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Women's Knowledge, Attitudes, and Practices On Preconception Care in the Southern West Bank

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Dedication

To the pure souls of the martyrs—those who rose in defense of dignity and justice.

To the wounded, who offered their bodies as vessels of sacrifice for the homeland.

To the prisoners, steadfast in the shadows, holding on to hope amid captivity.

To Gaza—resilient, unyielding beneath the weight of siege.

To every grain of soil in my wounded homeland.

To my mother and father, the heartbeat of my spirit, who taught me the meaning of love for country and the strength to carry on.

To my beloved wife, my companion in life, and partner in dreams, struggle, and resilience.
To my children, the promise of tomorrow, the light I pray will illuminate a world of peace and dignity.

To all of them, I dedicate this work, in gratitude, loyalty, and enduring love.

Declaration

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

Name: Jawad Abdelfattah Hasan Abu Kheiran

Signed 

Date: 20/7/2025

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Abstract

Introduction: Preconception care (PCC) is a vital public health approach that enhances maternal and neonatal outcomes by addressing health risks before conception. Despite its significance, awareness and utilization of PCC services remain low among women in Palestine. In 2020, only 37.4% of pregnant women were registered for antenatal care in Ministry of Health (MoH) primary healthcare centers, averaging 3.4 visits per pregnancy, which reflects gaps in engagement with reproductive healthcare.

Aim: to evaluate the levels of knowledge, attitudes, and practices (KAP) regarding PCC among women of reproductive age in the Southern West Bank.

Methodology: A cross-sectional design was utilized. A convenient sampling method was employed to select participants from primary healthcare clinics throughout the Southern West Bank. Data were collected using a structured questionnaire that assessed knowledge, attitudes, and practices related to PCC, along with socio-demographic characteristics. The study involved a sample of 308 women. Statistical analysis was conducted using SPSS software, which included descriptive statistics, and chi-square tests.

Results: Findings indicated that 98% of the participants had a high level of awareness regarding the use of folic acid before and during pregnancy. They were aware that neural tube defects are preventable through folic acid intake and that multivitamin use could reduce the risk of birth defects. However, their actual practice of preconception care (PCC) remained limited. Statistically significant associations were found between knowledge levels and education ($p < 0.05$) and socioeconomic status ($p < 0.05$). Despite generally positive attitudes toward PCC, engagement in related practices remained low. The study emphasized that education level and income were key predictors of both knowledge and practice.

Conclusion and Recommendations: The study revealed a notable gap between knowledge and actual practice regarding PCC among women in the Southern West Bank. While attitudes were positive, practice remained insufficient. Strengthening health education, integrating PCC into routine primary healthcare, and increasing accessibility are essential steps to improve maternal and neonatal health. Health policymakers should develop targeted interventions to address these gaps, including awareness campaigns, training for healthcare providers, and inclusion of PCC in educational materials and clinic outreach efforts.

Keywords: Preconception Care, Knowledge, Attitudes, Practice, Reproductive Health.

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List of Abbreviations

Abbreviation	Full Term
PCC	Preconception Care
PCBS,	Palestinian Central Bureau of Statistics
WHO	World Health Organization
KAP	Knowledge, Attitudes, and Practices
MoH	Ministry of Health
PHC	Primary Health Care
WHO	World Health Organization
SDGs	Sustainable Development Goals
NTDs	Neural Tube Defects
SPSS	Statistical Package for the Social Sciences
BMI	Body Mass Index
HCPs	Health Care Providers
IRB	Institutional Review Board
RH	Reproductive Health
STIs	Sexually Transmitted Infections
OR	Odds Ratio
CI	Confidence Interval
SD	Standard Deviation
ANC	Antenatal Care
FASD	Fetal Alcohol Spectrum Disorders
USA	United States of America
CDC	Centers for Disease Control and Prevention
HIV	Human Immunodeficiency Virus
MMR	Measles, Mumps, and Rubella (vaccine)
DNA	Deoxyribonucleic Acid
MMR	Maternal mortality ratio

Chapter One

Introduction

1.1 Background

Preconception care (PCC) is a public health concern that addresses women's health during their reproductive years and includes both women and men who are planning for pregnancy (Khan, Boyle, Lang, & Harrison, 2019). It encompasses the mother's lifestyle before and during pregnancy, which significantly impacts healthy pregnancy and maternal outcomes. The goal of PCC is to optimize the health of women throughout their reproductive years and to enhance the well-being of individuals and couples preparing for pregnancy (Nypaver & Yeager, 2024). The World Health Organization (WHO) has underscored the necessity of increasing awareness among both women and men regarding prenatal health care to improve outcomes for pregnancy and childbirth (Tunçalp et al., 2017).

It has increasingly been recognized as an essential public health strategy for improving maternal and child health outcomes. Current literature highlights that PCC is relevant not only for women of reproductive age but also for men and all individuals planning a pregnancy, regardless of their previous childbirth experiences or intentions. PCC includes a comprehensive range of interventions—such as physical assessments, risk screenings, vaccinations, and counseling—aimed at identifying and managing health-related,

behavioral, and social risks prior to conception, thus optimizing pregnancy outcomes. Recent studies indicate that over 90% of women and more than 50% of men have preconception health issues that need to be addressed to enhance reproductive outcomes (Dorney & Black, 2024).

According to the Palestinian Central Bureau of Statistics (PCBS), the total fertility rate in Palestine was 3.8 births per woman, with 3.9 in the Gaza Strip and 3.8 in the West Bank (Health Annual Report, Palestine, 2020). The population of females of reproductive age (15–49 years) in Palestine was 1,262,314, accounting for 24.7% of the total population.

In the West Bank, there were 766,264 women of reproductive age, representing 25.1% of the West Bank population, while the Gaza Strip had 496,050 women, or 24.2% of Gaza's population. In that same year, a total of 97,360 pregnant women visited the Primary Health Care (PHC) centers of the Palestinian Ministry of Health (PMOH). Among these, 28,547 were registered for their first antenatal visit, yielding a coverage rate of 37.4%. On average, pregnant women attended these centers 3.4 times during their pregnancy.

It is anticipated that PCC will provide health education, risk assessment, and interventions for women before and during pregnancy (Khekade et al., 2023).

