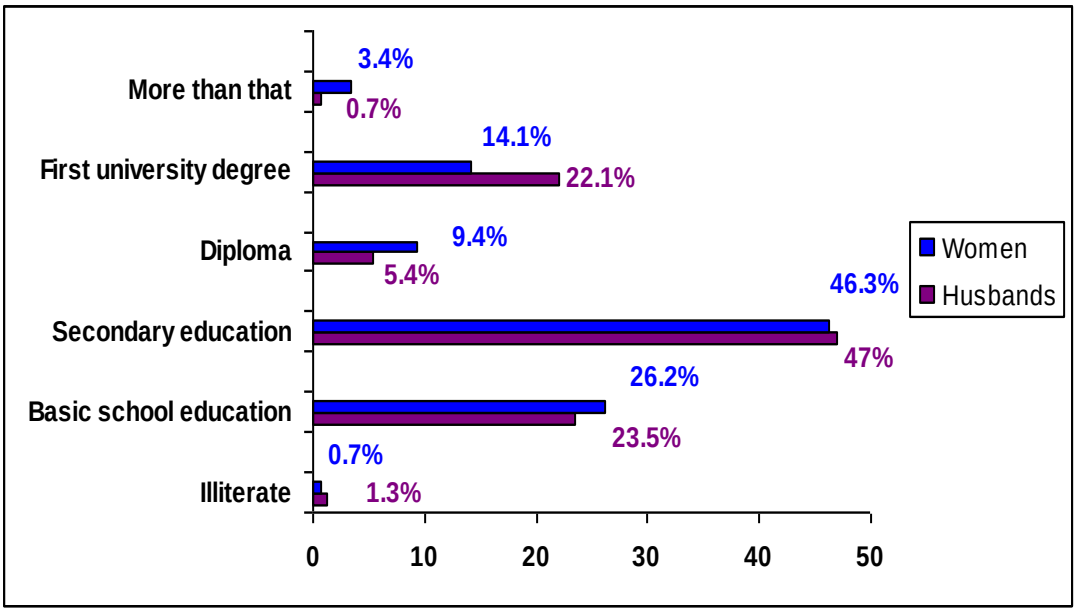


Figure 5.7: Distribution of Women's and Husband's Level of Education

5.2.1.6 Chronic Diseases in Studied Women

The majority of the women in the study were not suffering from chronic disease. 90.6% of them had no chronic diseases, while only 9.4% had chronic diseases as seen in (*Figure 5.8*).

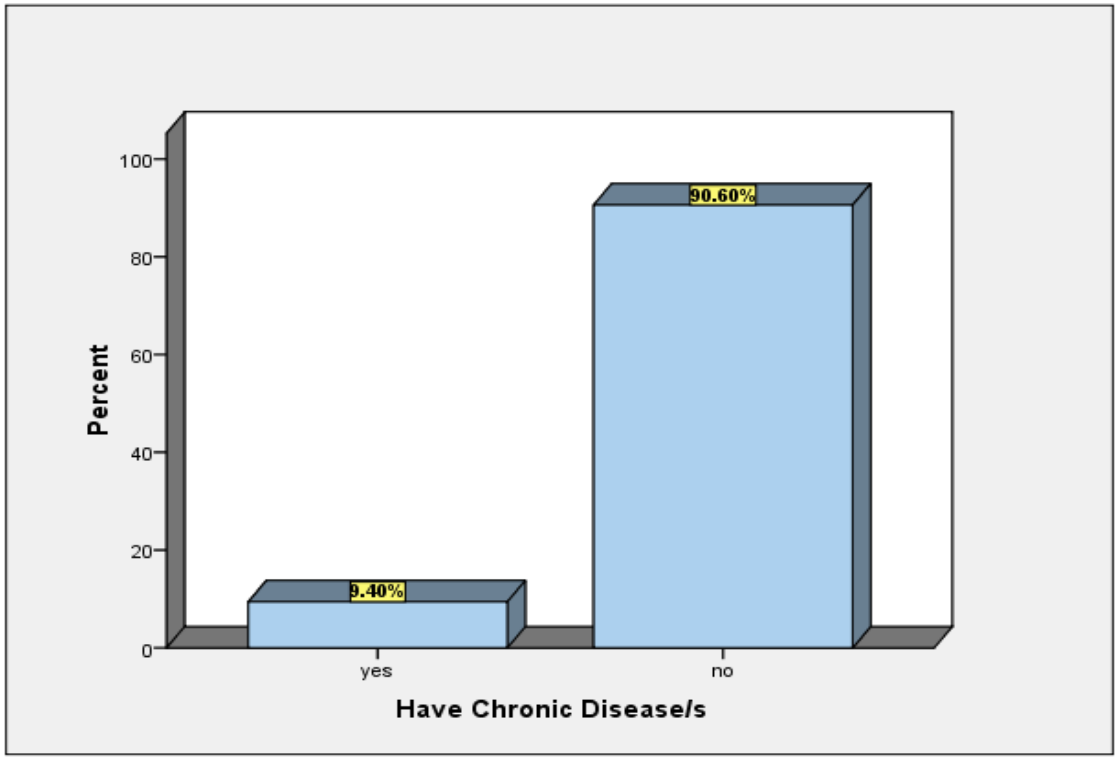


Figure 5.8: Percentages of Chronic Diseases in Studied Women

Chronic diseases found in the studied women were arthritis (4 cases, 2.68%), asthma (1 case, 0.67%), diabetes (1 case, 0.67%), hypertension (1 case, 0.67%), migraine (2 cases, 1.34%), allergy (2 cases, 1.34%), night blindness (1 case, 0.67%), thalasemia (1 case, 0.67%) and ulcer (1 case, 0.67%). This is shown in (*Table 5.1*).

Table 5.1: Percentages for Chronic Diseases in Studied Women

Chronic Disease	Counts	Percent
Not Having Chronic Diseases	135	90.60%
Arthritis Patients	4	2.68%
Asthma Patients	1	0.67%
Diabetes Patients	1	0.67%
Hypertension Patients	1	0.67%
Migraine Patients	2	1.34%
Allergy Patients	2	1.34%
Night Blindness Patients	1	0.67%
Thalasemia Patients	1	0.67%
Ulcer Patients	1	0.67%
Total	**149**	**100.00**

5.2.1.7 Chronic Medications Use by Studied Women

Ten women from those reporting to have chronic diseases reported being on a chronic medical treatment meaning that only 6.7% (*Figure 5.9*) of the studied women were taking at least one other medication with the oral contraceptive.

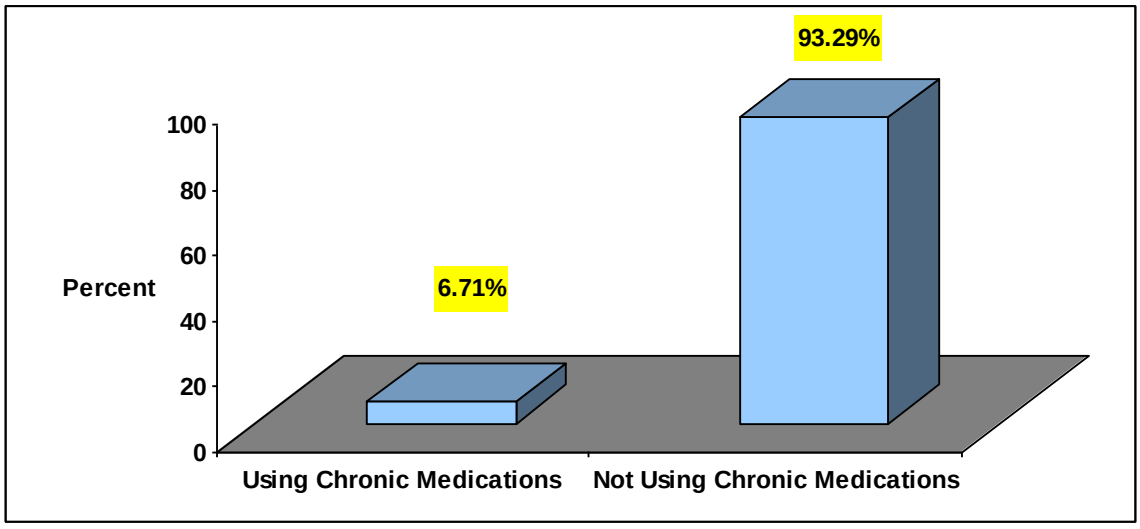


Figure 5.9: Percents for Women Using Chronic Medications

5.2.1.8 Studied Women Having Previous Surgeries

Studied women were asked about having previous surgery. Nearly the quarter (25.5%) of the studied women had had previous surgeries from whom 47.4% had cesarean section.

5.2.1.9 Studied Women Having Family History for Some Chronic Diseases

Studied women were asked in the questionnaire whether they had a family history for chronic diseases or conditions that are considered as risk factors for using oral contraceptives. As seen in (*Table 5.2*), 52 (34.9%) women reported having family history for hypertension, followed by 27.5% having diabetes in family history. 2.7% of the studied women reported having family history of breast cancer, 0.7% had family history for endometrial cancer and none of them had family history for cervical cancer.

Table 5.2: Some Chronic Diseases in the Family History of the Studied Women

Chronic Disease	Count	Percent
Breast cancer	4	2.7%
Cervical cancer	0	.0%
Endometrial cancer	1	.7%
Hypertension	52	34.9%
Thrombosis	16	10.7%
Varicose veins	20	13.4%
Diabetes	41	27.5%
Obesity	28	18.8%

5.2.1.10 Smokers among Studied Women

Only 4 of the studied women (2.7%) reported being smokers as shown in (*Table 5.3*).

Table 5.3: Smokers among Studied Women

Smoker	Count	Percent
yes	4	2.7%
no	145	97.3%

5.2.1.11 Lactation among Studied Women

Concerning the lactation status of the studied women, 20.8% were lactating and 79.19% were not lactating as shown in (*Figure 5.10*).

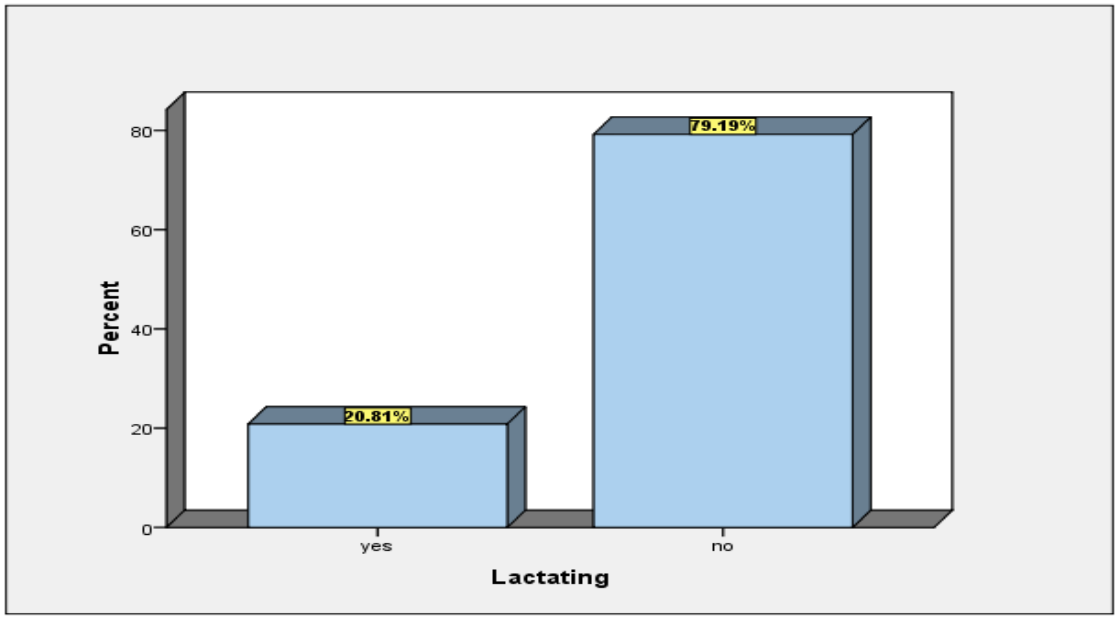


Figure 5.10: Percents for Lactation among Studied Women

5.2.1.12 Weight of Studied Women

The mean weight (SD) of studied women was 67.01 (± 10.210) kilograms; minimum weight was 47 kg while maximum weight was 92 kg as shown in (*Table 5.4*).

Table 5.4: Weight of Studied Women

Women's Weight (kg)		
N	Valid	149
	Missing	0
Mean		67.01
Std. Deviation		10.210
Range		45
Minimum		47
Maximum		92

5.2.1.13 Height of Studied Women

The mean height (SD) of studied women was 160.60 (± 10.044) centimeters; minimum height was 72 cm while maximum height was 185 cm as shown in (*Table 5.5*).

Table 5.5: Height of Studied Women

Women's Height (cm)		
N	Valid	149
	Missing	0
Mean		160.60
Std. Deviation		10.044
Range		113
Minimum		72
Maximum		185

5.2.1.14 Women's Age at Marriage

Concerning women's age at marriage, 41.6% of studied women married between 15-18 years of age, while only 2.7% were less than 15 years of age when married as shown in (*Figure 5.11*).

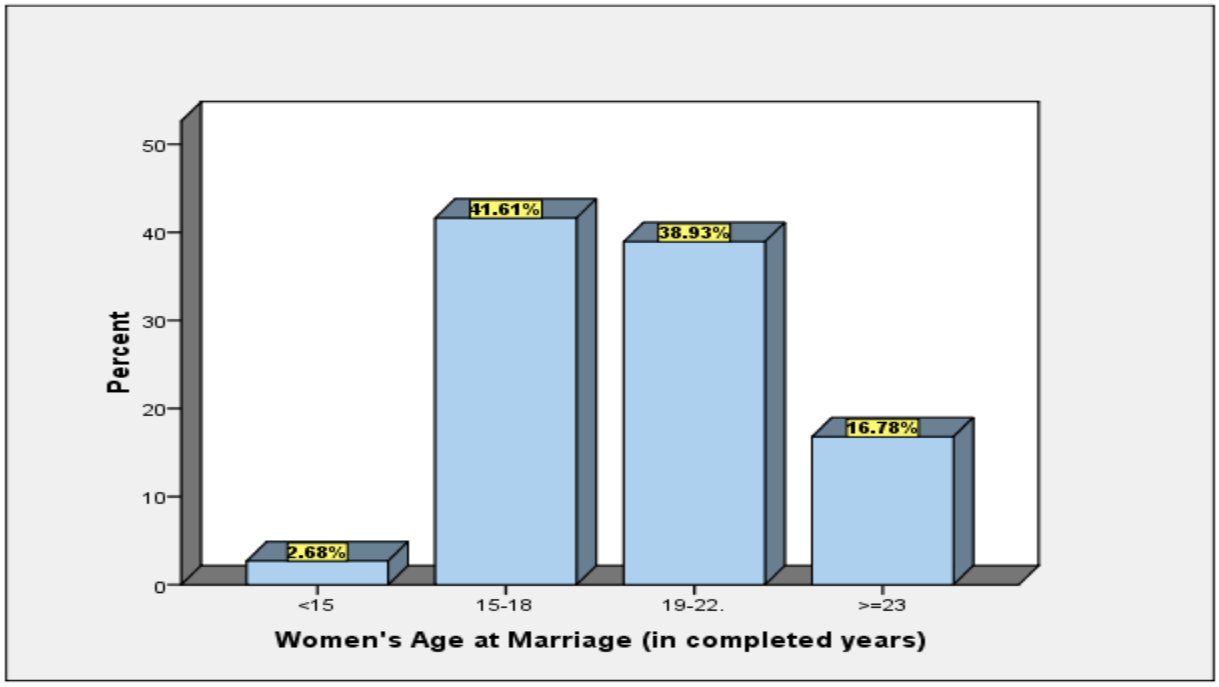


Figure 5.11: Distributions for Women's Age at Marriage (in completed years)

5.2.1.15 Women's Age at 1st Delivery

Studied women were asked for their age at the first delivery. More than the half (51.7%) of studied women had their first delivery between 19-22 years of age, 24.8% between 15-18 and 23.5% were at least 23 years at their first delivery as shown in (*Figure 5.12*).