Health education, counseling, and PCC can be extended to the mother, father, and the entire family to minimize maternal and infant morbidity and mortality. This approach assists women in identifying and addressing risks prior to pregnancy (Stern et al., 2016). Recent studies emphasize the benefits of involving fathers and family members in PCC programs, which lead to improved maternal health behaviors, enhanced adherence to medical advice, and better pregnancy outcomes. Family-centered PCC also tackles mental health, offers social support, and fosters shared decision-making, which is particularly vital in diverse and underserved populations. The incorporation of digital health tools and community-based initiatives has further broadened the reach and effectiveness of PCC, making it more accessible and tailored to meet individual needs (Dean et al., 2014).

The quality of preconception care (PCC) may be affected by various factors, including the health system, available services, facilities, financial resources, and organizational structures within a specific context. Moreover, effective collaboration among interprofessional team members is crucial for enhancing the quality of PCC and counseling offered to women and their families. Therefore, it is vital to study Palestinian women's

knowledge, attitudes, and practices regarding preconception care to promote their health and improve PCC for women and families in Palestine. Additionally, understanding the demographic context and service utilization is important.

The United Nations Relief and Works Agency (UNRWA) has reported that PCC services are available to women referred to its clinics, supporting an estimated 75,851 pregnancies each year. Moreover, antenatal clinics annually provide family planning services to approximately 176,574 women. In 2020, UNRWA clinics alone served 6,150 pregnant women in the southern directorate of the West Bank. The Palestinian Ministry of Health also operates several clinics in the southern directorates of the West Bank.

This study will specifically focus on women's health. Gaining insights into women's knowledge, attitudes, and practices concerning PCC is essential for promoting their well-being during pregnancy and throughout their reproductive lifespan. This understanding may also positively influence the overall health of their families. The research will concentrate on six clinics located in the Hebron and Bethlehem directorates, including **Beit Jala, Bethlehem, Halhul, Surif, Beit Ummar, and Dura clinics.**

1.2 Statement of the problem

Pregnancy is a natural phase in a couple's life that brings significant physiological and emotional changes (Flannery et al., 2020). Despite the availability of PCC guidelines, implementation remains insufficient in many settings. In the West Bank, many women face serious health risks during pregnancy and childbirth, often as a result of limited access to quality care, medical errors, and a lack of awareness or skills in key areas of reproductive health (RH). According to the annual report from the Palestinian Ministry of Health, access to RH services is a fundamental right for all women (MOH, 2021). However, education about the RH factor and its effect on the mother and the baby is an essential component of the preconception care teaching. It helps to reduce maternal and neonatal risks.

Based on observations from clinical practice in UNRWA primary healthcare clinics in the southern West Bank, it is evident that many women attending the clinics for antenatal care, family planning, or vaccinations demonstrate poor practices related to preconception care.

Their behavior appears to stem from a lack of knowledge, which in turn affects their attitudes and behaviors, potentially leading to adverse health outcomes. Given the ongoing challenges in the West Bank—including years of political instability and restricted access to care—there is an urgent need to increase women's awareness of reproductive health to prevent complications during pregnancy and childbirth. To the best of our knowledge, there is a lack of accurate, up-to-date information about women's knowledge, attitudes, and practices (KAP) regarding RH.

This study aims to address that gap by providing insights that can guide policymakers and stakeholders in designing interventions to empower women and improve RH knowledge and practices in Palestine.

1.3 Significance of the study

Latest Global Statistics Maternal Mortality: Over 527,000 women die each year from pregnancy-related complications, with the majority of these deaths occurring in low- and middle-income countries. Newborn and Child Mortality: Approximately 4 million children die in the first month of life annually, accounting for 40% of all deaths under age five, with nearly all (98%) occurring in developing nations. Preterm Birth and Stillbirth: Worldwide, stillbirth rates remain high, with approximately 1 in 8 babies born prematurely. Preventable Deaths: Comprehensive healthcare services, including preconception care, could prevent up to 77% of maternal and child deaths (Zeleke et al., 2025***).***

These figures underscore the pressing necessity for comprehensive care before conception. Preconception care (PCC) is crucial for improving outcomes for mothers and babies. It should be provided to women before their first pregnancy or between pregnancies to lower the risk of problems. Several international organizations and professional groups recognize the importance of PCC in improving reproductive health outcomes (Nypaver & Yeager, 2024**).** Addressing health risks before conception, such as unmanaged diabetes, pre-eclampsia, and other chronic conditions, can greatly reduce pregnancy-related complications.

1.4 Importance of the study

This study has both theoretical and practical implications that will enhance the research field. Studying knowledge, attitude, and practice towards preconception care among women of reproductive age might influence the reproductive health care practices and impact the health of the baby.

1.4.1 Theoretical Importance:

According to the researcher's knowledge, there are no local studies conducted to assess the level of knowledge, attitudes, and practice related to RH in the West Bank; therefore, this study will be the first of its kind that tackled different issues of RH from the mothers. And so that, this study fills a gap by investigating and assessing the Knowledge, attitude and Practice towards preconception care among women in reproductive age.

1.4.2 Practical Importance:

The results of this study may reveal critical gaps and shortcomings in the care provided to women before, during, and after pregnancy. These insights could serve as a catalyst for key stakeholders within the Ministry of Health (MOH) to introduce targeted improvements in the delivery of comprehensive maternal health services across healthcare facilities.

Furthermore, the study findings may inform stakeholders and policymakers and health care providers in different settings in the West Bank of Palestine. It might support the development of strategies aimed at enhancing the utilization of preconception care. Ultimately, such efforts have the potential to improve maternal and perinatal health outcomes at both individual and population levels.

1.5 Aim and objectives of the study

1.5.1 Aim

This study aims to assess knowledge, attitudes, and practices regarding preconception care among women in the reproductive stage at the southern directorate of the West Bank.

1.4.2 Specific objectives

1. To assess women's levels of (knowledge, attitudes, and practices) regarding preconception care provided in the PMOH clinics in the southern West Bank.

2. To examine whether there is a difference in the levels of women's knowledge, attitudes and practice regarding preconception care related to their sociodemographic and obstetric characteristics (age, marital status, place of residency, level of education, work
3. To determine whether there is a relationship between women’s knowledge and their attitudes toward preconception care.
4. To determine whether there is a relationship between women’s knowledge and their practices related to preconception care.
5. To determine whether there is a relationship between women’s attitudes and their practices related to preconception care.

1.5 Research questions

1. What is the level of women's (knowledge, attitudes, and practices) regarding preconception care provided in the PMOH clinics in the southern West Bank?
2. Is there a difference in the levels of women's knowledge, attitudes, and practice regarding preconception care related to their sociodemographic and obstetric characteristics (age, marital status, place of residency, level of education, work)?
3. Is there a relationship between women's knowledge and their attitudes regarding preconception care?
4. Is there a relationship between women's knowledge and their practices regarding preconception care?
5. Is there a relationship between women's attitudes and their practices regarding preconception care?

1.6 Conceptual definitions

1.6.1 Preconception Care

Preconception care is a set of interventions that aim to identify and modify biomedical, behavioral, and social risks to a woman's health or pregnancy outcome through prevention and management. Pre-conception care (PCC) is about the provision of biomedical, behavioral, and social health interventions to women and couples before conception. It also provides counselling for the women about the dangerous teratogenic agents that might cause negative consequences upon the mother and the baby, including smoking, alcohol consumption, and excessive drug use (Mulder et al, 2017). The preconception period—defined as the three months before pregnancy—is a critical window of opportunity. Providing preconception care (PCC) during this period can enhance fertility, reduce health risks during pregnancy, and contribute to healthier childbirth outcomes (Zaçe et al., 2022). Preconception care aims to optimize future pregnancy wellness through a wide-ranging assortment of medical, behavioral, and educational efforts geared toward people of reproductive age, regardless of their present goal to conceive. Rather than the immediate pre-pregnancy timeframe alone, it stresses continuous assessment and aid to identify and address modifiable risk factors before conception occurs. Core Elements of Preconception Care

A detailed health assessment and structured examination of personal and family medical histories, including persistent illness, previous obstetric outcomes, and genetic risks, are fundamental to tailoring interventions and boosting reproductive health.

Modification of lifestyle and behavioral well-being includes education targeting nutrition, physical activity, and emotional well-being; cessation of smoking and alcohol; and effective weight management is prioritized. Seeking to reduce risks, programs may offer counseling services to promote healthy behaviors and stress management techniques in the pre-pregnancy period. By addressing biological and social determinants of wellness before conception, this approach aims to enhance pregnancy chances and baby outcomes. (Aynalem et al., 2025).

This comprehensive strategy not only supports individual health but also fosters stronger family units and communities. Ultimately, empowering individuals with knowledge and resources lays a solid foundation for healthier generations to come.

1.6.2 Women's knowledge of preconception care

The level of information and experience that women in the reproductive age have about preconception care, including :Knowledge of diet during pregnancy, nutritional supplements, birth spacing, and pregnancy risks.

Recent studies define women's knowledge of preconception care as the degree to which women of reproductive age are aware of and understand essential concepts related to optimizing health before pregnancy. This includes awareness of appropriate dietary practices, the importance of nutritional supplementation (such as folic acid and iron), guidance regarding healthy birth spacing, and understanding potential pregnancy risks and how to mitigate them.

Comprehensive knowledge in these areas enables women to make informed decisions about their health and future pregnancies, thereby reducing adverse maternal and neonatal outcomes. However, current research highlights considerable variability in knowledge levels, influenced by factors such as educational attainment, socio-economic status, access to healthcare services, and the effectiveness of health education interventions.

Improving knowledge through targeted counseling, accessible educational programs, and routine integration of preconception information into primary care is emphasized as a key strategy in contemporary public health efforts."Women's knowledge of preconception care encompasses understanding the significance of balanced nutrition, supplementation, safe birth spacing, and awareness of pregnancy risks—factors shown to directly influence health outcomes for both mother and child." (Aynalem et al., 2025; Alkhatib et al., 2024).

1.6.3 women's attitudes towards preconception care

The state of mental willingness of the women at the reproductive age regarding their satisfaction or dissatisfaction with the provided preconception care, including access to reproductive health services, in addition to their awareness of the importance of preconception care and the importance of accessing preconception care settings.

1.6.4 women's Practice of preconception care

Several measures and behaviors that women in the reproductive age perform related to preconception care, such as eating appropriate food and medicines, conducting periodic screening, and avoiding pregnancy risks, which would provide appropriate health care for them and the child.

Chapter Two

Literature Review

2.1 Importance of Preconception care

Preconception care acknowledges that many women enter parenthood without the necessary knowledge, skills, or support to navigate motherhood effectively. It encompasses interventions offered to women and couples of reproductive ages—regardless of whether they are currently pregnant or planning to get pregnant —to enhance maternal, newborn, and child health outcomes. Delivering care across life stages, from childhood through adolescence into adulthood, ensures each phase builds a foundation for healthy transitions into parenthood (Khekade et al., 2023).

Preconception care in 2024 is recognized as a vital, continuous process that supports individuals and couples throughout their reproductive years, ensuring they have the knowledge, resources, and support needed to achieve healthy pregnancies and positive maternal and child health outcomes. Recent evidence highlights that many people still enter parenthood without adequate preparation, which can increase risks for both mother and child.

Therefore, preconception care now emphasizes a life-course approach—starting from adolescence and extending through adulthood—addressing physical health, mental well-being, lifestyle factors, and social determinants of health. This comprehensive care model aims to empower individuals with personalized interventions, including education, risk assessment, and counseling, regardless of pregnancy intention, to foster healthier families and communities (Smith et al., 2024; World Health Organization, 2024).

Healthcare providers are encouraged to help women develop a reproductive life plan, which includes preconception care. This can start with a simple question: "Are you thinking about becoming pregnant soon, or is there a chance you might?" This opens the door for assessing pregnancy readiness, evaluating overall health, and identifying opportunities for health improvement and preventive measures.

If pregnancy is not desired, discussions and counselling should focus on current contraceptive use. Healthcare providers should determine women's preferences for family planning methods after taking a detailed history from the Women. Women should be given different options to find the most suitable method (Goulding et al., 2020).

The World Health Organization (WHO) defines PCC as "a set of interventions provided before pregnancy to promote the health and well-being of women and couples, as well as to improve pregnancy and child-health outcomes" (World Health Organization, 2014). PCC encompasses a broad spectrum of healthcare services, including health education, medical risk assessment, lifestyle modifications, and preventive interventions, all designed to mitigate health risks that could negatively impact pregnancy, childbirth, and neonatal health (Khekade et al., 2023).