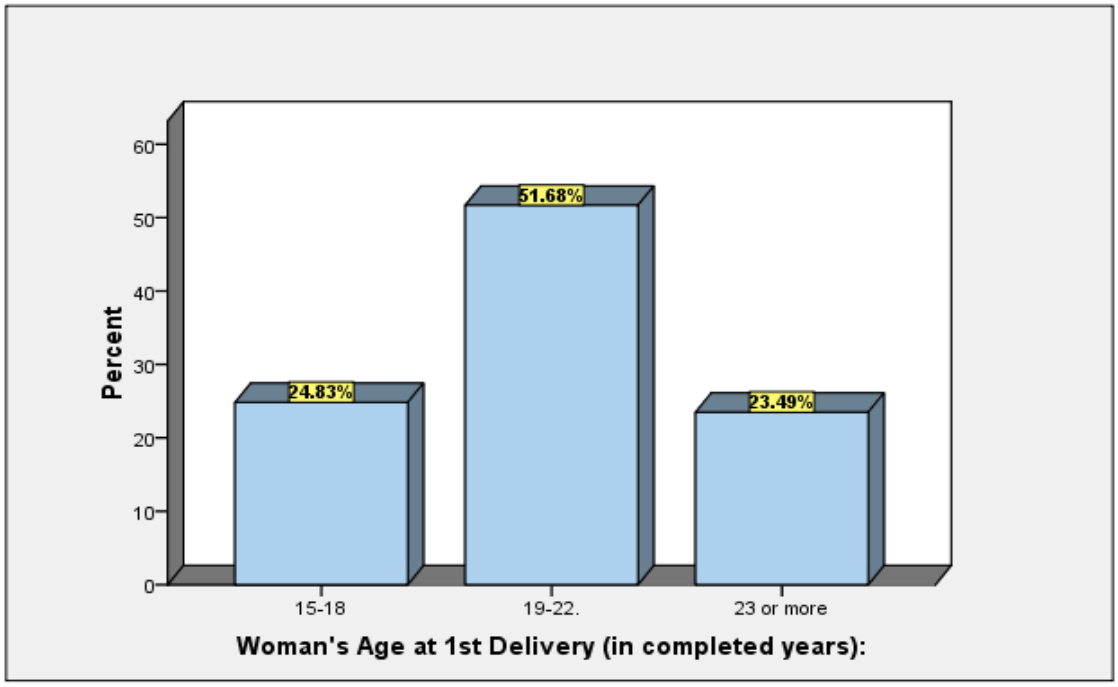


Figure 5.12: Distributions for Women's Age at 1st Delivery (in completed years)

5.2.1.16 Number of Live Children Born to the Woman

The mean number (SD) of live children born to a woman was 4.19 (± 2.117) children; minimum number born was 1 child while maximum number born was 13 children as shown in (*Table 5.6*).

Table 5.6: Number of Live Children Born to the Woman

N	Valid	149
	Missing	0
Mean		4.19
Std. Deviation		2.117
Minimum		1
Maximum		13

5.2.1.17 Number of Abortions per Woman

The mean number (SD) of abortions per woman was .71 (± 1.022) abortion; minimum number of abortions was 0 while maximum number of abortions was 5 as shown in (*Table 5.7*). Percentages of abortions are shown in (*Figure 5.13*).

Table 5.7: Number of Abortions per Woman

N	Valid	149
	Missing	0
Mean		.71
Std. Deviation		1.022
Minimum		0
Maximum		5

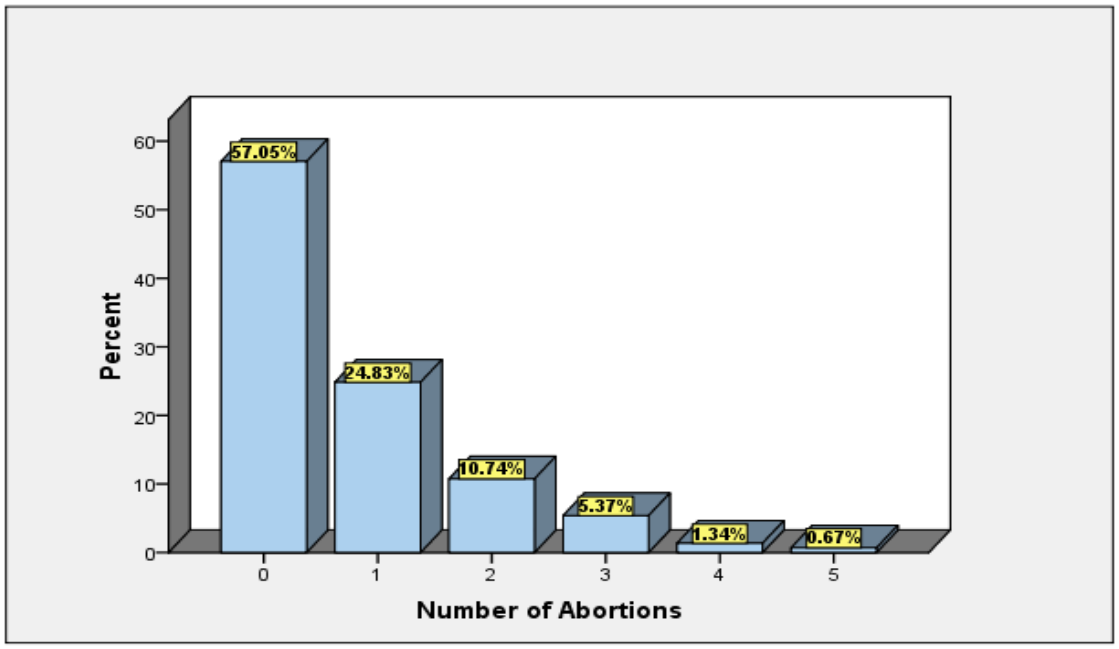


Figure 5.13: Distributions for Number of Abortions per Woman

5.2.1.18 Male and Female Children Studied Women Have

The mean number (SD) of male children born to women was 2.24 (± 1.478) male child; minimum number of male children studied women have was 0 while maximum number of male children studied women have was 6 as shown in (*Table 5.8*).

The mean number (SD) of female children born to women was 1.95 (± 1.374) female child; minimum number of female children studied women have was 0 while maximum number of female children studied women have was 8 as shown in (*Table 5.8*).

Frequencies shown in (*Table 5.9*) show that 31.5% of studied women had 2 male children and 3.4 % had 6 male children whereas 9.4% had no male children**.**

As for female children, (*Table 5.9*) shows that 30.2% of studied women had 2 female children and 0.7 % had 6, 7, 8 female children whereas 11.4% had no female children**.**

Table 5.8: Male and Female Children Studied Women Have

		Male	Female	Total
N	Valid	149	149	149
	Missing	0	0	0
Mean		2.24	1.95	4.06
Std. Deviation		1.478	1.374	2.246
Minimum		0	0	0
Maximum		6	8	13

Table 5.9: Distribution for Number of Male and Female Children Studied Women Have

# of Children	Female		Male	
	Frequency	Percent	Frequency	Percent
0	17	11.4%	14	9.4%
1	44	29.5%	35	23.5%
2	45	30.2%	47	31.5%
3	28	18.8%	27	18.1%
4	9	6.0%	11	7.4%
5	3	2.0%	10	6.7%
6	1	.7%	5	3.4%
7	1	.7%	0	0.00%
8	1	.7%	0	0.00%
Total	149	100.0%	149	100.0%

5.2.1.19 Use of Other Contraceptive Method other than Oral Contraceptives

When asked for previous use of contraceptives methods other than oral contraceptives, 65.8% reported using other contraceptive methods and 34.2% never used a contraceptive method other than the oral contraceptives: (*Table 5.10*).

Table 5.10: Use of Other Contraceptive Method other than Oral Contraceptives

	Frequency	Percent
yes	98	65.8%
no	51	34.2%
Total	149	100.0%

5.2.1.20 Women's Age When First Using Oral Contraceptive

As shown in (*Figure 5.14*), 43.6% of women were between 18-23 years or 24-29 years old when first using oral contraceptives; i.e. 87.2% of women used oral contraceptives for the first time between 18-29 years old.

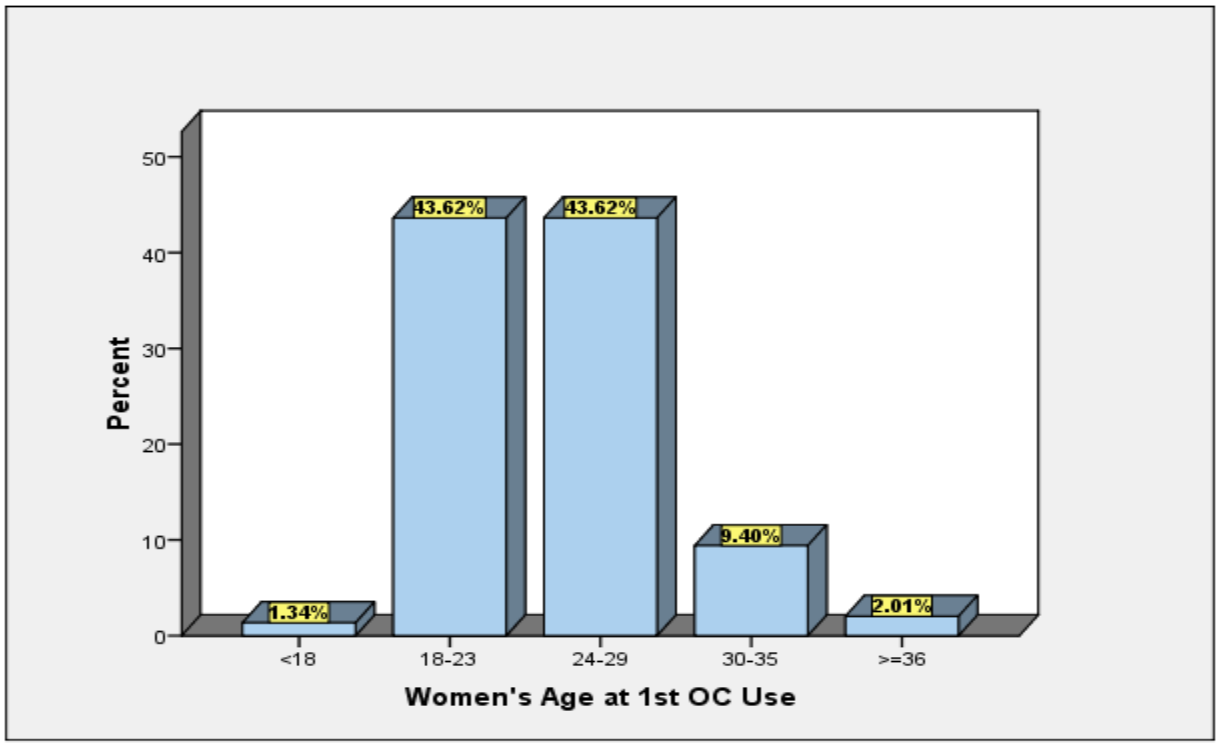


Figure 5.14: Distributions for Women's Age When First Using Oral Contraceptive

5.2.1.21 Number of Children Women Had when 1st Using Oral Contraceptive

Most of women studied started using oral contraceptives after having children (98%). Only 2% used oral contraceptives for the first time and did not have children then (*Table 5.11*). The Table also shows 53.7% of women started using oral contraceptives after having 1 or 2 children.

Table 5.11: Number of Children Women Had when 1st Using Oral Contraceptive

# of Children	Frequency	Percent
0	3	2.0%
1	40	26.8%
2	40	26.8%
3	26	17.4%
4	19	12.8%
5	11	7.4%
6	4	2.7%
7	5	3.4%
8	1	.7%
Total	149	100.0%

5.2.1.22 Intension to Stop Oral Contraceptive

When asked whether they intend to stop oral contraceptives' use or not, 54.4% answered that they intend to stop using oral contraceptives and 45.6% said that they do not intend to stop the oral contraceptive as shown in (*Table 5.12*).

Table 5.12: Intension to Stop Oral Contraceptive

Intention to Stop OC	Frequency	Percent
yes	81	54.4%
no	68	45.6%
Total	149	100.0%

5.2.1.23 Reasons for Future Cessation of Oral Contraceptive Use

Many reasons were behind future cessation of oral contraceptives by the studied women. 30.9% of women who intended to stop oral contraceptives said that their reason was that they wanted to have more children, 4.7% were concerned about oral contraceptives'

safety, 2.7% suffered from gastric upset and 1.3% either had irregular bleeding or had poor compliance (*Table 5.13*).

Table 5.13: Reasons for Future Cessation of Oral Contraceptive Use

Reasons for OC stop	Frequency	Percent
To have more children	46	30.9%
Cause irregular bleeding	2	1.3%
Cause gastric upset	4	2.7%
Concerned about their safety	7	4.7%
Poor compliance	2	1.3%
Others	11	7.4%
NA	66	44.3%
System missing	11	7.4%
Total	149	100.0%

5.2.1.24 Reasons for Oral Contraceptive Use

Studied women were asked for reasons of oral contraceptives use, 59.7% reported using oral contraceptives for spacing between children, 32.9% said that they were taking oral contraceptives in order to stop having children while 4.7% were using oral contraceptives due to health problems as seen in (*Table 5.14*).

Table 5.14: Reasons of Oral Contraceptive Use

Reason for OC Use	Frequency	Percent
Stop having children	49	32.9%
Spacing between children	89	59.7%
Health Problems	7	4.7%
Others	2	1.3%
System missing	2	1.3%
Total	149	100.0%

5.2.1.25 Advice for Oral Contraceptive Choice among other Contraceptives

Studied women were asked by whom they were advised to choose the oral contraceptive among other contraceptives if any. As shown in (*Table 5.15*), 70.5% said that it was advice from their health care providers, 27.5% said that it was a self-made decision while 2.0% took advice from a relative or a friend.

Table 5.15: Advice for Oral Contraceptive Choice among other Contraceptives

OC Use was Advice from:	Frequency	Percent
Health care provider	105	70.5%
Relative/ friend	3	2.0%
Self made decision	41	27.5%
Total	149	100.0%

5.2.1.26 Oral Contraceptive Prescriber

Women were asked who their oral contraceptive prescriber was. Main prescriber as reported by 66.4% of the studied women was the obstetrician or gynecologist, followed by village health workers with a percentage of 29% as shown in (*Table 5.16*).

Table 5.16 Oral Contraceptive Prescriber

OC Prescriber	Frequency	Percent
Obstetrician/Gynecologist	99	66.4%
General practitioner.	3	2.0%
Midwife.	7	4.7%
Village Health Worker.	29	19.5%
Self	8	5.4%
Friend	3	2.0%
Total	149	100.0%

5.2.1.27 Knowledge of Oral Contraceptive's Name

The majority of studied women knew the name of the oral contraceptive they were using. As seen in (*Table 5.17*), 74.5% of thee studied women replied by "Yes" when asked whether they knew the name of the oral contraceptives they were using and were able to name it. However, 25.5% did not know the name of the oral contraceptive they were using.

Table 5.17: Knowledge of Oral Contraceptive's Name

Know OC Name	Frequency	Percent
yes	111	74.5%
no	38	25.5%
Total	149	100.0%

5.2.1.28 Receiving Information about Oral Contraceptives

Women in the study were asked whether they received information about oral contraceptives when first prescribed. As seen in (*Table 5.18*), 96.0% reported that they received information and 4% said that they did not receive information when the oral contraceptive was first prescribed.

Table 5.18: Receiving Information about Oral Contraceptives

Get Information	Frequency	Percent
yes	143	96.0%
no	6	4.0%
Total	149	100.0%

.

5.2.1.29 Source of Provided Information about Oral Contraceptives

When asked about the source of information provided, 89% stated that the nurse was the source of information, 51% of the women had their obstetrician as the information source as seen in (*Table 5.19*).

Table 5.19: Source of Provided Information about Oral Contraceptives

Source of Information	Frequency	Percent
Obstetrician	51	34.2%
Family doctor	1	.7%
Pharmacist	1	.7%
Nurse	89	59.7%
Midwife	1	.7%
Others	6	4.0%
Total	149	100.0%

5.2.1.30 Description of Information Provided

As shown in (*Table 5.20*), 85.9% said that the received information about oral contraceptives was clear and understandable. 3.4% said it was unclear, 2.7% found it confusing and 5.4% found it brief and shallow.

Table 5.20: Description of Information Provided

Information Received	Frequency	Percent
Clear & understandable	128	85.9%
Unclear	5	3.4%
Confusing	4	2.7%
Brief and shallow	8	5.4%
Others	3	2.0%
System missing	1	.7%
Total	149	100.0%

5.2.1.31 Getting a Leaflet with the Oral Contraceptive Dispensed

Studied women were asked whether they got a leaflet when receiving the oral contraceptive. It is worth to note here that most oral contraceptives are found in a package with three packs and one leaflet. About 43% of the studied women never got a leaflet with the oral contraceptive, 32.9% sometimes got the leaflet while 24.2% got the leaflet all the times (*Table 5.21*).