Effective PCC plays a crucial role in reducing maternal and neonatal morbidity and mortality by addressing key risk factors before conception. These risk factors include nutritional deficiencies, unmanaged chronic conditions, infectious diseases, harmful lifestyle behaviors, and exposure to environmental hazards (Stern et al., 2016). PCC interventions are particularly important for women with pre- existing medical conditions such as diabetes, hypertension, and obesity, as these conditions, if left unmanaged, can lead to adverse pregnancy outcomes, including preeclampsia, preterm birth, and fetal growth restriction (Wilson & O'Connor, 2021).

Several studies have demonstrated the effectiveness of PCC in preventing complications during pregnancy and improving neonatal outcomes. For instance, the administration of folic acid supplements before conception has been shown to reduce the incidence of neural tube defects, while iron supplementation decreases the risk of anemia in non-pregnant women (Wilson & O'Connor, 2021). Additionally, maternal intake of multivitamins has been associated with a reduction in birth defects and it decrease the health-related complications as hypertension, preeclampsia and others (Wilson & O'Connor, 2021).

Women who receive preconception counseling on family planning methods experience a reduction in unintended first pregnancies and in subsequent unintended pregnancies (Kungu, 2023). Furthermore, diabetic women who maintain stable blood glucose levels due to the PCC and teaching before and during pregnancy significantly lower the risks of congenital malformations, fetal macrosomia, and stillbirth (American Diabetes Association, 2023; Mukherjee, Dawson& Carey, 2023).

2.2 Preconception Care in the Palestinian context

In Palestine, PCC is particularly relevant due to the unique sociopolitical and healthcare challenges facing women in the region. According to the Palestinian Central Bureau of Statistics (PCBS), as of 2020, there were 1,262,314 females of reproductive age (15–49 years), constituting 24.7% of the total population. In the West Bank, this number was 766,264 (25.1%), while in the Gaza Strip, it was 496,050 (24.2%) (Palestinian Ministry of Health, 2021). The total number of pregnancy-related visits to primary healthcare (PHC) centers in 2020 reached 97,360, with 28,547 pregnant women registering for antenatal care at the Ministry of Health (MoH) PHC centers, covering only 37.4% of pregnant women.

The average number of antenatal visits per pregnancy was 3.4 (Palestinian Ministry of Health, 2021). These statistics highlight a significant gap in access to and utilization of reproductive health services, emphasizing the need to improve awareness and implementation of PCC in Palestine. PCC involves a multidisciplinary approach, integrating biomedical, behavioral, and social health interventions to support women and couples in making informed health decisions before conception.

A critical aspect of PCC is counseling women on the risks associated with teratogenic agents, such as smoking, alcohol consumption, excessive medication use, and environmental toxins, which can have detrimental effects on fetal development (Ukoha & Mtshali, 2022). Additionally, PCC includes immunization against infectious diseases, such as rubella and hepatitis B, which can pose severe risks to both maternal and neonatal health if contracted during pregnancy (World Health Organization, 2013).

The significance of PCC extends beyond individual health outcomes to broader public health and economic implications. Ensuring that women enter pregnancy in optimal health reduces healthcare costs associated with managing pregnancy-related complications and

neonatal intensive care admissions (~~Lu et al., 2006~~). Moreover, improving maternal health through PCC contributes to achieving Sustainable Development Goal 3 (SDG 3), which aims to ensure healthy lives and promote well-being for all, particularly by reducing maternal and child mortality rates (United Nations, 2015).

Despite the well-documented benefits of PCC, its implementation remains inconsistent in many countries, including Palestine. Barriers to effective PCC include limited healthcare resources, inadequate training of healthcare providers, lack of standardized PCC guidelines, and low levels of awareness among women of reproductive age (Poels et al., 2017). Cultural factors and misconceptions about reproductive health also play a role in limiting the uptake of PCC services. In many communities, reproductive health is considered a private matter, and discussions about family planning and preconception health may be discouraged or overlooked (Khan et al., 2019).

Given these challenges, there is a pressing need for research to assess Palestinian women's knowledge, attitudes, and practices regarding PCC. Such studies can provide valuable insights into the barriers and facilitators of PCC uptake, informing policymakers and healthcare providers on effective strategies to enhance preconception health education and service delivery. By addressing gaps in PCC knowledge and accessibility, healthcare systems can improve maternal and child health outcomes and promote healthier pregnancies for women in Palestine and beyond.

2.3 Key Components of Preconception Care

2.3.1 Reproductive History

Gathering a detailed reproductive history helps identify potential fertility issues. Important aspects include menstrual patterns, contraceptive use, history of STIs and Pap smears, as well as previous pregnancies and outcomes. Recurrent miscarriages may indicate genetic or endocrinological problems such as APLA syndrome or diabetes. Prior complications like preterm birth or preeclampsia also inform care. For example, a history of fetal growth restriction linked to low maternal BMI suggests the importance of healthy weight gain before a future pregnancy (Stubblefield, 2008).

A comprehensive reproductive history remains a cornerstone of preconception and fertility care in 2024, enabling clinicians to identify potential factors that may affect conception

and pregnancy outcomes. Key components include detailed menstrual cycle characteristics, contraceptive history, screening for sexually transmitted infections, Pap smear results, and obstetric history such as previous pregnancies, miscarriages, and complications. Recurrent pregnancy loss now prompts evaluation for genetic, immunological (e.g., antiphospholipid syndrome), and endocrine disorders including diabetes and thyroid dysfunction, with up-to-date protocols recommending targeted laboratory and imaging assessments.

Additionally, prior adverse pregnancy outcomes such as preeclampsia, preterm birth, or fetal growth restriction guide individualized care plans. For example, a history of fetal growth restriction associated with low maternal BMI highlights the importance of nutritional optimization and weight management before conception.

Modern guidelines also emphasize the inclusion of psychosocial factors and lifestyle behaviors in the reproductive history to provide holistic care and improve maternal and neonatal health outcomes (GMC Reproductive Medicine SST Curriculum, 2024; EAU Sexual and Reproductive Health Guidelines, 2024).

2.3.2 Genetic and Family History

A comprehensive three-generation family history is a cornerstone of genetic screening. Certain ethnic groups require targeted screening—for example, Ashkenazi Jews (Tay–Sachs), individuals of African descent (sickle cell anemia), and those from Mediterranean or Asian backgrounds (thalassemia). If there's a known family history of genetic disorders or birth defects, genetic counseling may be necessary. Current guidelines recommend that individuals from high-risk ethnic groups—such as Ashkenazi Jews (for Tay–Sachs disease), people of African descent (for sickle cell disease), and those of Mediterranean or Southeast Asian ancestry (for thalassemias)—undergo appropriate screening.