Table 5.21: Getting a Leaflet with the Oral Contraceptive Dispensed

Get OC Leaflet	Frequency	Percent
Yes, always	36	24.2%
Sometimes	49	32.9%
No, never	64	43.0%
Total	149	100.0%

5.2.1.32 Understanding Information in the Leaflet with the Oral Contraceptive Dispensed

Women getting a leaflet with the oral contraceptive pills were asked whether they understood the information in the leaflet about oral contraceptives. About 73.2% of those women understood the leaflet information and 1.3% did not understand the leaflet information as shown in (*Table 5.22*).

Table 5.22: Understanding Information in the Leaflet with the Oral Contraceptive Dispensed

Understand Leaflet	Frequency	Percent
Yes	109	73.2%
No	2	1.3%
NA	38	25.5%
Total	149	100.0%

5.2.1.33 Lack of Information

Studied women were asked whether they think they lack significant information concerning oral contraceptives. As shown in (*Table 5.23*) 34.2% said they lacked significant information while 65.8% said that they did not lack significant information.

Table 5.23: Lack of Information

Lack Information	Frequency	Percent
Yes	51	34.2%
No	98	65.8%
Total	149	100.0%

5.2.1.34 Information Gaps

Women lacking information were asked to specify fields where they lack information. As shown in (*Table 5.24*): 9.8% of those women said they lack information about oral contraceptives' proper use, 13.3% lacked information about oral contraceptives' benefits, 24.5% lacked information about oral contraceptives' side effects, 21% lacked information about oral contraceptives' risk factors, 17.5% lacked information about oral contraceptives' drug interaction.

Table 5.24: Information Gaps

Areas of Information Gaps	N	Percent
Oral contraceptive's proper use	14	9.8%
Oral contraceptive's benefits	19	13.3%
Oral contraceptive's side effects	35	24.5%
Oral contraceptive's risk factors	30	21.0%
Oral contraceptive's drug interactions	25	17.5%
Oral contraceptive's cost	7	4.9%
Oral contraceptive's effects on sexuality	11	7.7%
Others	2	1.4%
Total	143	100.0%

5.2.1.35 Reasons for Lack of Information

Same women who said they lacked information were also asked to specify reasons they consider lie behind their lack of information**.** The two main reasons specified here were that their overall health knowledge was poor or they did not know the reasons with percentages of 28.6% and 27.0% respectively as seen in (*Table 5.25*). Other reasons and percentages are: forgetting provided information: 15.9%, health center they refer to was always busy and no enough time for asking for information: 14.3%, being ashamed to ask question and that the information provider spoke quickly and women could not follow: 4.8% each, provided information was complicated and unclear: 3.2% and 1.6% feared to ask for information.

Table 5.25: Reasons for Lack of Information

Reasons for Lack in Information	N	Percent
Information provided is complicated and unclear.	2	3.2%
Information provider speaks quickly	3	4.8%
Overall health knowledge is poor.	18	28.6%
Forget the information given.	10	15.9%
Fear to ask for clarification.	1	1.6%
Being ashamed to ask for clarification.	3	4.8%
It is always too busy at my health facility and there is no time for questions.	9	14.3%
Do not know.	17	27.0%
Total	63	100.0%

5.2.1.36 Ways to Fill information Gaps

Women who previously reported that they lack information concerning oral contraceptives were also asked to determine best ways for filling their information gaps. About 30.1% of them thought that providing them with printed drug information in Arabic could help and 15.8% wanted health professionals to read and explain for them the information in the oral contraceptives' leaflet. This takes us back to the question where women were asked whether they receive the oral contraceptives' leaflet or not and how 43% said that they never received a leaflet. Whereas 28.3% of women with information gaps said that provision of information by media could be helpful. (*Table 5.26*)

Table 5.26: Ways to Fill information Gaps

Ways to Fill Information Gaps	N	Percent
Presenting printed drug information in Arabic.	82	30.1%
Have a health professional to read explain all of the informational material written on the leaflet.	43	15.8%
Receive information on contraceptive methods including OC through media (e.g. TV, radio…)	77	28.3%
Make available counseling services on effective use of OC after being prescribed.	32	11.8%
Have access to a hotline to refer to in OC related contingencies	37	13.6%
Others	1	.4%
Total	272	100.0%

5.2.1.37 Ability to Express Oneself and Ask for Information

Studied women were asked whether the first time of oral contraceptives' prescription they were given the opportunity to express themselves and ask for information and clarification. 81.9% replied positively and 18.1% replied negatively as seen in (*Table 5.27*).

Table 5.27 Ability to Express Oneself and Ask for Information

	Frequency	Percent
yes	122	81.9%
no	27	18.1%
Total	149	100.0%

5.2.1.38 Knowing How Oral Contraceptives Work

Women were asked whether they knew how oral contraceptives worked or not. Asking this question did not require that women should know the exact pharmacological action of oral contraceptives. It was meant by this question to know if women knew that oral contraceptives worked on their hormones in preventing pregnancy. As shown in (*Table 5.28*), 67.1% said that they knew how oral contraceptives worked while 32.9% did not know how oral contraceptives worked.

Table 5.28: Knowing How Oral Contraceptives Work

Know How OC Work	Frequency	Percent
Yes	100	67.1%
No	49	32.9%
Total	149	100.0%

5.2.1.39 Knowledge of Oral Contraceptives' Active Ingredient

Studied women were asked to specify among choices the active ingredient of oral contraceptives. A percentage of 73.8% said it was a hormonal substance, 1.3% said it was a natural substance, 0.7% said it was a chemical substance and 24.2% did not know what was the active ingredient. This is illustrated in (*Table 5.29*).

Table 5.29: Knowledge of Oral Contraceptives' Active Ingredient

OC Active Ingredient	Frequency	Percent
Hormonal substance	110	73.8%
Natural substance	2	1.3%
Chemical substance	1	.7%
Do not know	36	24.2%
Total	149	100.0%

5.2.1.40 Calendar Pack Familiarity

Studied women were asked whether they knew the meaning of "Calendar Pack". Calendar pack is the oral contraceptives pills pack which has the days of the week written on its back with arrows so that the woman can follow the days and arrows and can simply know whether she has taken the pill of the day. As seen in (*Table 5.30*), 62.4% of the studied women replied that they knew the calendar pack and 37.6% did not know what was meant by it. This aspect was addressed in another question by asking women if they knew how to use the calendar pack and 61.7% said that they knew how to use and 38.3%

did not knew how to use it as seen in (*Table 5.31*). Women were also asked whether they were following the calendar pack or not and 59.1% said that they were following it while 39.6% were not following the calendar pack: (*Table 5.32*).

Table 5.30: Calendar Pack Familiarity

Know the "Calendar Pack"	Frequency	Percent
Yes	93	62.4%
No	56	37.6%
Total	149	100.0%

Table 5.31: Knowledge to Follow the Calendar Pack

Knowledge to Follow the Calendar Pack	Frequency	Percent
Yes	92	61.7%
No	57	38.3%
Total	149	100.0%

Table 5.32: Calendar Pack Following

Follow the Calendar Pack	Frequency	Percent
Yes	88	59.1%
No	59	39.6%
Total	147	98.7%
System missing	2	1.3%
Total	149	100.0%

5.2.1.41 Oral Contraceptives' Side Effects

Studied women were asked whether oral contraceptives had side effects, 58.4% said that oral contraceptives had side effects and 41.6% said that oral contraceptives did not have side effects as shown in (*Table 5.33*).

Table 5.33: Oral Contraceptives' Side Effects

OC Have S/E	Frequency	Percent
Yes	87	58.4%
No	62	41.6%
Total	149	100.0%

5.2.1.42 Serious Side Effects of Oral Contraceptives

A question concerning serious side effects of oral contraceptives was asked for. Women were asked to choose among different health conditions if they knew them to be as serious side effects for oral contraceptives. Although the stated health conditions in the filled questionnaire in this question were all serious, percentages for knowledge of each side effect were low as seen in (*Table 5.34*). Hypertension and nausea/vomiting were seen serious by 21.1%, varicose veins by 13.7%, thrombosis by 13.1%, depression by 12%, breast cancer by 9.7%, cervical cancer by 4.6%, stroke by 2.9% and finally myocardial infarction by 1.7%.

Table 5.34: Serious Side Effects of Oral Contraceptives

Knowledge about Serious S/E	N	Percent
Breast cancer	17	9.7%
Cervical cancer	8	4.6%
Depression	21	12.0%
Hypertension	37	21.1%
Myocardial infarction	3	1.7%
Severe nausea and vomiting	37	21.1%
Stroke	5	2.9%
Thrombosis	23	13.1%
Varicose veins	24	13.7%
Total	175	100.0%

5.2.1.43 Oral Contraceptives' Drug Interactions

Studied women were asked about oral contraceptives drug interactions. As seen in (*Table 5.35*), 15.4% said that oral contraceptives had drug interactions while 84.6% thought that oral contraceptives did not have drug interactions.

Table 5.35: Oral Contraceptives' Drug Interactions

OC Have Drug Interactions	Frequency	Percent
yes	23	15.4%
no	126	84.6%
Total	149	100.0%

5.2.1.44 Oral Contraceptives' Drug Interactions Studied Women Were Aware of

The question asking whether oral contraceptives had drug interactions was followed by another question for women answering positively to choose among options of medications that could have interactions with oral contraceptives. Frequencies and percents are presented in (*Table 5.36*). The higher percent was for antibacterials; 10.7% said that oral contraceptives had interactions with antibacterials.

Table 5.36: Oral Contraceptives' Drug Interactions Studied Women Were Aware of

	yes		no		NA	
OC's Interactions	**Count**	**Percent**	**Count**	**Percent**	**Count**	**Percent**
Alcohol	5	3.4%	18	12.1%	126	84.6%
Analgesics	3	2.0%	20	13.4%	126	84.6%
Antibacterials	16	10.7%	7	4.7%	126	84.6%
Anticoagulants	3	2.0%	20	13.4%	126	84.6%
Anticonvulsants	5	3.4%	18	12.1%	126	84.6%
Antidiabetics	4	2.7%	19	12.8%	126	84.6%
Antidepressants	4	2.7%	19	12.8%	126	84.6%
Antihypertensives	6	4.0%	17	11.4%	126	84.6%
Benzodiazepines	2	1.3%	21	14.1%	126	84.6%
Corticosteroids & glucocorticosteroids	1	.7%	22	14.8%	126	84.6%
Diuretics	0	.0%	23	15.4%	126	84.6%
Immunosupressants	2	1.35	21	14.1%	126	84.6%
Vitamin C	0	.0%	23	15.4%	126	84.6%

5.2.1.45 Health Benefits of Oral Contraceptives

Studied women were asked whether oral contraceptives had health benefits besides their contraceptive action; 45.6% replied positively 54.4% replied negatively: (*Table 5.37*).

Table 5.37: Health Benefits of Oral Contraceptives

OC Have Benefits besides Contraception	Count	Percent
yes	68	45.6%
no	81	54.4%
Total	149	100.0%

5.2.1.46 Oral Contraceptives' Health Benefits Studied Women Reported

The question asking whether oral contraceptives had health benefits other than their contraceptive action was followed by another question for women answering positively to choose among options that could be benefits of oral contraceptives. As shown in (*Table 5.38*), 22.7% said that oral contraceptives reduce the frequency of dysmenorrhea, followed by 14.0% for reducing heavy menses.

Table 5.38: Oral Contraceptives' Health Benefits Studied Women Reported

OC Health Benefits	Responses	
	N	Percent
Decreased frequency of dysmenorrhea.	47	22.7%
Decreased incidence of pelvic inflammatory disease.	12	5.8%
May result in acne improvement.	17	8.2%
Improvement of premenstrual symptoms.	26	12.6%
May result in less hirsutism.	8	3.9%
Reduced risk of ectopic pregnancy.	15	7.2%
Reduced risk of endometrial cancer.	13	6.3%
Reduced risk of endometriosis.	6	2.9%
Reduced risk of heavy menses.	29	14.0%
Reduced risk of iron deficiency anemia.	26	12.6%
Reduced risk of ovarian cancer.	8	3.9%
Total	207	100.0%

5.2.1.47 Taking Oral Contraceptive Pills Regularly

Studied women were asked about taking pills regularly. As seen in (*Table 5.39*), 89.3% reported taking pills regularly all the time, 10.1% were taking the pills regularly most of the times and 0.7% were rarely taking the pills regularly.

Table 5.39: Taking Oral Contraceptive Pills Regularly

Take pill Regularly	Frequency	Percent
Always	133	89.3%
Mostly	15	10.1%
Rarely	1	.7%
Total	149	100.0%

5.2.1.48 Missing Oral Contraceptive Pills

Another question to test compliance was asked. Women were asked whether they miss pills or not. Answers to this question revealed the same degree of compliance as the answers to the question about taking pills regularly. 15.4% of the studied women reported missing pills and 83.9 % reported not missing pills: (*Table 5.40*).

Table 5.40: Missing Oral Contraceptive Pills

Miss Pill	Frequency	Percent
yes	23	15.4%
no	125	83.9%
System missing	1	.7%
Total	149	100.0%

5.2.1.49 Number of Missed Pills per Month

Women replying to the question of missing pills positively were asked to specify the number of missed pills per month. About 83.9% of the studied women did not miss any pill and this is the same percentage as the previous question, 10.1% missed 1 pill monthly, 5.4% missed 2 pills monthly and 0.7% missed 3 or more pills monthly: (*Table 5.41*).

Table 5.41: Number of Missed Pills per Month

# of Missed Pills/Month	Frequency	Percent
0	125	83.9%
1	15	10.1%
2	8	5.4%
3 or more	1	.7%
Total	149	100.0%

5.2.1.50 Compliance Classification

Studied women were asked to describe their degree of compliance in taking the oral contraceptive pills. As seen in (*Table 5.42*), 87.9% said that they had high compliance which is a close percent to those not missing pills (83.9%), 10.7% classified their compliance as moderate and 1.3% found their compliance to be poor.

Table 5.42: Compliance Classification

Compliance	Frequency	Percent
High	131	87.9%
Moderate	16	10.7%
Poor	2	1.3%
Total	149	100.0%

5.2.1.51 Action Taken when Missing Pill/s

Studied women were asked to specify their action when missing or forgetting to take a pill. 79.9% were taking the pill once they remembered and 8.7% took the missed pill at the next dose time: (*Table 5.43*).

Table 5.43: Action Taken when Missing Pill/s

Action when Missing Pill/s	Frequency	Percent
Take it when remembered	119	79.9%
Take it at next dose.	13	8.7%
Consult a health care provider	13	8.7%
Consult a friend/relative using the same contraceptive	1	.7%
Discontinue using the pills completely.	1	.7%
Others	1	.7%
System missing	1	.7%
Total	149	100.0%

5.2.1.52 Using a Backup Method when Missing Pill/s

Women were asked whether they used a back up method when missing pill/s. Nearly 26.2% were using backup method and 73.8% were not using any backup methods: (*Table 5.44*).

Table 5.44: Using a Backup Method when Missing Pill/s

Use Backup Method	Frequency	Percent
yes	39	26.2%
no	110	73.8%
Total	149	100.0%

5.2.1.53 Backup Method Used

Women were asked to specify the back method used when missing pill/s: (*Table 5.45*).

Table 5.45: Backup Method Used

Backup Method	Frequency	Percent
Condom	14	9.4%
Stop intercourse till next period	19	12.8%
Take emergency contraceptive pills	1	.7%
Other	5	3.4%
NA	108	72.5%
System missing	2	1.3%
Total	149	100.0%

5.2.1.54 Using Pill Reminder

Studied women were asked if they were using a special measure to remind them take the pill on a regular basis. As seen in (*Table 5.46*), 71.8% had a special reminder to take pills on time while 27.5% did not have a pill reminder.

Table 5.46: Using Pill Reminder

Use Pill Reminder	Frequency	Percent
yes	107	71.8%
no	41	27.5%
System missing	1	.7%
Total	149	100.0%

5.2.1.55 Specification of Pill Reminder

Women using a special pill reminder were asked to specify it: 46.3% were taking the pill at bed time, 12.1% were using the calendar pack as a reminder as shown in (*Table 5.47*).

Table 5.47: Specification of Pill Reminder

Type of Pill Reminder	Frequency	Percent
Calendar pack.	18	12.1%
Scratch the day from the calendar when taking the pill.	3	2.0%
Set the alarm.	5	3.4%
Take the pill at bedtime.	69	46.3%
Take the pill when brushing teeth.	2	1.3%
Others	7	4.7%
NA	41	27.5%
System missing	4	2.7%
Total	149	100.0%

5.2.1.56 Experiencing Side Effects

Studied women were asked whether they had experienced side effects upon using oral contraceptives. As seen in (*Table 5.48*), 38.3% said that they experienced side effects while 61.7% did not experience side effects.