Advances in genetic testing have expanded the availability and lowered thresholds for testing, allowing earlier identification of hereditary conditions. When a family history of genetic disorders or congenital anomalies is present, referral for genetic counseling is advised to discuss risks, testing options, and reproductive planning. For women at risk of neural tube defects, updated recommendations continue to support high-dose folic acid supplementation (4 mg daily) starting at least three months prior to conception and

continuing through early pregnancy to reduce risk (NHS England National Genomic Test Directory, 2024; CDC, 2024).

For neural tube defect (NTD) risk, a high-dose folic acid supplement (4.0 mg daily for three months before pregnancy) is recommended, followed by standard doses during and after pregnancy (Wilson et al , 2015). Parental age should also be considered. Advanced maternal age is associated with chromosomal anomalies, and increasing paternal age may affect sperm quality and raise the risk of certain genetic conditions. These factors should be addressed in discussions about reproductive goals. Recent evidence highlights that both maternal and paternal ages are important factors influencing reproductive outcomes and genetic risks.

Advanced maternal age, typically defined as 35 years and older, continues to be strongly associated with an increased risk of chromosomal abnormalities such as trisomy 21, as well as higher rates of pregnancy complications including miscarriage and preeclampsia. Meanwhile, emerging research also emphasizes the impact of increasing paternal age on reproductive health, linking it to declines in sperm quality, increased DNA fragmentation, and a higher likelihood of de novo mutations that may contribute to neurodevelopmental disorders and certain genetic syndromes in offspring.

These findings underscore the necessity of incorporating parental age considerations into preconception counseling and reproductive planning to optimize pregnancy outcomes and inform risk management strategies (Johnson et al., 2024; World Health Organization, 2024).

2.3.3 Environmental Hazards and Toxins

A woman's environment—including her home, workplace, and community—can expose her to chemical and physical hazards. Because the science around many environmental toxins remains incomplete, the precautionary principle is recommended: reduce potential harm even without full certainty.

Providers should ask about exposures at work and home and take steps to mitigate identified risks, including specialist referrals if necessary (Bartsch et al., 2016; Bhutta et al., 2013). New immigrants may face additional risks due to high-risk jobs and limited awareness of labor rights, requiring tailored assessment and counseling.

Examples of environmental hazards include:

- **Mercury:** Avoid high-mercury fish (e.g., shark, king mackerel), but encourage low-mercury fish (e.g., salmon) for their omega-3 benefits (Al-Saleh et al, 2020)
- **Lead:** Levels as low as 1–2 μg/dL can harm fetal development.
- **Anesthetic gases:** Common in medical settings; risks can be reduced with proper safety protocols.
- **Radiation:** Limit exposure, especially during pregnancy. Doses under 5000 mrad are generally considered safe

2.3.4 Nutrition

Improving dietary habits during the preconception period supports both maternal and fetal health. Women should consume a balanced diet rich in calcium, vitamin D, folic acid, iron, and other nutrients while avoiding highly processed foods and restrictive diets. Supplements may be necessary when dietary intake is inadequate. Recent studies in 2024 reinforce the critical role of nutritional supplementation and preconception counseling in improving maternal and neonatal outcomes (Imdad et al,2011)

Folic acid supplementation before conception and during early pregnancy has been shown to reduce the risk of neural tube defects by up to 75%, confirming its effectiveness as a preventive measure. Iron supplementation in non-pregnant women continues to demonstrate a significant reduction—approximately 30%—in the incidence of anemia, which is crucial for maternal health and fetal development. Additionally, maternal intake of multivitamins containing key micronutrients is associated with a 45-60% decrease in various birth defects and a 25% reduction in the risk of hypertensive disorders such as preeclampsia.

Preconception counseling focused on family planning has been linked to a 20% reduction in unintended first pregnancies and a 40% decrease in repeat unintended pregnancies, highlighting its importance in reproductive health management. Furthermore, women with pre-existing diabetes who achieve optimal glycemic control before and throughout pregnancy markedly reduce the risks of congenital anomalies, fetal overgrowth, and stillbirth, emphasizing the need for integrated care approaches (Smith et al., 2024; WHO, 2024).

- **Calcium:** Supports bone and muscular health; found in dairy, leafy greens, and fortified foods.
- **Vitamin D:** Aids calcium absorption; found in fatty fish, eggs, and fortified foods.
- **Iron:** Vital for hemoglobin and enzyme function; stores should be optimized before pregnancy.
- **Folic Acid:** Prevents NTDs and other birth defects; supplementation is crucial for all women of reproductive age .

2.3.5 Healthy Body Weight

A healthy BMI before pregnancy supports better outcomes. Low BMI (<18.5 kg/m2) is linked to preterm birth, while high BMI increases risks such as infertility, NTDs, stillbirth, and gestational diabetes. Women with obesity may benefit from increased folic acid and vitamin B12 supplementation (Tjepkema et al., 2015).

2.3.6 Physical Activity

Regular exercise supports general and reproductive health, helps maintain healthy weight, and boosts mental well-being. Adults should aim for at least 150 minutes of moderate to vigorous activity weekly. Exercise is safe before and during pregnancy, except in extreme cases of overexertion, which may affect menstrual cycles (Furber et al., 2013; Warburton et al., 2016).

2.3.7 Substance Use

Women use substances for various reasons, including addiction, coping mechanisms, or social use. Addressing these habits is crucial during the preconception period. Tobacco, alcohol, and illicit drug use are associated with numerous adverse pregnancy outcomes and should be minimized or eliminated whenever possible.

2.3.8 Tobacco

Although smoking rates have declined in recent years, 17.5% of Canadian females aged 12 and over were current smokers in 2011. This rate increases to 23.2% among 20 to 34-year-old women, which is the age group with the highest pregnancy rate. Higher smoking rates in pregnancy are found among women who have depression, live in poverty, have low

educational attainment, or experience poor social support. Rates are also higher among Indigenous women (Coleman et al., 2012).

2.3.9 Alcohol

Alcohol, a known teratogen, can cause birth defects by affecting the growth and formation of the fetus's body and brain. Fetal Alcohol Spectrum Disorder (FASD) is a term that describes a range of lifelong physical and neurodevelopmental disabilities that may affect people whose mothers drank alcohol during pregnancy. It is estimated that FASD affects at least 1% of the Canadian population; however, a recent US study indicates that a more representative rate may be 2.4% to 4.8% (May et al., 2014). Although the impact of low-level alcohol consumption on fetal outcomes remains under study, the 2010 SOGC guidelines suggest that abstinence is the safest choice for women considering pregnancy, as there is no known safe threshold (Keegan et al., 2010).

2.3.10 Drug Use

Drug use poses a substantial risk to maternal and child health and well-being. In addition to complications such as preterm birth, placenta-associated syndrome (mainly placental abruption), and intrauterine growth restriction, concerns for the newborn are significant in the immediate neonatal period and for long-term development, due in part to the impairment of maternal–child attachment (Briggs et al., 2014).

2.3.11 Medications

Medication use in pregnancy is common, with up to 70% of women prescribed a drug at some point during pregnancy, and women with chronic conditions are very likely taking medications regularly. Different medications have different effects on the fetus at different times during pregnancy.

Assessing the exact time of the exposure can be helpful, as the first 2 weeks following conception (i.e., the third and fourth week after the last menstrual period) is considered the all-or-none period. During this pre-embryonic stage, exposure to an agent is either so harmful to the zygote that it doesn't implant or else it recovers completely and the agent has no further effect on the pregnancy.

Exposures to some medications in the first trimester can cause concern, as this is the most critical time of organ development. Other medications can impact fetal growth in the second and third trimesters (Motherisk et al., 2016).

2.3.12 Oral Health

Oral health remains a critical component of overall health and quality of life, with recent 2025 data indicating that periodontal disease affects approximately 23% of adults globally, with higher prevalence in underserved and vulnerable populations. Tooth decay continues to be one of the most common chronic conditions, impacting over 90% of adults worldwide. Emerging evidence from large-scale cohort studies strengthens the link between periodontal disease and systemic chronic conditions, including type 2 diabetes, cardiovascular diseases, and chronic respiratory illnesses such as chronic obstructive pulmonary disease (COPD).

These associations underscore the importance of integrating oral health assessments and preventive care into general health services, particularly for populations at risk of both oral and systemic diseases. Early intervention and improved access to dental care are essential strategies to reduce the burden of these interconnected health issues (Global Oral Health Report, 2025; Smith et al., 2025).

2.4 Immunizations and Infectious Diseases

Many infectious diseases that have serious adverse effects on maternal and fetal health are preventable through vaccination, making immunization an essential component of preconception care. For example, first-trimester maternal infection with rubella can cause congenital rubella syndrome in as many as 85% of infants, which can result in deafness, cardiac defects, and damage to the central nervous system, liver, and bones.

Varicella infection in pregnancy can cause spontaneous abortion, stillbirth, and congenital anomalies. Maternal varicella infection carries a high risk of severe pneumonia for the mother, and infection from 5 days prior to 2 days after birth can cause severe neonatal varicella in 17% to 31% of infants (De Santis et al., 2016).

2.5 Knowledge, Attitudes, and Practices Related of Preconception Care

2.5.1 Women's Knowledge of Preconception Care

Knowledge is information acquired through experience and education (Aluko et al. 2020). It enables individuals to make informed decisions, solve problems, and innovate in various fields. As society evolves, the value of knowledge continues to grow, influencing both personal development and collective progress (2016). It also includes familiarity, awareness, or understanding of available maternal and reproductive health services, responsible and safe sexual practices, counseling on breastfeeding and nutrition, and maternal and child health checks (Oxford Dictionary, 2010).

In this context, Munthali et al. (2021) found that women's knowledge regarding preconception care is influenced by personal and demographic variables such as age, occupation, education, and pregnancy intention. These variables significantly influence health outcomes and behaviors, ultimately impacting the well-being of mothers and their children. By enhancing education and access to resources, communities can empower women to make informed decisions about their reproductive health.

2.5.2 Women's Attitudes Toward Preconception Care

Attitudes refer to an individual's mindset regarding the value of preconception services, which is expressed through their satisfaction or dissatisfaction with access to reproductive health services (Richard, 2016). These attitudes can be either positive or negative, and they significantly affect the uptake and compliance of such services. Positive attitudes typically correlate with increased use of these services, while negative attitudes may lead to avoidance or reluctance in seeking assistance. Understanding the factors that shape these attitudes is crucial for improving service delivery. By addressing concerns and misconceptions, health providers can foster a more supportive environment that encourages individuals to seek the reproductive health services they need.

It is essential to understand and address these attitudes to improve reproductive health outcomes and empower individuals to access the care they need. Efforts to enhance education and awareness surrounding reproductive health are crucial in shaping these attitudes. By creatBy creating a supportive environment and providing accurate

information, healthcare providers can motivate individuals to seek the necessary services without fear.ear or hesitation.

2.5.3 Women's Practice of Preconception Care

Practice-oriented evaluations can assess the skills and behaviors women engage in regarding their reproductive health, which is part of preconception care. Murphy et al. (2010) emphasize the significance of these evaluations in pinpointing gaps in knowledge and skills. By addressing these gaps, healthcare providers can more effectively assist women in achieving optimal reproductive health outcomes.

Studies indicate that a proficient practice of preconception care correlates with improved pregnancy preparedness and fewer adverse pregnancy outcomes. These findings underscore the necessity of implementing comprehensive preconception care programs that empower women with the knowledge and resources they require.

By promoting healthy habits and addressing potential health risks before conception, healthcare providers can greatly enhance overall maternal and fetal health. This focus on preconception care highlights the importance of proactive health management in ensuring safer pregnancies. By equipping women with vital information and support, providers can help reduce risks and foster healthier outcomes for both mothers and their babies.