Table 5.48: Experiencing Side Effects

Experience S/E	Frequency	Percent
Yes	57	38.3%
No	92	61.7%
Total	149	100.0%

5.2.1.57 Side Effects Experienced

Women experiencing side effects were asked to specify the side effects they had experienced; (*Table 5.49*): 21.7% experienced nausea, 17.9% experienced weight gain, 17% had mode instability, 15.1% suffered from headaches, 13.2% had changes in their menstrual cycle, 4.7% had vaginal infections or experienced breast tenderness, 3.8% experienced fatigue and 1.9% had anemia.

Table 5.49: Side Effects Experienced

Side Effects	N	Percent
Weight gain	19	17.9%
Breast tenderness	5	4.7%
Changing in the menstrual cycle	14	13.2%
Headache	16	15.1%
Nausea	23	21.7%
Mode instability	18	17.0%
Fatigue	4	3.8%
Anemia	2	1.9%
Vaginal infections	5	4.7%
Total	106	100.0%

5.2.1.58 Action when Experiencing Side Effects

Women experiencing side effects were asked to specify their action upon having side effects. About 40.7% tend to seek professional assistance, 20.4% continue taking the pills either because they were temporary or because benefits of the pills are more then the side effects, 16.8% discontinue the pills and 1.8% seek friend's assistance: (*Table 5.50*).

Table 5.50: Action when Experiencing Side Effects

Action upon Having S/E	N	Percent
Discontinue the pills.	28	16.8%
Seek professional assistance.	68	40.7%
Seek a friend's assistance.	3	1.8%
Continue taking the pills because benefits are more than side effects.	34	20.4%
Continue taking the pills because these side effects are temporary.	34	20.4%
Total	167	100.0%

5.2.1.59 Women Getting Pregnant while Oral Contraceptives' Use

Studied women were asked for the occurrence of pregnancy while using the oral contraceptive pills. As shown in (*Table 5.51*), 4% got pregnant while using oral contraceptives and 96% never got pregnant while using oral contraceptives**.**

Table 5.51: Women Getting Pregnant while Oral Contraceptives' Use

Got Pregnant while OCs Use	Frequency	Percent
yes	6	4.0%
no	143	96.0%
Total	149	100.0%

5.2.1.60 Reasons of Pregnancy while Oral Contraceptives' Use

Women replying positively to getting pregnant while using oral contraceptives were asked whether they knew the reason behind that. As seen in (*Table 5.52*), 4% of them replied that they knew the reason for getting pregnant while using oral contraceptives. These women were asked to specify the reason of pregnancy among different choices listed in the questionnaire. As seen in (*Table 5.53*), 2.7% said that missing pills was behind their pregnancy and 1.3% said that the possible reason for pregnancy was using other medications while taking the oral contraceptives.

Table 5.52: Knowing Reason of Pregnancy while Oral Contraceptives' Use

Know Reason for Pregnancy	Frequency	Percent
yes	6	4.0%
NA	143	96.0%
Total	149	100.0%

Table 5.53: Possible Reason for Pregnancy while Oral Contraceptives' Use

Possible Reason for Pregnancy	Frequency	Percent
Missing pills	4	2.7%
Taking other medications	2	1.3%
NA	143	96.0%
Total	149	100.0%

5.2.2 Univariate Analysis

5.2.2.1 Introduction

As the study objectives were to evaluate level of women's knowledge of oral contraceptives and how it affected compliance; examine the relation between compliance and oral contraceptives use pattern; examine the effect of women's health status and maternal history on compliance to oral contraceptives; and identify the effects of demographic and socioeconomic factors on compliance to oral contraceptives, crosstabulation and univariate analysis were made depending on variables measuring these outcomes. The most suitable statistical test to be used in this study was found to be Pearson Chi-Square. Pearson Chi-Square is a test of independence that tests if there is a relationship between two discrete (nominal or ordinal) variables each with two or more categories. First of all, Pearson Chi-Square was applied on the available data as it was but the expected value in some cases was found to be < 5 which is not applicable in this test, so, merging of categories was implemented.

For example, age categories were squeezed into two categories: less than 34, equal or more than 34. Same thing was made to other categories used in the cross tabulation and in the Pearson Chi-Square Test.

Variables measuring information studied women have and their compliance to oral contraceptives were tested to see their dependence on other variables like women's age, educational level, income, source of information and so on as seen in the next part of this section.

Knowledge and compliance are related so that compliance is better with better knowledge. As for knowledge, it is affected by factors like: lack of information, source of information, level of education, current age, age at marriage and locality. As for compliance, it is affected by economical status, number of children and the experience of side effects. Relations between these variables were tested using crosstabulation and the Pearson Chi-square test and the results obtained are shown in the following section.

5.2.2.3 Pearson Chi-Square Tests

5.2.2.3.1 Association between Women's Current Age and Oral Contraceptives' Use and Knowledge

Results of Pearson Chi-square test for women's current age relation to variables affecting use of oral contraceptives and knowledge indicate the absence of association between women's current age and the other variables. This is because the results of chi-square test for independence of women's current age and other variables gave statistical significance higher than (α=0.05) for all the variables, (*Table 5.54*).

Table 5.54: Association between Women's Current Age and Oral Contraceptives' Use and Knowledge

			Women's Current Age (yrs)		
			< 34	≥34	Chi-square
Know the name of the OC	**Yes**	**Count**	69	42	.188
		Percent	78.4%	68.9%	
	No	**Count**	19	19	
		Percent	21.6%	31.1%	
Received information concerning the prescribed OC was clear & understandable	**Yes**	**Count**	77	52	.691
		Percent	87.5%	85.2%	
	No	**Count**	11	9	
		Percent	12.5%	14.8%	
OCs have risk factors	**Yes**	**Count**	50	29	.265
		Percent	56.8%	47.5%	
	No	**Count**	38	32	
		Percent	43.2%	52.5%	
Reading the leaflet	**Yes**	**Count**	61	50	.082
		Percent	69.3%	82.0%	
	No	**Count**	27	11	
		Percent	30.7%	18.0%	
Understanding the leaflet	**Yes**	**Count**	59	50	.196
		Percent	96.7%	100.0%	
	No	**Count**	2	0	
		Percent	3.3%	.0%	
Lacking significant information concerning OCs	**Yes**	**Count**	27	24	.273
		Percent	30.7%	39.3%	
	No	**Count**	61	37	
		Percent	69.3%	60.7%	

Table 5.54-a: Association between Women's Current Age and Oral Contraceptives' Use and Knowledge

			Women's Current Age (yrs)		
			< 34	≥34	Chi-square
Opportunity to express oneself by asking questions to get more information & further clarification the first time the OC was prescribed	**Yes**	**Count**	72	50	.981
		Percent	81.8%	82.0%	
	No	**Count**	16	11	
		Percent	18.2%	18.0%	
Know how OCs work	**Yes**	**Count**	61	39	.492
		Percent	69.3%	63.9%	
	No	**Count**	27	22	
		Percent	30.7%	36.1%	
Know the active ingredient of the pill	**Yes**	**Count**	66	47	.774
		Percent	75.0%	77.0%	
	No	**Count**	22	14	
		Percent	25.0%	23.0%	
Know the meaning of "calendar pack"	**Yes**	**Count**	55	38	.980
		Percent	62.5%	62.3%	
	No	**Count**	33	23	
		Percent	37.5%	37.7%	
OCs have side effects	**Yes**	**Count**	52	35	.835
		Percent	59.1%	57.4%	
	No	**Count**	36	26	
		Percent	40.9%	42.6%	
OCs have interactions with other drugs/substances	**Yes**	**Count**	12	11	.465
		Percent	13.6%	18.0%	
	No	**Count**	76	50	
		Percent	86.4%	82.0%	

5.2.2.3.2 Association between Women's Level of Education and Oral Contraceptives' Use and Knowledge

Results of Pearson Chi-square test for women's level of education to variables affecting use of oral contraceptives and knowledge indicate the presence of association between women's level of education and the other variables for the values of chi-square with 1 degree of freedom have statistical significance lower than (α=0.05), (*Table 5.55*). For example: a statistical significance of 0.000 for relation of women's level of education and knowing that oral contraceptives have interactions with other drugs. This means that women's level of education and knowing that oral contraceptives have drug interactions are dependent variables. In the same contrast, women's level of education shows significance association with reading the leaflet and knowing that oral contraceptives have side effects (statistical significance for each variable = 0.017), knowing how oral contraceptives work (statistical significance = 0.002), knowing the nature of the active ingredient of the oral contraceptive (statistical significance = 0.001) and finally knowing the meaning of the calendar pack (statistical significance = 0.003).

Table 5.55: Association between Women's Level of Education and Oral Contraceptives' Use and Knowledge

			Woman's Level of Education		
			≤2°education	> 2°education	Chi-square
Know the name of the OC	**Yes**	**Count**	78	33	.475
		Percent	72.9%	78.6%	
	No	**Count**	29	9	
		Percent	27.1%	21.4%	
Received information concerning the prescribed OC was clear & understandable	**Yes**	**Count**	90	39	.159
		Percent	84.1%	92.9%	
	No	**Count**	17	3	
		Percent	15.9%	7.1%	
OCs have risk factors	**Yes**	**Count**	53	26	.173
		Percent	49.5%	61.9%	
	No	**Count**	54	16	
		Percent	50.5%	38.1%	

Table 5.55-a: Association between Women's Level of Education and Oral Contraceptives' Use and Knowledge

			Woman's Level of Education		
			≤2°educ-ation	> 2°educ-ation	Chi-square
Reading the leaflet	**Yes**	**Count**	74	37	.017*
		Percent	69.2%	88.1%	
	No	**Count**	33	5	
		Percent	30.8%	11.9%	
Understanding the leaflet	**Yes**	**Count**	72	37	.313
		Percent	97.3%	100.0%	
	No	**Count**	2	0	
		Percent	2.7%	.0%	
Lacking significant information concerning OCs	**Yes**	**Count**	39	12	.362
		Percent	36.4%	28.6%	
	No	**Count**	68	30	
		Percent	63.6%	71.4%	
Opportunity to express oneself by asking questions to get more information & further clarification the first time the OC was prescribed	**Yes**	**Count**	85	37	.217
		Percent	79.4%	88.1%	
	No	**Count**	22	5	
		Percent	20.6%	11.9%	
Know how OCs work	**Yes**	**Count**	64	36	.002*
		Percent	59.8%	85.7%	
	No	**Count**	43	6	
		Percent	40.2%	14.3%	

Table 5.55-a: Association between Women's Level of Education and Oral Contraceptives' Use and Knowledge

			Woman's Level of Education		
			≤2°educ-ation	> 2°educ-ation	Chi-square
Know the active ingredient of the pill	**Yes**	**Count**	73	40	.001*
		Percent	68.2%	95.2%	
	No	**Count**	34	2	
		Percent	31.8%	4.8%	
Know the meaning of "calendar pack"	**Yes**	**Count**	59	34	.003*
		Percent	55.1%	81.0%	
	No	**Count**	48	8	
		Percent	44.9%	19.0%	
OCs have side effects	**Yes**	**Count**	56	31	.017*
		Percent	52.3%	73.8%	
	No	**Count**	51	11	
		Percent	47.7%	26.2%	
OCs have interactions with other drugs/substances	**Yes**	**Count**	8	15	.000*
		Percent	7.5%	35.7%	
	No	**Count**	99	27	
		Percent	92.5%	64.3%	

5.2.2.3.3 Association between Women's Age at Marriage and Oral Contraceptives' Use and Knowledge

Concerning association between women's age at marriage and oral contraceptives' use and knowledge, knowing that oral contraceptives have risk factors has a statistical significance of 0.014, followed by knowing the calendar pack (statistical significance = 0.022) and finally the knowledge that oral contraceptives have drug interactions (statistical significance = 0.038) as seen in (*Table 5.56*). On the other hand, a statistical significance of 0.974 shows no significant association for women's age at marriage with received information.

Table 5.56: Association between Women's Age at Marriage and Oral Contraceptives' Use and Knowledge

			Women's Age at Marriage (yrs)			
			≤18	19-22	≥23	Chi-square
Know the name of the OC	**Yes**	**Count**	47	45	19	.706
		Percent	71.2%	77.6%	76.0%	
	No	**Count**	19	13	6	
		Percent	28.8%	22.4%	24.0%	
The information you received concerning the prescribed OC Clear & understandable	**Yes**	**Count**	57	50	22	.974
		Percent	86.4%	86.2%	88.0%	
	No	**Count**	9	8	3	
		Percent	13.6%	13.8%	12.0%	
OCs have risk factors	**Yes**	**Count**	27	39	13	.014*
		Percent	40.9%	67.2%	52.0%	
	No	**Count**	39	19	12	
		Percent	59.1%	32.8%	48.0%	
Reading the leaflet	**Yes**	**Count**	51	38	22	.077
		Percent	77.3%	65.5%	88.0%	
	No	**Count**	15	20	3	
		Percent	22.7%	34.5%	12.0%	
Understanding the leaflet	**Yes**	**Count**	50	37	22	.756
		Percent	98.0%	97.4%	100.0%	
	No	**Count**	1	1	0	
		Percent	2.0%	2.6%	.0%	
Lacking significant information concerning OCs	**Yes**	**Count**	23	20	8	.967
		Percent	34.8%	34.5%	32.0%	
	No	**Count**	43	38	17	
		Percent	65.2%	65.5%	68.0%	

Table 5.56-a: Association between Women's Age at Marriage and Oral Contraceptives' Use and Knowledge

			Women's Age at Marriage (yrs)			
			≤18	19-22	≥23	Chi-square
Opportunity to express oneself by asking questions to get more information & further clarification the first time the OC was prescribed	**Yes**	**Count**	57	44	21	.303
		Percent	86.4%	75.9%	84.0%	
	No	**Count**	9	14	4	
		Percent	13.6%	24.1%	16.0%	
Know how OCs work	**Yes**	**Count**	46	35	19	.317
		Percent	69.7%	60.3%	76.0%	
	No	**Count**	20	23	6	
		Percent	30.3%	39.7%	24.0%	
Know the active ingredient of the pill	**Yes**	**Count**	48	42	23	.117
		Percent	72.7%	72.4%	92.0%	
	No	**Count**	18	16	2	
		Percent	27.3%	27.6%	8.0%	
Know the meaning of "calendar pack"	**Yes**	**Count**	44	29	20	.022*
		Percent	66.7%	50.0%	80.0%	
	No	**Count**	22	29	5	
		Percent	33.3%	50.0%	20.0%	
OCs have side effects	**Yes**	**Count**	43	30	14	.307
		Percent	65.2%	51.7%	56.0%	
	No	**Count**	23	28	11	
		Percent	34.8%	48.3%	44.0%	
OCs have interactions with other drugs/substances	**Yes**	**Count**	7	8	8	.038*
		Percent	10.6%	13.8%	32.0%	
	No	**Count**	59	50	17	
		Percent	89.4%	86.2%	68.0%	

5.2.2.3.4 Association between Women's Lack of Information and Oral Contraceptives' Use and Knowledge

A statistical significance of 0.000 for the association between women finding themselves lacking information about oral contraceptives and knowing how oral contraceptives work and women knowing the name of the oral contraceptive they use as shown in (*Table 5.57*) indicates significant association between these variables.