Chapter Three

Conceptual framework

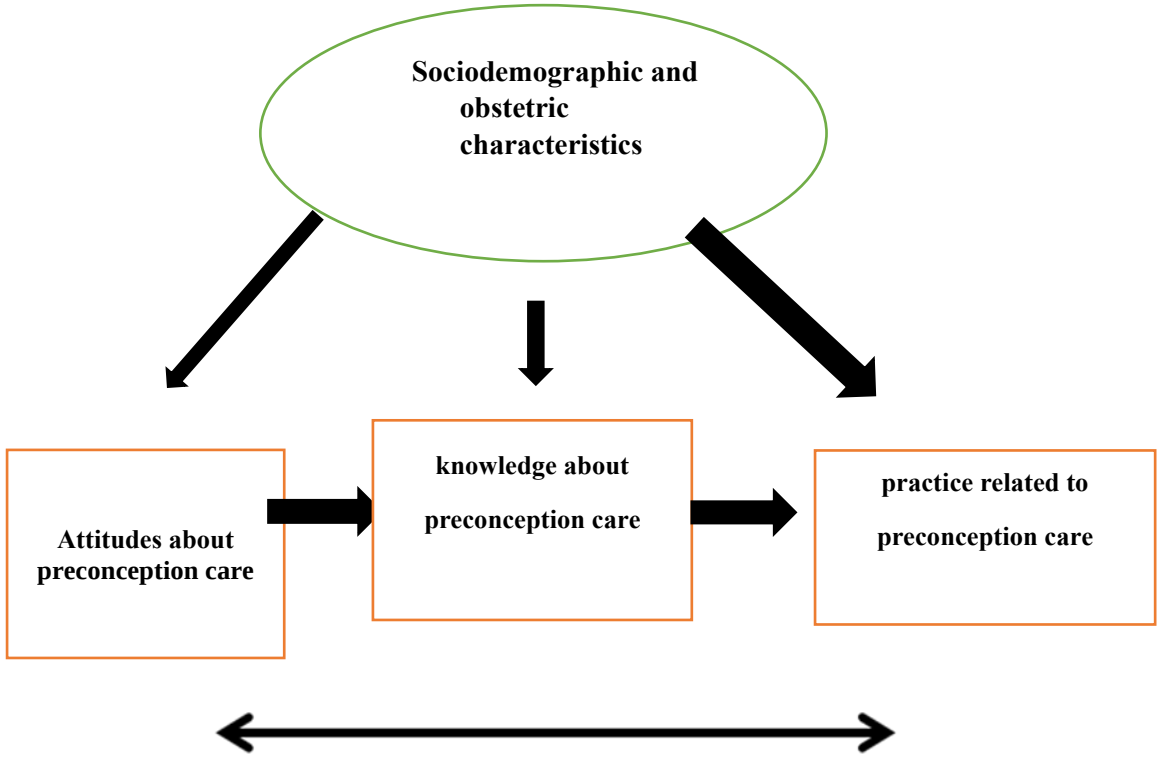
3.1 Introduction:

A **conceptual framework** serves as a structural guide that a researcher uses to explain the natural progression of the phenomenon under investigation (Camp, 2001). It enables researchers to identify and visualize the variables of the study and offers a general structure for analyzing data. In cross-sectional research designs, a conceptual framework is particularly essential during the proposal stage, as it helps to organize and define key study components. The framework outlines both dependent and independent variables, guiding the study's direction and clarifying the relationships among concepts.

Moreover, a conceptual framework facilitates a deeper understanding of the interconnections between the main constructs of a study. It assists researchers in clearly defining and contextualizing the concepts relevant to their research questions (Luse, Mennecke, & Townsend, 2012). Additionally, it supports the development of theoretical insights that can inform and enhance practical applications in the field (Hussein et al, 2020).

3.2 Conceptual Framework

Figure 1. Conceptual Framework for women of reproductive age regarding their knowledge, attitudes, and practices toward preconception care



The above Conceptual Framework of this study was developed based on an understanding of the literature review related to the theories and practices of women's Knowledge, attitudes, and practices in the reproductive age and preconception care. The researcher suggests this conceptual model to define and establish the relationship between research variables:

Women's (knowledge, attitudes, practice) in reproductive age: Knowledge of preconception care can be acquired through experience or education, women who receive preconception care have more knowledge and often show risk reduction behavior. On the other side, attitude play an important role in directing the practice, as a positive attitude will energize women towards gaining knowledge and practicing healthy behaviors towards their preconception care.

Sociodemographic factors: These factors influence the level of knowledge, attitudes, and practices of women regarding preconception care. Previous studies have shown that women's knowledge, attitudes, and practices related to preconception care are associated with personal and demographic variables, such as age, occupation, educational status, and

intentions regarding pregnancy. Understanding these sociodemographic influences is key to creating effective health interventions. Tailoring educational programs to meet the specific needs and circumstances of different demographic groups can significantly improve the uptake of preconception care

Care before conception: The goal of preconception care is to enhance individual health before conception and improve pregnancy outcomes. By addressing the unique needs of various populations, healthcare providers can foster a more inclusive approach that encourages proactive health management. Such an approach could involve offering targeted resources and support systems to empower individuals in making informed decisions about their reproductive health. The study assumes that women of reproductive age who possess knowledge, positive attitudes, and effective practices will positively influence the amount of preconception care they receive.

Chapter Four

Research Methodology

4.1 Introduction

This chapter outlines the research methodology. It starts by explaining the research design and methods used, which include the study population and its eligibility criteria, sample size, sampling technique, and recruitment process. Further, methods of data collection, data analysis, validity and reliability of the research instrument and ethical considerations is also included in this chapter.

4.2 Study design

This study used a quantitative, cross-sectional descriptive design. Cross-sectional studies are generally carried out on a population at a point in time or over a short period. This type of design is useful for describing variables of the study as they naturally occur without interference from the researcher. Also, it examines the association between variables and is characterized as economic, quick, and manageable (Polit & Beck, 2012).

This non-experimental observational design enables the researcher to measure and describe the levels of knowledge, attitudes, and practices (KAP) among women regarding preconception care and to explore associations between these variables and sociodemographic characteristics. The design was selected for its feasibility, cost-

effectiveness, and appropriateness in addressing the study objectives without the need to introduce interventions (Polit & Beck, 2008).

4.3 Setting

The target group of this study consisted of all women who attended antenatal and postpartum care services in the Ministry of Health PHC clinics located in the southern West Bank, specifically in Hebron and Bethlehem. The total number of women was approximately 27,316. Table 4.1 presents the selected clinics in the southern area along with the number of women who attended each clinic.

Table 4.1: The Primary health care centers and the number of women attending each center.

#	Region	No. of women in the reproductive age
1	Beit Jala Clinic	1200
2	Bethlehem Clinic	450
3	Halhul Clinic	1000
4	Sourif Clinic	1100
5	Beit Ummar Clinic	1000
6	Dura Clinic	1400
total	**6150**	

4.4 Study Population

The target group of this study consisted of all women who annually attend the MOH preconception, Antenatal, and Postnatal care services in the southern West Bank. All Women between the ages of 18 and 49 attending the southern primary care clinics at MOH who met the inclusion and exclusion criteria were enrolled in the study. According to the annual report of the PMOH, the number of referrals from women in the reproductive stage in the year 2020/2021 was about 6150 women.