Table 5.57: Association between Women's Lack of Information and Oral Contraceptives' Use and Knowledge

			Lack Significant Information about OCs		
			Yes	No	Chi-square
Know the name of the OC	**Yes**	**Count**	29	82	.000*
		Percent	56.9%	83.7%	
	No	**Count**	22	16	
		Percent	43.1%	16.3%	
Received information concerning the prescribed OC was clear & understandable	**Yes**	**Count**	39	90	.009*
		Percent	76.5%	91.8%	
	No	**Count**	12	8	
		Percent	23.5%	8.2%	
OCs have risk factors	**Yes**	**Count**	22	57	.081
		Percent	43.1%	58.2%	
	No	**Count**	29	41	
		Percent	56.9%	41.8%	
Reading the leaflet	**Yes**	**Count**	39	72	.690
		Percent	76.5%	73.5%	
	No	**Count**	12	26	
		Percent	23.5%	26.5%	
Understanding the leaflet	**Yes**	**Count**	38	71	.657
		Percent	97.4%	98.6%	
	No	**Count**	1	1	
		Percent	2.6%	1.4%	

Table 5.57-a: Association between Women's Lack of Information and Oral Contraceptives' Use and Knowledge

			Lack Significant Information about OCs		
			Yes	No	Chi-square
Opportunity to express oneself by asking questions to get more information & further clarification the first time the OC was prescribed	**Yes**	**Count**	39	83	.216
		Percent	76.5%	84.7%	
	No	**Count**	12	15	
		Percent	23.5%	15.3%	
Know how OCs work	**Yes**	**Count**	23	77	.000*
		Percent	45.1%	78.6%	
	No	**Count**	28	21	
		Percent	54.9%	21.4%	
Know the active ingredient of the pill	**Yes**	**Count**	35	78	.138
		Percent	68.6%	79.6%	
	No	**Count**	16	20	
		Percent	31.4%	20.4%	
Know the meaning of "calendar pack"	**Yes**	**Count**	31	62	.767
		Percent	60.8%	63.3%	
	No	**Count**	20	36	
		Percent	39.2%	36.7%	
OCs have side effects	**Yes**	**Count**	26	61	.186
		Percent	51.0%	62.2%	
	No	**Count**	25	37	
		Percent	49.0%	37.8%	
OCs have interactions with other drugs/substances	**Yes**	**Count**	5	18	.170
		Percent	9.8%	18.4%	
	No	**Count**	46	80	
		Percent	90.2%	81.6%	

5.2.2.3.5 Association between Taking Pills Regularly and Oral Contraceptives' Use and Knowledge

A statistical significance of 0.027 indicates significant association between women taking pills regularly and receiving clear and understandable information when first prescribed as seen in (*Table 5.58*).

Table 5.58: Association between Taking Pills Regularly and Oral Contraceptives' Use and Knowledge

			Take The Pill Regularly		
			Yes	No	Chi-square
Know the name of the OC	**Yes**	**Count**	102	9	.076
		Percent	76.7%	56.2%	
	No	**Count**	31	7	
		Percent	23.3%	43.8%	
Received information concerning the prescribed OC was clear & understandable	**Yes**	**Count**	118	11	.027*
		Percent	88.7%	68.8%	
	No	**Count**	15	5	
		Percent	11.3%	31.2%	
OCs have risk factors	**Yes**	**Count**	73	6	.188
		Percent	54.9%	37.5%	
	No	**Count**	60	10	
		Percent	45.1%	62.5%	
Reading the leaflet	**Yes**	**Count**	99	12	.961
		Percent	74.4%	75.0%	
	No	**Count**	34	4	
		Percent	25.6%	25.0%	
Understanding the leaflet	**Yes**	**Count**	97	12	.619
		Percent	98.0%	100.0%	
	No	**Count**	2	0	
		Percent	2.0%	.0%	

Table 5.58-a: Association between Taking Pills Regularly and Oral Contraceptives' Use and Knowledge

			Take The Pill Regularly		
			Yes	No	Chi-square
Lacking significant information concerning OCs	**Yes**	**Count**	44	7	.396
		Percent	33.1%	43.8%	
	No	**Count**	89	9	
		Percent	66.9%	56.2%	
Opportunity to express oneself by asking questions to get more information & further clarification the first time the OC was prescribed	**Yes**	**Count**	108	14	.537
		Percent	81.2%	87.5%	
	No	**Count**	25	2	
		Percent	18.8%	12.5%	
Know how OCs work	**Yes**	**Count**	90	10	.678
		Percent	67.7%	62.5%	
	No	**Count**	43	6	
		Percent	32.3%	37.5%	
Know the active ingredient of the pill	**Yes**	**Count**	100	13	.593
		Percent	75.2%	81.2%	
	No	**Count**	33	3	
		Percent	24.8%	18.8%	
Know the meaning of "calendar pack"	**Yes**	**Count**	85	8	.278
		Percent	63.9%	50.0%	
	No	**Count**	48	8	
		Percent	36.1%	50.0%	
OCs have side effects	**Yes**	**Count**	76	11	.374
		Percent	57.1%	68.8%	
	No	**Count**	57	5	
		Percent	42.9%	31.2%	
OCs have interactions with other drugs/substances	**Yes**	**Count**	20	3	.698
		Percent	15.0%	18.8%	
	No	**Count**	113	13	
		Percent	85.0%	81.2%	

5.2.2.3.6 Association between Women's Compliance and Oral Contraceptives' Use and Knowledge

As for having high compliance, no significant association is seen as shown in (*Table 5.59*) except with knowing the name of the oral contraceptive used for the statistical significance here which equals 0.002 is < α.

Table 5.59: Association between Women's Compliance and Oral Contraceptives' Use and Knowledge

			Compliance		
			Yes	No	Chi-square
Know the name of the OC	**Yes**	**Count**	103	8	.002*
		Percent	78.6%	44.4%	
	No	**Count**	28	10	
		Percent	21.4%	55.6%	
Received information concerning the prescribed OC was clear & understandable	**Yes**	**Count**	115	14	.243
		Percent	87.8%	77.8%	
	No	**Count**	16	4	
		Percent	12.2%	22.2%	
OCs have risk factors	**Yes**	**Count**	73	6	.074
		Percent	55.7%	33.3%	
	No	**Count**	58	12	
		Percent	44.3%	66.7%	
Reading the leaflet	**Yes**	**Count**	98	13	.813
		Percent	74.8%	72.2%	
	No	**Count**	33	5	
		Percent	25.2%	27.8%	
Understanding the leaflet	**Yes**	**Count**	96	13	.603
		Percent	98.0%	100.0%	
	No	**Count**	2	0	
		Percent	2.0%	.0%	

Table 5.59-a: Association between Women's Compliance and Oral Contraceptives' Use and Knowledge

			Compliance		
			Yes	No	Chi-square
Lacking significant information concerning OCs	**Yes**	**Count**	45	6	.932
		Percent	34.4%	33.3%	
	No	**Count**	86	12	
		Percent	65.6%	66.7%	
Opportunity to express oneself by asking questions to get more information & further clarification the first time the OC was prescribed	**Yes**	**Count**	106	16	.410
		Percent	80.9%	88.9%	
	No	**Count**	25	2	
		Percent	19.1%	11.1%	
Know how OCs work	**Yes**	**Count**	88	12	.966
		Percent	67.2%	66.7%	
	No	**Count**	43	6	
		Percent	32.8%	33.3%	
Know the active ingredient of the pill	**Yes**	**Count**	99	14	.838
		Percent	75.6%	77.8%	
	No	**Count**	32	4	
		Percent	24.4%	22.2%	
Know the meaning of "calendar pack"	**Yes**	**Count**	83	10	.522
		Percent	63.4%	55.6%	
	No	**Count**	48	8	
		Percent	36.6%	44.4%	
OCs have side effects	**Yes**	**Count**	78	9	.441
		Percent	59.5%	50.0%	
	No	**Count**	53	9	
		Percent	40.5%	50.0%	
OCs have interactions with other drugs/substances	**Yes**	**Count**	21	2	.588
		Percent	16.0%	11.1%	
	No	**Count**	110	16	
		Percent	84.0%	88.9%	

5.2.2.3.7 Association between Women's Compliance, Taking pills regularly, and Family Income, Number of Children and Experiencing Side Effects

Family income, number of children and experiencing side effects; all have no significant associations with compliance and taking pills regularly for all have a statistical significance > α as seen in (*Table 5.60*).

Table 5.60: Association between Women's Compliance, Taking pills regularly, and Family Income, Number of Children and Experiencing Side Effects

		Take Pills Regularly					High Compliance				
		Yes		No		Chi-square	Yes		No		Chi-square
		Count	Percent	Count	Percent		Count	Percent	Count	Percent	
Family income (NIS)	**<1000**	27	84.4%	5	15.6%	.522[a]	27	84.4%	5	15.6%	.366
	1001-2000	67	91.8%	6	8.2%		67	91.8%	6	8.2%	
	>2000	39	88.6%	5	11.4%		37	84.1%	7	15.9%	
Number of live children born to the woman (Binned)	**< 5**	77	89.5%	9	10.5%	.900	76	88.4%	10	11.6%	.843
	5+	56	88.9%	7	11.1%		55	87.3%	8	12.7%	
Experiencing Side Effects	**Yes**	49	86.0%	8	14.0%	.306	49	86.0%	8	14.0%	.564
	No	84	91.3%	8	8.7%		82	89.1%	10	10.9%	

5.3 Summary

Distributed questionnaires were filled by 149 women form Bethlehem, Halhoul, Hebron and Ramallah and Tulkarem districts using oral contraceptives as a method of contraception and visiting the PFPPA clinics regularly.

Data analysis was performed using The Statistical Package for the Social Sciences (SPSS 16).

Data analysis was undertaken at two levels: descriptive analysis and univariate analysis.

In the study, 39.60% of the studied women were from Halhoul, 32.21% from Hebron, 11.41% from Tulkarem, 10.07% from Bethlehem and 6.71% from Ramallah. Studied women were mainly from cities or villages and only one of them was from a camp.

About 41% of studied women were 34 years old or older and about 41.6% were 15-18 years old when married.

Most of the women in the study (about 65%) have previously used other contraceptive methods.

The mean reason for oral contraceptive use by the studied women was spacing (59.7%) between children followed by stop having children (32.9%).

The obstetrician was the major prescriber for oral contraceptives as reported by studied women (66.4%). However, the nurse was the main source of information (59.7%) provided to women who reported that the information reported was clear and understandable by (85.9%).

Family income, number of children and experiencing side effects were variables that showed no significant association with taking pills regularly and having high compliance.

Other variables for women's knowledge and compliance were explored and more information is stated and discussed in the following chapter.

Chapter 6

Discussion, Conclusion and Recommendations

6.1 Introduction

6.2 Demographic and Socioeconomic Background

6.3 Maternal History

6.4 Knowledge about Oral Contraceptives

6.5 Use and Compliance to Oral Contraceptives

6.6 Conclusions

6.7 Recommendations

6.1 Introduction

The study was conducted in order to investigates compliance to oral contraceptives usage and its determinants among current users in the West Bank. Women visiting the PFPPA and who were current users of oral contraceptives were targeted and asked to fill the study questionnaire.

The questionnaire was filled personally by every woman visiting the PFPPA clinics any time within four months period: from December 2007 to March 2008. Women filling the questionnaire were only current users of oral contraceptives. One hundred forty nine women filled the questionnaire in the mentioned period and all the questionnaires were fully completed.

6.2 Demographic and Socioeconomic Background

In this section of the questionnaire, information concerning place of residence, age, religion, family income, women's and husbands' level of education and employment status were sought.

The majority of participants were from Halhoul district (39.6%) and city locality (69.8%). This result shows that oral contraceptives' use is more prevalent in urban areas than in rural areas which is a similar result to a study conducted in Jordan where 44% of the sample where from urban areas while 34% came from rural areas (Kridli and Libbus, 2001).

Normally, we expect that younger women tend not to use of oral contraceptives since all newly married women want to have children. In this study, 40.9% of the studied women were in the age 34 years old or more. These results are very similar to results seen in most Arab countries and Asian countries, i.e. most developing countries. This indicates that women after a certain age decrease their will to have children as compared to younger ages which is a similar result to that of the Jordanian study where women older than 34 years showed more contraceptive use (Kridli and Libbus, 2001). The similarity in the findings between Jordan and Palestine might be due to the fact that both Palestine and Jordan are neighboring countries with similar cultural and social background.

Regarding educational level of the mother, 46.3% had completed their secondary education, followed by basic school education and university first degree holders 23.5% and 22.1% respectively followed by 1.3% illiterate women and only 0.7% having higher than university first degree. These results indicate that oral contraceptives' use is spread in women from cities more than villages and camps and in more educated women (secondary graduates in comparison to illiterate or basic school education). Compared to the study in Jordan (Kridli and Libbus, 2001), the majority (36.6%) were of basic school education followed by (30.3%) of uneducated women. In other words the results of the Jordanian study from the level of education view differs from this study. However in another study also conducted in Jordan only 2% of the participating women were not educated and the majority (31.1%) were of secondary education (Kridli and Newton,

2005). Also, residents in urban areas are usually more educated and thus know about family planning methods and use them more than residents in rural areas. Women with higher education levels are aware of family planning methods in general and oral contraceptives in specific so that oral contraceptives use is seen among more educated women both in Jordan and in Palestine.

In this study, lower income families showed more percents of oral contraceptives' use. This may be due to life expenses that make families think of family planning and contraception as a way to decrease their expenditure and improve their quality of life. In the case of this study, use of oral contraceptives which cost little could be viewed economically easier than the burden of expense of having more children in the hard economic status.

Finally, women's employment status showed that 88.6% of the women in the sample were unemployed. This case contradict the idea that working women tend to follow family planning methods more than unemployed ones. It is usually expected that employed women are more interested in family planning and contraceptives use. However, this study showed that employment may not be a reason for use of contraceptives for unemployed women participating in the study were using oral contraceptives more than employed ones.

However, these results can not be generalized because this study was not a randomized study and was conducted on women referring to the PFPPA clinics only.

6.3 Maternal History

In this section, women were asked for information concerning their maternal history like: woman's age at marriage, woman's age at first pregnancy, woman's age at first delivery, number and sex of children and number of abortions.

As seen in the results, 22.3% of the studied women had 3 children and 19.6% had 5 children. Women with more children showed better compliance and less missed pills than women with fewer children. This is due to the fact that women with more children are more committed to not having children than women with fewer children. As seen in the demographic health survey conducted by the Palestinian Central Bureau of Statistics in 2004, the mean number of children a women has is 4.5. So, women with more number of children are more interested in contraceptive use and this result is well seen in the decrease of mean number of children a women has from 4.7 in 2000 to 4.5 in 2004. Compared to the most recent United Nations statistics, two child families are becoming the norm and also mentioned that fertility in less developed regions has declined to slightly fewer than three per family (Brown 2002).

6.4 Knowledge about Oral Contraceptives

On initiating treatment with oral contraceptives, much of the visit should consist of counseling, including emphasizing the positive effects of oral contraceptives when they are used correctly and consistently. Patients should be encouraged to read provided written material and call with questions before discontinuing oral contraceptives on their own. If patients are scheduled and do not come in for a 15-minute follow-up visit after three months, they may have stopped the pill on their own and need a phone call for counseling regarding other methods of birth control.

Women in the study were asked in this section to answer questions exploring their knowledge about oral contraceptives. Name of oral contraceptive used, source of information provided and evaluation of information provided were asked for. Also, women were asked about oral contraceptives side effects, risk factors, drug interactions and health benefits. In addition, women were asked if they had information gap and to specify the reasons for that and the area of gaps if any.

Results showed that 74.5% of the studied women knew the name of their contraceptive being used. Older women (>34 years) were the largest category not knowing the name of their oral contraceptive. The univariate analysis results showed also that the women's level of education affected their knowledge since variables testing for knowledge had high levels of statistical significance with their level of education

Based on results of the univarite, level and quality of information given to women using oral contraceptives showed that women taking pills regularly reported receiving clear and understandable information. The major source of information for studied women was the nurse (59.7% followed by the obstetrician (34.2%). These results are compatible with the results of a study conducted by the PCBS in 2000 where the main medical source of information was nurses with a percentage of (48%) followed by doctors with a percentage of (35.4%). This result may be due to the tasks management followed in the health care centers where nurses usually provide the guiding information to patients and are considered an easier and more reachable source of information However, 85.9% reported receiving clear and understandable information.

Although 65.8% of the studied women reported that they do not lack information about oral contraceptives, 26.8% of them did not know any risk factor for oral contraceptives, 24.8% knew nothing about oral contraceptives' side effects, 53.7% had no idea about oral contraceptives' drug interactions and 33.6% did not know the non-contraceptive benefits of oral contraceptives. These figures highlight the importance of further improvement of information quality and quantity delivered to women using oral contraceptives. Several studies have shown that improved knowledge may decrease the incidence of unplanned pregnancies and, thus, of abortion. A study in the UK that aims to determine factors associated with women's knowledge of taking the contraceptive pill correctly and of emergency contraception, and to investigate if their knowledge could be improved in general practice by providing women with Family Planning Association information leaflets found that “providing women with leaflets about taking the contraceptive pill

correctly and about emergency contraception appears to improve significantly their extent of such knowledge. If such practice was adopted elsewhere this increased knowledge might reduce the number of unplanned pregnancies in the UK. The effect of general practitioners personally providing such leaflets, with or without verbal instruction, warrants further study". (Smith and Whitefield, 1995).

6.5 Use and Compliance to Oral Contraceptives

Having identified risk factors for contraceptive failure, researchers next attempted to discover the reasons why women discontinue contraceptive methods. In this study the major reason behind oral contraceptives' use was spacing between children (59.7%), followed by stop having children (32.9%). From the studied women, 54.4% intended to stop taking the oral contraceptives from whom 30.9% gave the reason for future oral contraceptives' stop as wanting to have more children. However, according to the demographic health survey conducted by the Palestinian Central Bureau of Statistics in 2004, 51.8% of married women wanted to stop having children and 41.1% wanted to have more children. Differences between results of this study and results of the PCBS survey results may be due to the small sample studied in this study which only covered women referring to the PFPP and were using oral contraceptives compared to the PCBS survey covering the whole Palestinian community (PCBS, 2004). In Egypt, a study in 1988 results showed that women reduced the number of pills taken in order to reduce the unwanted side effects. The misuse was related to the influences of family and friends, lack of information and education, not seeking help from trained personnel for problems, and false cause-and-effect connections. Provider interviews confirmed the lack of information provided to oral contraceptives users (Loza, 1991).

This part of the study explored women's compliance in taking oral contraceptives; i.e. if pills were taken regularly and actions when pills were being missed. In this study, 15.4% reported missing pills of whom 10.1% miss one pill per month, 5.4% miss two pills per month and 0.7 miss three or more pills per month. Also, as for action taken by women when missing pills, 79.9%of the studied women took the pill once they remember, 8.7% took it at the next does or consult health care provider whereas 0.7% consult a friend or discontinue the rest of the pack. This result appears to be different from the result in a study conducted in the United States because in that study, about 47% were missing one or more pills and 22% were missing two or more pills. In other words, women in this study showed more compliance than in the United States study (Rosenberg, *et al.*, 1998). Differences between this study and the study in the United States may be due to different cultural backgrounds between the two countries or to the small size of the sample of this study compared to the United States study where 1555 women participated in the study. In a study of 6676 European women aged 16–30 years using oral contraceptives, several factors were associated with poor compliance. For example, the risk of missing one or more pills in a cycle was highest among women who did not use their pills at the same time each day, who had read but understood little or nothing of the package insert information, or who had not received adequate information or help from their health care provider. Although the side effects of breast tenderness, nausea, and irregular bleeding were modestly associated with poor pill-taking compliance, abnormal hair growth was

the side effect associated with the greatest risk for failure to take oral contraceptive pills properly (Rosenberg et al.1995, 1996, 1999).

Concerning taking pills regularly, 89.3% of the studied women reported taking the pills regularly all the time. This result is consistent with the result of a study conducted in 5 European countries (Denmark, France, Italy, Portugal and the United Kingdom), where 81% of the women used their oral contraceptives consistently and effectively (Rosenberg, *et al.*, 1995-b). The authors of these studies suggest that developing a better understanding of the health beliefs and preferences of patients and their decision-making processes may ultimately be more effective in designing strategies that improve compliance.

In our study, 32.9% of the women experiencing side effects upon oral contraceptives use were still using the oral contraceptives consistently, whereas in the European study mentioned above nearly 50% discontinued oral contraceptives' use after having side effects (Rosenberg, *et al.*, 1995-b). In general, and this is applicable to all medications patients use, experiencing side effects lies behind non compliance and medications cessation. This may be because to the worries of patients about their health and for not desiring to experience side effects or bad outcomes from medications use which is a very natural thing revealing human worries about their health and refusal to have additional suffering.

In summary, recent oral contraceptive compliance studies continue to confirm previous studies that inconsistent pill-taking is prevalent and that side effects can affect both pill-taking and overall continuation. How material regarding efficacy, side effects, risks, and benefits is presented to patients appears to have some effect on compliance.

6.6 Conclusions

Knowledge about oral contraceptives use as reported by studied women did not show deep knowledge. In other words, women reporting that they did not think lack information about oral contraceptives in fact did not know many major things about oral contraceptives like risk factors, side effects, drug interactions and noncontraceptive benefits. However, most of the studied women reported receiving clear and understandable information. These facts highlight that the provided information may be restricted in how the pills should be taken and what to do when pills were missed. This is because studied women shoed good knowledge in theses aspects.

Concerning compliance, studied women generally had high compliance with least pills missed every month. This may be due to the real will and need of studied women to the effectiveness of oral contraceptives in contraception.

6.7 Recommendations

Women using oral contraceptives need to receive more information about oral contraceptives in a way covering all the important aspects women need to know but always in a simplified way to ensure their understanding and future application.

Discussion of oral contraceptives' side effects, risk factors, and drug interactions need more focus so as to keep women using the oral contraceptives always on the safe side and aware of options they can use in the cases of emergency.

Oral contraceptives non-contraceptive benefits need to be more discussed with women to encourage them for more and better compliance.

Women using oral contraceptives need to be given time to ask for information and express themselves especially the first time the pills are prescribed and on the first refill. These two occasions are important because in the first time use, the health care provider should keep in mind that women may not comply with the medication or undergo side effect. So women need to know what to do when missing pills or experiencing side effects. As for the first refill, in this visit women usually come back to the health center with questions and inquiries after their first use of the contraceptive just like any medication. In this case, the health providers themselves need to discuss the women's feeling, impressions and health changes upon the use of the contraceptive pills.

Written information in Arabic should be provided for women to refer to and read especially if leaflets are not always available.

Importance of calendar package in compliance should be discussed with women to make it easier for them to remember taking pills. In addition the use of reminder measure should be discussed with women since it has proven its better compliance effects.

Backup methods should also be discussed with women so as to keep them informed of the available choices when missing pills occurs.

For putting the women in a more complied status, educational programmes for oral contraceptives and other contraceptive methods need to be held to provide women with knowledge about available methods and choices for contraception. Also, providing women with a technique to record their exact time of taking the pill (e.g. dairy) to better determine the compliance level

Finally, the solution to the problem about birth control in the Palestinian society is not simple. Many policies need to change and for that to happen women need to be viewed as competent capable beings by those who currently try to infantilize them. Women and men need to be educated on contraception and birth control. Blockades need to be removed for those women seeking birth control, and barriers impeding forced and coerced use of birth control need to be put into place. Doctors need to start having conversations with their patients regarding contraception. Without societal views about

women and expectations for women changing, nothing will revolutionize contraception or women’s reproductive rights.

As for recommendations for future research:

- a follow up study is needed to collect data at the beginning of the use of contraceptives.

- the inclusion of educational programmes in the study and then exploring their effects on women' s knowledge and compliance

- expanding the sample to oral contraceptive users from different cities and different sources of oral contraceptives provision sites.

References

Abma, J, *et al.* (May, 1997): "Fertility, Family Planning, and Women's Health: New Data from the 1995 National Survey of Family Growth". Vital and Health Statistics. Series 23, Data from the National Survey of Family Growth, **Vol. 19**, pp. 1-114.

Abu Ahmed, A, *et al.* (December, 2003): "Knowledge and Attitude among Women in the Arab Village Regarding Contraception and Family Planning and the Reasons for Having Numerous Children". Harefauh, **Vol. 42 (12)**. pp 822-825, 879, 878.

Association of Reproductive Health Professionals. (December, 2000): " Pill Formulations: What do Patients Want to Know?". (http://www.arhp.org/healthcareproviders/onlinepublications/clinicalproceedings/rhupdatecp/pillformulations.cfm?ID=185,17.11.2006).

Beral, V, *et al.* (January, 1999): "Mortality Associated with Oral Contraceptive Use: 25 Year Follow up of Cohort of 46,000 Women from Royal College of General Practitioners' Oral Contraception Study". British Medical Journal, **Vol.318 (7176)**. pp 96-100.

Berek, J. (Editor). (2002): **Novak's Gynecology**, 13th Edition. Williams & Wilkins, Baltimore.

Berga, S. (2002): "Contraception: Choosing a Contraceptive Method". (http://www.medscape.com/viewarticle/534263 ,15.05.2007).

Bergman, S. (Editor). (2008): **Medic**, Shirol Publications, Herzliya.

Blackburn, R, *et al.* (2000): "Oral Contraceptives- An Update". Population Reports by The Population Information Program, Center for Communication Programs, The John Hopkins School of Public Health, **Vol. 28, No 1, Series a, No. 9**.

Borgelt-Hansen, L. (2001): "Oral Contraceptives: An Update on Health Benefits and Risks". Journal of American Pharmacists Association, **Vol.41 (6)**. Pp875-886.

Branden, P. (November/December, 1998): "Contraceptive Choice and Patient Compliance. The Health Care Provider's Challenge". Journal of Nurse-Midwifery, **Vol. 43, NO. 6**. pp 471-482.

Brunton, L. (Editor). (2006): **Goodman Gilman's Pharmacological Basis of Therapeutics**, 11th Edition. McGraw-Hill, New York.

Campbell, N. (1993): **Biology**, 3rd Edition. The Benjamin/Cummings Publishing Company, Inc.: Redwood City, California.

Cheung, E, Free, C. (2005): "Factors Influencing Young Women's Decision Making Regarding Hormonal Contraceptives: A Qualitative Study". Contraception, **Vol. 71**. pp 426-431.

Curtis, K, *et al.* (2006): "Effective Use of Hormonal Contraceptives. Part I: Combined Oral Contraceptive Pills". Contraception, **Vol. 73**. pp 115-124.

Davis, A, Wysocki, S. (1999): "Clinician/Patient Interaction: Communicating the Benefits and Risks of Oral Contraceptives". Contraception, **Vol. 59**. pp 39S-42S.

Delvin, D (2005): Contraception - The Contraceptive Pill. (http://www.netdoctor.co.uk/sex_relationships/facts/contraceptivepills.htm, 05.10.2005).

Demographic Health Surveys and World Fertility Survey, Population Report.

Dunnihoo, D. (1992): **Fundamentals of Gynecology and Obstetrics**, 2nd Edition. Lippincott Company, Philadelphia.

Ganong, W. (2005): **Review of Medical Physiology**, 22nd Edition. Lange Medical Books/ McGraw-Hill, New York.

Glasier, A, Shields, W. (2006): "Can We Improve Contraceptive Use?". Contraception, **Vol. 73**. pp 1-3.

Griffins, M. (1981): **Introduction to Human Physiology**, 2nd Edition. Macmillan Publishing Co. Inc, New York.

Griffins, M. (1981): **Introduction to Human Physiology**, 2nd Edition. Macmillan Publishing Co. Inc, New York.

Hansen, L, Saseen, J. (February, 2004): "New Contraceptive Options: Patient Adherence and Satisfaction – Editorial". American Family Physician. (http://www.findarticles.com/p/articles/mi_m3225/is_4_69/ai_112915202, 17.11.2006).

Hatcher, R, *et al.* (2001): **The Essentials of Contraceptive Technology**, 3rd Printing. Johns Hopkins Population Information Program, Baltimore.

Huber, L, *et al.* (2006): "Contraceptive Use and Discontinuation: Findings from the Contraceptive History, Initiation, and Choice Study". American Journal of Obstetrics and Gynecology, **Vol. 194**. pp 1290-1295.

Hull, M, *et al.*. (1997): **Undergraduate Obstetrics and Gynaecology**, 3rd Edition. Butterworth-Heinemabb Ltd, Oxford.

Jones, H, *et al.* (1988): **Novak's Textbook of Gynecology**, 11th Edition. Williams & Wilkins, Baltimore.

Jones, K. (1999): "Oral Contraception: Current Use and Attitudes". Contraception, **Vol. 59**. pp 17S-20S.

Kalant, H, Roschlan, W. (1998): **Principles of Medical Pharmacology**, 6th Edition. Oxford University Press, New York.

Katzung, B. (2004): **Basic and Clinical Pharmacology,** 9th Edition. Lange Medical Books/McGraw-Hill, New York.
Kelly, L. (2004): **Essentials of Human Physiology for Pharmacy**. CRC Press, Boca Raton.

Kovacs, GT, Murtagh, J. Monash University at Box Hill Hospital, Victoria (1994): Survey of general practitioner instructions to oral contraceptive users. (http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=8037631&query_hl=1, 05.10.2005).

Kovacs, GT, *et al.* Family Planning Association of Victoria, Richmond. (1998): Inadvertent pregnancies in oral contraceptive users. (http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=2716563&query_hl=1, 05.10.2005).

Kridli, S, Libbus, K. (2001): "Contraception in Jordan: A Cultural and Religious Perspective". International Council of Nurses, International Nursing Review, **Vol. 48**. pp 144-151.

Kridli, S, Libbus, K. (2002): "Establishing Reliability and Validity of an Instrument Measuring Jordanian Muslim Women's Contraceptive Beliefs". Health Care for Women International, **Vol. 23**. pp 870-881.

Kridli, S, Newton, S. (2005): "Jordanian Married Muslim Women's Intentions to Use Oral Contraceptives". International Council of Nurses, International Nursing Review, **Vol. 52**. pp 109-114.

Little, P, *et al.* (June, 1998): "Effect of Educational Leaflets and Questions on Knowledge of Contraception in Women Taking the Combined Contraceptive Pill: Randomized Controlled Trial". British Medical Journal, **Vol. 316**. pp 1948-1952.

Marks, J, *et al.* (February, 2004): "Generic Name: Oral Contraceptives or OCs (also known as Birth Control Pills or BCPs)". MedicineNet.com. (http://www.medicinenet.com/oral_contraceptives_birth_control_pills/article.htm ,17.11.2006).

Martin, E. (Editor). (1996): **Oxford Concise Colour Medical Dictionary**, Oxford University Press, Oxford.

MedlinePlus, Thomson Micromedex, Inc. Disclaimer for U.S. Pharmacopeia Drug Information, Volume II. (March, 2004): " Estrogens and Progestins Oral Contraceptives (Systemic)". (http://www.nlm.nih.gov/medlineplus/druginfo/uspdi/202228.html ,17.11.2006).

Moore, P, *et al.* (September, 1996): "Adolescents and the Contraceptive Pill: The Impact of Beliefs on Intentions and Use". Obstetrics and Gynecology, **Vol. 88, NO. 3**. pp 48S-56S.

Ozalp, S, *et al.* (April, 2000):"Factors Affecting the Selection of a Reversible or an Irreversible Contraceptive Method in a Developing Country". The European Journal of Contraception & Reproductive Health Care : The Official Journal of The European Society of Contraception, **Vol. 5 (2)**. pp. 147-151.

Pack, P. (2001): **Cliffs Quick Review-Anatomy and Physiology**. Hungry Minds, New York.

Palestinian Central Bureau of Statistics, (PCBS). (August, 1998). Men and Women in Palestine: Trends and Statistics. Ramallah-Palestine.

Palestinian Central Bureau of Statistics, (PCBS). (July, 2000). Palestinian Maternal and Child Health: A Qualitative National Study. Ramallah-Palestine.

Palestinian Central Bureau of Statistics, (PCBS). (May, 2002). Health and Demographic Indicators of Census, Health and Demographic Surveys Data: Pocket Book. Ramallah-Palestine.

Palestinian Central Bureau of Statistics, (PCBS). (August, 2003). Fertility Determinants in the Palestinian Territory: Dissemination and Analysis of Census Findings, In-depth Analysis Study Series. Ramallah-Palestine.

Palestinian Central Bureau of Statistics, (PCBS). (April, 2005). The Status of Reproductive health of Adolescents and Youth in the Palestinian Territory: Dissemination and Analysis of Census Findings, In-depth Analysis Study Series. Ramallah-Palestine.

Palestinian Central Bureau of Statistics, (PCBS) (http://www.pcbs.org, 05.10.2005).

Palestinian Central Bureau of Statistics, (PCBS). (February, 2006). Demographic and Health Survey – 2004: Final Report. Ramallah-Palestine.

Palestine, Ministry of Health "MOH". (2005). **The Status of Health in Palestine**, Annual Report.

Petitti, D, Sidney, S. (2005): "Four Decades of Research on Hormonal Contraception". The Permanent Journal, **Vol. 9, No. 1**. pp 29-34.

Pinter, B. (2002): "Continuation and Compliance of Contraceptive Use". The European Journal of Contraception and Reproductive Health Care, **Vol. 7**. pp 178-183.

Potter, L, *et al.* (July/August, 1996): "Measuring Compliance among Oral Contraceptive Users". Family Planning Perspectives, **Vol. 28, No. 4**. pp. 154-158.

Rice, G. (January, 2005): "Female Hormones". NetDoctor.co.uk. (http://www.netdoctor.co.uk/womenshealth/features/hormone.htm , 17.11.2006).

Rosenberg, M, *et al.* (1995-a): "Compliance and Oral Contraceptives: A Review". Contraception, **Vol. 52**. pp 137-141.

Rosenberg, M, *et al.* (1995-b): "Use and Misuse of Oral Contraceptives: Risk Indicators for Poor Pill Taking and Discontinuation". Contraception, **Vol. 51**. pp 283-288.

Rosenberg, M, *et al.* (March/April, 1998): "Compliance, counseling and Satisfaction with Oral Contraceptives: A Prospective Evaluation". Family Planning Perspectives, **Vol. 30, NO. 2**. pp 89-92 & 104.

Rosenberg, M, Waugh, M. (1999): "Causes and Consequences of Oral Contraceptive Noncompliance". American Journal of Obstetrics and Gynecology, **Vol. 180** pp S276-S279.

Santrock, J. (1994): **Child Development**, 6th Edition. Brown & Benchmark, Madison.

Schwartz, J, Gabelnick, H. (November/December, 2002): "Current Contraceptive Research". Perspectives on Sexual and Reproductive Health, **Vol. 34, NO. 6**. pp 310-316.

Shah, N.M., *et al.* (September, 2007): "Reasons and Correlates of Contraceptive Discontinuation in Kuwait". The European Journal of Contraception and Reproductive Health Care, **Vol.12 (3)**. pp 260-268.

Smith, J, Oakley, D. (2005): "Why Do Women Miss Oral Contraceptive Pills? An Analysis of Women's Self-Described Reasons for Missed Pills". Journal of Midwifery and Women's Health, **Vol. 50 (5)**. pp. 380-385.

Smith LF, Whitfield MJ. (August, 1995): "Women's Knowledge of Taking Oral Contraceptive Pills Correctly and of Emergency Contraception: Effect of Providing Information Leaflets in General Practice". British Journal of General Practice, **Vol.45 (397)**. pp 409-414.
(http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=7576845&query_hl=1, 05.10.2005).

Solomon, E. (1992): **Introduction to Human Anatomy and Physiology**. W. B. Saunders Company, Philadelphia.

Sueyoshi, S, *et al*. (June, 2006): "Effects of Reproduction Norms on Contraception Practice among Muslim Women in Amman, Jordan". The European Journal of Contraception and Reproductive Health Care, **Vol.11 (2)**. pp 138-145.

Sulak, S. (July, 2004): " Oral Contraceptive Update: New Agents and Regimens". Journal of Family Practice.
(http://www.findarticles.com/p/articles/mi_m0689/is_7_53/ai_n6130764,17.11.2006).

Taylor, R, *et al.* (2003): **Family Medicine: Principles and Practice**, 6th Edition. Springer-Verlag, New York.

Tessler, S, Peipert, J. (1997): "Perceptions of Contraceptive Effectiveness and Health Effects of Oral contraception". Women's Health Issues, **Vol. 7**. pp 400-406.

Tindall, V. (1987): **Jeffcoate's Principles of Gynaecology**, 5th Edition. Butterworth-Heinemabb Ltd, Oxford.

Tolley, E, *et al.* (March, 2005): "The Impact of Menstrual Side Effects on Contraceptive Discontinuation: Findings from a Longitudinal Study in Cairo, Egypt". International Family Planning Perspectives, **Vol. 31, NO. 1**. pp 15-23.

Tori, H. (May, 2004): "St. John's Wort and Oral Contraceptive Pills". Townsend Letter for Doctors and Patients.
(http://www.findarticles.com/p/articles/mi_m0ISW/is_250/ai_n6116537 , 17.11.2006).

Townsend S. (March, 1993): "Attitudes, Regulations Hinder Use of the Pill". Network, **Vol. 13 (3)**. pp 6-10.

Truitt, ST, *et al.* (2003): "Hormonal Contraception during Lactation: Systematic Review of Randomized Controlled Trials". Contraception, **Vol. 68**. pp 233-238.

Tuteur, A. (July, 2001): "Contraception". Encyclopedia of Medicine.
(http://www.findarticles.com/p/articles/mi_g2601/is_0003/ai_2601000360 , 17.11.2006).

U.S. Food and Drug Administration, FDA Consumer magazine (1997): Protecting Against Unintended Pregnancy: A Guide to Contraceptive Choices.
(http://www.fda.gov/fdac/features/1997/397_baby.html, 05.10.2005).

Weijer, P. (2005): "What Women Want and What Their Doctors Need- How Do Women Evaluate the Quality of Contraceptive Methods and Products Introduced by their Gynaecologist? A Different Perspective". The European Journal of Contraception and Reproductive Health Care, **Vol. 10 (S1)**. pp 2-6.

Weisberg, E. Sydney Centre for Reproductive Health Research, Family Planning NSW, Ashfield, Australia. eweisberg@s055.aone.net.au (1999): Interactions between Oral

Contraceptives and Antifungals/Antibacterials. Is Contraceptive Failure the Result?. Clin Pharmacokinet. (http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=10384856&query_hl=1, 05.102005).

Wikipedia, The Free Encyclopedia: "Combined Oral Contraceptive Pill". (http://en.wikipedia.org/wiki/Oral_contraceptive ,14.05.2006).

Wikipedia, The Free Encyclopedia: "Combined Oral Contraceptive Pill". (http://en.wikipedia.org/wiki/Oral_contraceptive_formulations ,14.05.2006).

Wikipedia, The Free Encyclopedia: "Glossary of terms associated with diabetes" (http://en.wikipedia.org/wiki/Glossary_of_terms_associated_with_diabetes#B 2.10.2008).

Wilson, J, *et al.* (1991): **Obstetrics and Gynecology**, 9th Edition. Mosby, St. Louis.

Appendices

Arabic Questionnaire

استبيان لاستطلاع معرفة النساء المستخدمات لأقراص منع الحمل في الضفة الغربية.

المنهجية: دراسة استطلاعية باستخدام أسلوب المسح الوصفي غير التجريبي.

مجتمع الدراسة وموقعها: المستخدمات الحاليات للأقراص المانعة للحمل في المراكز التابعة لجمعية تنظيم و حماية الأسرة الفلسطينية في الضفة الغربية.

أختي المبحوثة:

السلام عليكم ورحمة الله وبركاته

تهدف الدراسة إلى تقييم نوعية المعلومات المقدمة للمرأة التي تستخدم أقراص منع الحمل في المراكز التابعة لجمعية تنظيم وحماية الأسرة الفلسطينية في الضفة الغربية. إضافة إلى ذلك، فحص مستوى الالتزام الحالي بين مستخدمات أقراص منع الحمل في استخدامهن لأقراص المانعة للحمل.

نرجو موافقتك بالانضمام لجمهور هذه الدراسة بتعبئتك لهذا الاستبيان والتي ستعكس معرفتك بأقراص منع الحمل من نواحي مختلفة ومدى التزامك بأخذها على الوجه الأمثل. علماً بان هذه الدراسة تهتم بتقييم نوعية المعلومات لدى كافة المشاركات بغض النظر عن الخلفية العلمية للموضوع وذلك لأهميته الصحية والاجتماعية. هادفين الوصول إلى مجتمع فلسطيني مثقف صحيا، وآملين من حضرتكن الإجابة على كافة الأسئلة بموضوعية تامة، علما أن المعلومات الواردة في الاستبيان ستعامل بسرية تامة وستستعمل لأغراض البحث فقط. مع الشكر الجزيل لتعاونك في إتمام هذه الدراسة.

1) الخلفية السكانية و الاجتماعية الاقتصادية.

1. المحافظة:
أ. رام الله.
ب. الخليل.
ج. حلحول.
د. بيت لحم.

2. نوع التجمع السكاني:
أ. مدينة.
ب. قرية.
ج. مخيم.

3. عمر المرأة الحالي بالسنوات المكتملة:
أ. 18 سنة وأقل.
ب. 19-23.
ج. 24-28.
ح. 29-33.
خ. 34 وأكثر.

4. عمر الزوج الحالي بالسنوات المكتملة:
أ. 18 سنة وأقل
ب. 19-23.
ج. 24- 28.
د. 29-33.
ه. 34 وأكثر.

5. الديانة:
أ. الإسلام.
ب. المسيحية.

6. الحالة الوظيفية للزوج:

أ. موظف حكومة. ب. موظف قطاع خاص.

ج. يعمل لحسابه الخاص. د. لا يعمل.

7. الحالة الوظيفية للزوجة:

أ. موظفة حكومة. ب. موظفة قطاع خاص.

ج. تعمل لحسابها الخاص. د. لا تعمل.

8. دخل الأسرة (شيكل):

أ. < 1,000. ب. 1,000 – 2,000.

ج. 2,001 – 3,000. د. 3,001 – 4,000.

هـ. > 4,000.

9. مستوى المرأة التعليمي:

أ. أمية. ب. تعليم مدرسة أساسي.

ج. تعليم ثانوي. د.دبلوم.

ه. بكالوريوس. و. أكثر من ذلك.

10. مستوى الزوج التعليمي:

أ. أمي. ب. تعليم مدرسة أساسي.

ج. تعليم ثانوي. د.دبلوم.

ه. بكالوريوس. و. أكثر من ذلك.

2) الوضع الصحي العام.

11. وزن المرأة: _____ (كغم).

12. طول المرأة:_____ (سم).

13. هل تعانين من مرض/أمراض مزمن/ة؟

أ. نعم. ب. لا.

14. إذا كان الجواب على سؤال (13) "نعم"، ما هو المرض/الأمراض الذي تعانين منه؟ (يمكن إختيار أكثر من إجابة)

أ. التهاب المفاصل.　　ب. الربو.

ج. السرطان.　　د. الكولسترول.

ه. الإكتئاب.　　و. السكري.

ز. الصرع.　　ح. ارتفاع ضغط الدم.

ط. أمراض الكبد.　　ي. الذئبة.

ك. الشقيقة.　　ل. هشاشة عظام.

م.تخثر الدم (جلطة).

ن. غير ذلك: _____.

15. هل تأخذين دواء/أدوية بشكل مزمن؟

أ. نعم.　　ب. لا.

16. إذا كان الجواب على سؤال (15) "نعم"، الرجاء ذكر الدواء/الأدوية:

_____.

17. هل سبق أن أجريت عملية جراحية؟

أ. نعم.　　ب. لا.

18. إذا كان الجواب على سؤال (17) "نعم"، الرجاء تحديد ذلك:

_____.

19. هل أي من الأمراض المذكورة أدناه موجود في تاريخ العائلة؟

المرض	نعم	لا
سرطان الثدي.		
سرطان عنق الرحم.		
سرطان بطانة الرحم.		
ارتفاع ضغط الدم.		
الجلطة.		
الأوردة الدوالية.		
السكري.		
البدانة.		

20. هل تدخنين؟

أ. نعم. ب. لا.

21. إذا كان الجواب على سؤال (20) "نعم"، منذ متى تدخنين؟_____ سنة.

22. هل أنت مرضعة؟

أ. نعم. ب. لا.

23. إذا كان الجواب على سؤال (22) "نعم"، ما هي المدة ؟_____ شهر.

3) التاريخ الإنجابي.

24. عمر المرأة عند الزواج: (سنة)

أ. ≤ 14. ب. 15-18.

ج. 19-22. د. ≤ 23.

25. عمر المرأة عند الحمل الأول: (سنة)

أ. ≤ 14. ب. 15-18.

ج. 19-22. د. ≤ 23 (_____).

26. عمر المرأة عند الإنجاب الأول: (سنة)

أ. ≤ 14. ب. 15-18.

ج. 19-22. د. ≤ 23 (_____).

27. عدد المواليد الأحياء للمرأة: _____.

28. عدد الإجهاضات: _____.

29. عدد المواليد الميتة: _____.

30. عدد الأطفال الأحياء (حاليا):

الذكور:_____. الإناث:_____. المجموع:_____.

4) استخدام أقراص منع الحمل.

31. هل سبق أن استخدمت وسيلة منع حمل غير الأقراص؟

أ. نعم. ب. لا.

32. إذا كان الجواب على سؤال (31) "نعم"، ما هي الطريقة/الطرق التي سبق لك استخدامها؟ (ممكن اختيار أكثر من جواب):

أ. الواقي الذكري. ب. **الحلقة البلاستيكية.**

ج. الرغوة. د. اللولب.

ه. فترة الأمان. و. الانسحاب قبل القذف.

ز. غير ذلك، الرجاء التحديد: _____.

33. كم كان عمرك عندما استخدمت أحد الطرق المانعة للحمل للمرة الأولى؟ (سنة):

أ. ≤ 18. ب. 18–23.

ج. 24–29. د. 30–35.

ه. ≥ 35.

34. هل سبق أن استخدمت الأقراص المانعة للحمل قبل الآن؟

أ. نعم. ب. لا.

35. إذا كان الجواب على سؤال (34) "نعم"، الرجاء تحديد عدد المرات:

أ. 1 ب. 2

ج. 3 د. ≤ 4.

36. ما هي مجمل المدة التراكمية لاستخدامك الأقراص المانعة للحمل في جميع المرات السابقة:

أ. 1–6 أشهر. ب. 7–12 شهر.

ج. 13–18 شهر. د. 19–24 شهر.

ه > سنتين.

37. ما هي مدة استخدامك للأقراص المانعة للحمل للمرة الحالية؟

أ. 1–6 أشهر. ب. 7–12 شهر.

ج. 13–18 شهر. د. 19–24 شهر.

ه > سنتين.

38. كم كان عمرك عندما استخدمت الأقراص المانعة للحمل للمرة الأولى؟

أ. ≤ 18.　　ب. 18–23.

ج. 24–29.　　د. 30–35.

ه. ≤ 35 (_____).

39. كم كان عدد أطفالك عندما استخدمت الأقراص المانعة للحمل للمرة الأولى؟

الذكور:_____. الإناث:_____. المجموع:_____.

40. هل تنوين التوقف عن استخدام الأقراص المانعة للحمل؟

أ. نعم.　　ب. لا.

41. إذا كان الجواب على سؤال (40) "نعم"، متى تنوين ذلك؟

أ. خلال 6 أشهر أو أقل.

ب. خلال سنة.

ج. خلال سنة و نصف.

د. خلال سنتين أو أكثر.

42. لم تنوين إيقاف استعمال الأقراص المانعة للحمل؟

أ. أريد إنجاب المزيد من الأطفال.

ب. الأقراص تتسبب لي بنزيف غير منتظم.

ج. ألأقراص تتسبب لي بإضطرابات بالجهاز الهضمي.

د. تؤثر عكسيا على نشاطي الجنسي.

ه. أشعر بالقلق من أعراضها الجانبية.

و. قيل لي أنها تسبب السرطان.

ز. التزامي بتناولها بالشكل الصحيح ضعيف.

ح. غير ذلك، الرجاء التحديد: _____.

43. من وصف لك الأقراص المانعة للحمل؟

أ. طبيب أخصائي أمراض نسائية وتوليد.　　ب. طبيب عام.

ج. صيدلي.　　د. قابلة.

ه. العاملة الصحية.　　و. أنا.

ز. صديقة/قريبة.　　ح. غير ذلك: _____.

44. من نصحك باستخدام الأقراص كمانع للحمل دون غيرها من الأساليب الأخرى؟

أ. المسئول عن الرعاية الصحية. ب. قريب/صديق.

ج. قرار شخصي.

45. ما السبب وراء استخدامك للأقراص المانعة للحمل؟

أ. التوقف عن إنجاب الأطفال. ب. المباعدة بين الأطفال.

ج. مشاكل صحية. د. غير ذلك: _____.

46. من أين تحصلين على الأقراص المانعة للحمل؟

أ. عيادة تنظيم الأسرة. ب. عيادة الأمومة والطفولة.

ج. مستشفى حكومي. د. مستشفى غير حكومي.

ه. عيادة تابعة لوكالة الغوث. و. عيادة الطبيب الخاصة.

ز. الصيدلية. ح. غير ذلك: _____.

47. من يدفع لك مقابل الأقراص المانعة للحمل؟

أ. أحصل عليها مجانا. ب. أدفع سعرها كاملا من مالي الخاص.

ج. أدفع جزء من سعرها. د. عن طريق التأمين الصحي.

5) المعرفة بالأقراص المانعة للحمل.

48. هل تعرفين اسم الأقراص المانعة للحمل التي تستخدمينها؟

أ. نعم. ب. لا.

49. إذا كان الجواب على سؤال (48) "نعم"، الرجاء ذكره:

_____.

50. عندما وصفت لك الأقراص المانعة للحمل في المرة الأولى، هل تم إعطاءك معلومات حولها؟

أ. نعم. ب. لا.

51. مصدر المعلومات المعطاة هو:

أ. طبيب أخصائي أمراض النساء و التوليد. ب. طبيب العائلة.

ج. الصيدلي. د. الممرضة.

ه. القابلة. و. غير ذلك: _____.

52. كيف تصفين المعلومات التي تلقيتها حينها؟

أ. واضحة ومفهومة.　　ب. غير واضحة.

ج. معقدة.　　د. مربكة.

ه. مختصرة وسطحية.　　و. غير ذلك: _____.

53. هل هناك مخاطر لاستعمال الأقراص المانعة للحمل؟

أ. نعم.　　ب. لا.

54. إذا كان الجواب على سؤال (53) "نعم"، أي من بين الحالات التالية تصنف على أنها من محظورات استعمال الأقراص المانعة للحمل؟ (محظورات: عوامل موجودة مسبقاً عند السيدة تحد من إمكانية استخدامها للاقراص).

#	الحالة/المرض	نعم	لا
1	كون عمرك أكبر من 40 سنة.		
2	الربو.		
3	السرطان.		
4	مشاكل قلبية.		
5	إرتفاع ضغط الدم.		
6	الشقيقة.		
7	مشاكل بالكبد.		
8	ارتفاع الشحميات في الدم.		
9	ارتفاع نسبة هرمون الحليب في الدم.		
10	الزيادة المفرطة بالوزن.		
11	عدم التحرك لفترات طويلة.		
12	اضطراب عقلي.		
13	أنيميا الدم المنجلية.		
14	التدخين.		
15	الذئبة.		
16	أوردة دوالية.		
17	غير ذلك، الرجاء تحديده:		

55. عندما تحصلين على الأقراص المانعة للحمل، هل تكون مرفقة بالنشرة الخاصة بالتعليمات؟

أ. نعم، دائما. ب. أحيانا.

ج. لا، مطلقا.

56. إذا حصلت على النشرة، هل تقرئينها؟

أ. نعم. ب. لا.

57. إذا كان الجواب على سؤال (56) "نعم"، هل تفهمين المعلومات المذكورة؟

أ. نعم. ب. لا.

58. من من التالي ذكرهم يعتبر مصدرك الأساسي للمعلومات؟

أ. لا أحد معين. ب. الطبيب أخصائي أمراض النساء والتوليد.

ج.الطبيب العام. د. الصيدلي.

ه. القابلة. و. الممرضة.

ز. العاملة الصحية ح. صديقة/قريبة.

59. هل تعتقدين أن معلوماتك الخاصة بالأقراص المانعة للحمل ناقصة؟

أ. نعم. ب. لا.

60. إذا كان الجواب على سؤال (59) "نعم"، فالمعلومات الناقصة لديك تتعلق ب:

أ. الاستخدام الصحيح للأقراص المانعة للحمل.

ب. فوائد الأقراص المانعة للحمل.

ج.الآثار الجانبية للأقراص المانعة للحمل.

د. مخاطر الأقراص المانعة للحمل.

ه.تفاعلات الأقراص المانعة للحمل مع غيرها من الأدوية.

و.سعر الأقراص المانعة للحمل.

ز. أثر الأقراص على النشاط الجنسي المانعة للحمل.

ح. غير ذلك: _____.

61. إذا كان الجواب على سؤال (59) "نعم"، لماذا تعتقدين تنقصك هذه المعلومات؟ (يمكن إختيار أكثر من إجابة)

أ. المعلومات المتوفرة معقدة وغير واضحة.

ب. المزود للمعلومات (اياً كان) يتكلم بسرعة و لا أستطيع متابعته.

ج. مجمل معلوماتي الصحية ضعيف.

د. أنسى المعلومات المعطاة.

ه. أخشى السؤال عن المزيد من التوضيح.

و. أخجل السؤال عن المزيد من التوضيح.

ز. مقدّم الرعاية لا يشجعني على طرح الأسئلة.

ح. لا يسمح المجال بذلك لأن المركز الصحي/العيادة تكون دائما مكتظة.

ط. لا أعرف.

62. ماذا برأيك يملأ الثغرات المعرفية لديك؟ (ممكن اختيار أكثر من إجابة):

أ. تزويدي بمعلومات مطبوعة بالعربية.

ب. أن يقوم الأخصائي الصحي بقراءة و شرح المعلومات في النشرة المرفقة.

ج. الحصول على معلومات بخصوص الأساليب المانعة للحمل بما فيها الأقراص من وسائل الإعلام (مثال: التلفاز، الإذاعة...).

د. توفير خدمات لإعطاء نصائح عن الإستخدام الأمثل للأقراص المانعة للحمل عند وصفها.

ه. توفير طريقة للحصول على المعلومات في حالات الطواريء.

و. غير ذلك: _____.

63. في أول مرة تم وصف الأقراص المانعة للحمل لك، هل أعطيت الفرصة للتعبير عن نفسك و طرح الأسئلة للحصول على المزيد من المعلومات و الشرح؟

أ. نعم. ب. لا.

64. هل تعرفين كيف تعمل الأقراص المانعة للحمل؟

أ. نعم. ب. لا.

65. أي من التالي يصف المادة الفعالة في الأقراص المانعة للحمل؟

أ. مادة هرمونية. ب. مادة طبيعية.

ج. مادة كيميائية. د. لا أعرف.

66. هل تعرفين ما معنى" العبوة التقويمية"؟

أ. نعم. ب. لا.

67. هل تعلمين كيفية استخدامها؟

أ. نعم. ب. لا.

68. هل تتبعينها؟

أ. نعم. ب. لا.

69. يوجد أي آثار جانبية للأقراص المانعة للحمل؟

أ. نعم. ب. لا.

70. إذا كان الجواب على سؤال (69) "نعم"، أي من التالية يمكن أن يكون من الآثار الجانبية للأقراص المانعة للحمل؟

أ. سرطان الثدي. ب. سرطان عنق الرحم.

ج. الإكتئاب. د. ارتفاع ضغط الدم.

ه. ذبحة قلبية. و. غثيان و تقيؤ شديدين.

ز. سكتة دماغية. ح. تخثر الدم (جلطة).

ط. أوردة دوالية. ي. غير ذلك _____.

71. هل تتفاعل الأقراص المانعة للحمل مع عقاقير أو مواد أخرى؟

أ. نعم. ب. لا.

72. إذا كان الجواب على سؤال (71) "نعم"، مع أي من المواد التالية ممكــن أن تتفاعــل الأقــراص المانعة للحمل؟

(يمكن إختيار أكثر من إجابة)

#	الدواء/المادة	نعم	لا
1	الكحول.		
2	المسكنات.		
3	المضادات الحيوية.		
4	مانعات التخثر.		
5	مضادات الإختلاج (أدوية الصرع).		
6	أدوية السكري.		
7	مضادات الإكتئاب.		
8	مهبطات الضغط المرتفع (أدوية الضغط).		
9	البنزوديازيبينات (أدوية مهدئة ونومة).		
10	الكورتيكوستيرويدات و الجلوكورتيكوستيرويدات (مشــتقات الكوتيزون).		
11	مدرات البول.		
12	مثبطات المناعة.		
13	فيتامين ج.		

73. هل يوجد للأقراص المانعة للحمل فوائد غير عملها الأصلي؟

أ. نعم. ب. لا.

74. إذا كان الجواب على سؤال (73) "نعم"، أي من التالية يعتبر من فوائد الأقراص المانعة للحمل؟ (يمكن إختيار أكثر من إجابة)

أ. تقل مشاكل عسر الطمث (آلام الدورة الشهرية).
ب. تقل احتمالية الإصابة بالتهاب الحوض الجوفي.
ج. ممكن أن يحسن (يخفف من شدة) حب الشباب.
د. تحسين أعراض ما قبل الدورة الشهرية.
ه. ممكن أن يحسن (يخفف من شدة) الشعرانية.
و. تقل احتمالية حدوث الحمل خارج الرحم.
ز. تقل احتمالية الإصابة بسرطان بطانة الرحم.
ح. تقل احتمالية الإصابة بالطمث الشديد (النزف).
ط. تقل احتمالية الإصابة بفقر الدم.
ي. تقل احتمالية الإصابة بسرطان المبايض.

6) الالتزام باستخدام الأقراص المانعة للحمل.

75. هل تتناولين الأقراص بانتظام؟

أ. دائما. ب. إجمالا.
ج. نادراً. د. لا أتذكر.

76. هل تنسين أخذ الأقراص؟

أ. نعم. ب. لا.

77. كم قرصا تنسين كل شهر؟

أ. 0 ب. 1
ج.2 د. 3 أو أكثر.

78. كيف تقيمين التزامك بتناول الأقراص؟

أ. عالي. ب. متوسط. ج. ضعيف.

79. أي من العوامل التالية في اعتقادك ممكن أن يؤثر على كفاءة/فاعلية الأقراص المانعة للحمل؟
أ. إضاعة أخذ قرص/أقراص.
ب. أخذ الأقراص بدون ترتيب.
ج. بدء العبوة مبكرة أو متأخرة.
د. الانقطاع عن أخذ الأقراص بسبب سعرها.

80. ماذا تفعلين إذا نسيت أخذ القرص؟
أ. أخذه عندما أتذكر.
ب. أخذه على موعد الجرعة التالية.
ج. أستشير أحد مقدمي الخدمات الصحية
د. أستشير صديقة/قريبة تستخدم نفس الوسيلة المانعة للحمل.
ه. أتوقف عن تناول الأقراص بشكل كامل.
و. أمتنع عن الجماع حتى الدورة الشهرية التالية.
ز. غير ذلك، الرجاء التحديد:_____.

81. عند نسيان أخذ قرص، هل تستخدمين وسيلة وقاية إضافية؟
أ. نعم. ب. لا.

82. إذا كان الجواب على سؤال (81) "نعم"، الرجاء تحديد هذه الوسيلة:
أ. الواقي الذكري.
ب. أمتنع عن الجماع حتى الدورة الشهرية التالية.
ج. استخدم أقراص الطوارىء المانعة للحمل.
د. غير ذلك، الرجاء التحديد:_____.

83. هل لديك أجراء خاص تستخدمينه كوسيلة تذكير لأخذ الأقراص بانتظام؟
أ. نعم. ب. لا.

84. إذا كان الجواب على سؤال (83) "نعم"، الرجاء تحديد هذا الإجراء:
(يمكن إختيار أكثر من إجابة)

أ. أنظر إلى العبوة التقويمية.
ب. أشطب اليوم عن الرزنامة عندما آخذ القرص.
ج. أضبط المنبه حسب وقت تناول القرص.
د. آخذ القرص عند الذهاب للنوم.
ه. آخذ القرص عندما أنظف أسناني.
و. غير ذلك، الرجاء التحديد:_____.

85. هل عانيت من أعراض جانبية جرّاء استخدام الأقراص المانعة للحمل؟
أ. نعم. ب. لا.

86. إذا كان الجواب على سؤال (85) "نعم"، الرجاء تحديد الأعراض الجانبية التي عانيت منها:
(ممكن اختيار أكثر من إجابة):

أ. زيادة في الوزن. ب. آلام في الصدر.
ج. تغيرات في الدورة الشهرية. د. صداع.
ه. غثيان. و. تغيرات مزاجية.
ز. تعب. ح. حب الشباب.
ط. فقر الدم. ي. تغير في لون الجلد (يغمق).
ك. الشعرانية. ل. التهابات مهبلية.

87. ماذا تفعلين عندما تعانين من الأعراض الجانبية؟
(يمكن إختيار أكثر من إجابة)

أ. أتوقف عن أخذ الأقراص.
ب. أبحث عن مساعدة من ذوي التخصص.
ج. أبحث عن مساعدة من صديقة.
د. استمر في أخذ الأقراص لأن فوائدها أكبر من أعراضها الجانبية.
ه. استمر في أخذ الأقراص لأن الأعراض الجانبية هذه مؤقتة.

88. هل سبق وأن حملت بينما كنت تستخدمين الأقراص المانعة للحمل؟
أ. نعم. ب. لا.

89. إذا كان الجواب على سؤال (88) "نعم"، هل تعرفين السبب المحتمل لحدوث الحمل؟

أ. نعم. ب. لا.

90. إذا كان الجواب على سؤال (89) "نعم"، أي من التالية قد يكون السبب؟

أ. نسيان أخذ الأقراص.

ب. بدء العبوة مبكرة أو متأخرة.

ج. أخذ الأقراص بدون ترتيب.

د. تناول أدوية لأخرى.

Appendix 2

Available Oral Contraceptive Formulations in the Local Market (Bergman, 2008)

NO.	Product Name	Type	Category	Ingredients & Concentrations		Tablets NO.	Comments
				Progesterone	Estrogen		
1	*Belara*®	COC*	Monophasic	Chlormadinone acetate 2 mg	Ethinylestradiol 0.030 mg	21 Tablets	1st tablet on 1st day of menstrual cycle for 21 days, followed by 7 free days, then new pack started on the 1st day of cycle.
2	*Cerazette*®	POOC**	Monophasic	Desogestrel 0.075 mg	_____	28 Tablets	One tablet daily.
3	*Feminet*®	COC*	Monophasic	Desogestrel 0.150 mg	Ethinylestradiol 0.020 mg	21 Tablets	1st tablet on 1st day of menstrual cycle for 21 days, followed by 7 free days, then new pack started on the 8th day.
4	*Gynera*®	COC*	Monophasic	Gestodene 0.075 mg	Ethinylestradiol 0.030 mg	21 Tablets	Start on 1st day of cycle: 1 tablet daily for 21 days.
5	*Harmonet*®	COC*	Monophasic	Gestodene 0.075 mg	Ethinylestradiol 0.020 mg	21 Tablets	1st tablet on 1st day of menstrual cycle for 21 days, followed by 7 free days, then new pack started on the 1st day of cycle.
6	*Lodene*®	COC*	Monophasic	Gestodene 0.075 mg	Ethinylestradiol 0.020 mg	21 Tablets	1st tablet on 1st day of menstrual cycle for 21 days, followed by 7 free days, then new pack started on the 1st day of cycle.

NO.	Product Name	Type	Category	Ingredients & Concentrations		Tablets NO.	Comments
				Progesterone	Estrogen		
7	*Meliane*®	COC*	Monophasic	Gestodene 0.075 mg	Ethinylestradiol 0.020 mg	21 Tablets	1st tablet on 1st day of menstrual cycle for 21 days, followed by 7 free days, then new pack started on the same day of week as the 1st pack.
8	*Mercilon*®	COC*	Monophasic	Desogestrel 0.150 mg	Ethinylestradiol 0.020 mg	21 Tablets	1st tablet on 1st day of menstrual cycle for 21 days, followed by 7 free days, then new pack started on the same day of week as the 1st pack.
9	*Microdiol*®	COC*	Monophasic	Desogestrel 0.150 mg	Ethinylestradiol 0.030 mg	21 Tablets	1st tablet on 1st day of menstrual cycle for 21 days, followed by 7 free days, then new pack started on the same day of week as the 1st pack.
10	*Microgynon*®	COC*	Monophasic	Levonorgestrel 0.150 mg	Ethinylestradiol 0.030 mg	21 Tablets	1st tablet on 1st day of menstrual cycle for 21 days.
11	*Microlut*®	POOC**	Monophasic	Levonorgestrel 0.20 mg	_____	35 Tablets	1 tablet daily (without break) for 35 days without regard to bleeding, then new pack started without interruption.
12	*Minesse*®	COC*	Monophasic	Gestodene 0.060 mg	Ethinylestradiol 0.015 mg	28 Tablets: (24 yellow active tablets, 4 white placebo tablets)	1st tablet (yellow) on 1st day of menstrual cycle, ending cycle with 4 placebo tablets.

NO.	Product Name	Type	Category	Ingredients & Concentrations		Tablets NO.	Comments
				Progesterone	Estrogen		
13	*Minulet*®	COC*	Monophasic	Gestodene 0.075 mg	Ethinylestradiol 0.030 mg	21 Tablets	1st tablet on 1st day of menstrual cycle for 21 days, followed by 7 free days, then new pack started on the same day of week as the 1st pack.
14	*Nordette*®	COC*	Monophasic	Levonorgestrel 0.150 mg	Ethinylestradiol 0.030 mg	28 Tablets	1st tablet on 1st day of menstrual cycle for 28 days without interruption.
15	*Ortho-Cyclen*®	COC*	Monophasic	Norgestimate 0.250 mg	Ethinylestradiol 0.035 mg	21 Tablets	1st tablet on 1st menstrual cycle for 21 days.
16	*Postinor2*®	POOC**	Emergency Contraceptive	Levonorgestrel 0.75 mg	_____	2 Tablets	One tablet within 72 hours after unprotected intercourse, 2nd tablet taken 12 hours after the 1st tablet.
17	*Yasmin*®	COC*	Monophasic	Drospirenone 3 mg	Ethinylestradiol 0.030 mg	21 Tablets	1st tablet on 1st menstrual cycle for 21 days, followed by 7 free days, then new pack started on the same day of week as the 1st pack.

** COC: Combination Oral Contraceptive, ** POOC: Progestin-Only Oral Contraceptive*