4.5 Study sample

Participants in this study were recruited through their visits to the PHC centers, as those women who came for preconception, antenatal, and postnatal care and family planing. The calculated sample size was 362 participants based on the equation of sample size calculation of Rosoft Inc. This equation uses 5% margin of error, a 95% confidence interval, an effect size of 50% and 1650 as the population size according to the following equation.

n= $(N*Z^2*r\ (1-r))/\ (Nd^2+Z^2*r(1-r))$ where: n: sample size, N: population size and Z: = 1.96.

- **Sample Size:**

n= $(N*Z^2*r\ (1-r))/\ (Nd^2+Z^2*r(1-r))$

where:

n: sample size

N: population size (6150)

Z: = 1.96

r= 0.5

d= 0.03

n= $(6150*1.96^2*0.5*0.5)/\ (6150*0.03^2+1.96^2*0.5*0.5)$

n= (362)

Based on the previous equation, the appropriate sample size for the study population (6150) women is 362) women.

4.5.1 Type of the Sample: A convenient sampling method was used in this study, and the number of participating women at the selected health care centers was 308.

4.5.2 Inclusion Criteria

- Women at the reproductive stage who attend the maternal child health clinics in the selected regions and who are able to give informed consent (verbal or written), and agreed to participate in the study.
- Women Aged 18 to 49 years

4.5.3 Exclusion Criteria

- Women who were diagnosed previously with depression or anxiety or any other mental illness.
- Women who are mentally incompetent.

4.6 Study Tool:

The researcher utilized a questionnaire developed in previous studies by Daly, White, Sanders, and Kipping (2022). Modifications were made to ensure the questionnaire was appropriate for Palestinian protocols concerning preconception care, and it was subsequently reviewed by experts in the field.

The researcher incorporated feedback from these experts to refine the questionnaire. It was designed to assess the knowledge, attitudes, and practices of Palestinian women related to preconception care. The questionnaire was translated into Arabic by a professional Academic translator, to ensure its suitability for use in the selected settings and for the Arabic-speaking women. The study tools included specific items listed in Annex A and the translated version in Annex B.

The questionnaire comprised three parts:

The first part collected sociodemographic data, capturing information about the respondents, including age, monthly income, marital status, and educational qualifications. It assessed sociodemographic information, lifestyle factors, and medical conditions. The questionnaire evaluated participants' age, place of residence, monthly income, husband's work setting, and academic qualifications. Lifestyle behaviors, such as smoking, exercise, and adherence to a healthy diet, were assessed through yes or no questions, and participants were asked to provide their weight and height. Additionally, participants reported any medical conditions, such as diabetes mellitus, renal disease, liver disease, hypertension, asthma, cardiac disease, malignancies, and hematological diseases (e.g., thalassemia), along with their perceived health status.

The second part of the questionnaire focused on study variables. It measured the variables and dimensions outlined in the study model, specifically knowledge, attitudes, and

practices regarding preconception care, using a set of items formulated based on previous studies as:

- Knowledge of diet during pregnancy.
- Knowledge of nutritional supplements
- Knowledge of birth spacing
- Knowledge of pregnancy risks.
- awareness of the importance of preconception care
- importance of accessing preconception care settings.
- Practice of eating appropriate food and medicines
- Practice of conducting periodic screening
- Practice of avoiding pregnancy risks.
-

The Third Part In this section, the practice of preconception care (PCC) will be evaluated through various statements assessing whether the participant discussed their intention to become pregnant with a health worker and the reasons behind that discussion. How was PCC counseling delivered? If the answer is yes, please explain why you did not inquire about preconception concerns; if the answer is no, please clarify your reasoning. If you have sought information online regarding conception and pregnancy, what specific information were you looking for? Are there topics related to preconception that you prefer not to discuss?

The questionnaire utilized a cognitive style based on 2-point and 5-point Likert scales. The 2-point Likert scale assessed knowledge with a simple yes or no response, while the 5-point Likert scale evaluated attitudes and practices, ranging from strongly disagree (1) to strongly agree (5). This approach aimed to identify the level of agreement among participating women regarding various items in the main domains of the questionnaire. Using the 5-point Likert scale, the level of relative importance of items, dimensions, and variables was determined through the following specific formula.

$$\text{Relative importance} = \frac{\text{Upper limit of the alternative} - \text{lower limit of the alternative}}{\text{Number of levels}} = \frac{3-1}{3} = 0.66$$

The level of relative importance depends on the value of the mean of the study sample responses, weighted on items of the research instrument, and the dimensions and variables of its model, according to three levels, in the following table

Table 4.2 The cut-off points of the level of knowledge

Mean	**Relative Importance**
1 – less than 1.66	Low
1.66 – less than 2.32	Moderate
2.32 – 3	High

4.7 Validity and Reliability

The data collection tool in Arabic, content validity was done by referring to the previous literature and by asking experts to review the included items to ensure the relevance of the questionnaire to the subject under study.

Pilot Study (for reliability)

A pilot study was conducted on 20 women and was excluded from sample size. It was conducted to determine the clarity of the questionnaire, to estimate the time required for the data collection. Then the Reliability scale (Alpha Cronbach) was computed and was = 8.5.

4.8 Data collection procedures

The first step was to get ethical approval from the ethics committee at the public health college and the research committee at Al-Quds University. The researcher then sent a letter to the Palestinian Ministry of Health (PMOH) to ask for their permission to collect the data from the selected clinics.

The researcher obtained permission from the directors of each clinic to collect the data from the primary health care centers (maternal and child clinics) in the southern West

Bank. The selected sites included clinics in the cities of Hebron, Bethlehem, and Dura, which represent a mix of urban and rural populations. These clinics provide primary healthcare services, including preconception care, antenatal care, immunizations, and health education. They were selected due to their accessibility, patient volume, and their role as a primary provider of maternal services in the region.

The researcher met with the head nurses of each clinic in selected districts to provide an orientation on the study. During this meeting, the researcher informed them about the study's objectives, explained its nature, and assured them of the anonymous, voluntary, and confidential nature of the responses. The researcher also outlined the methods in place to ensure confidentiality and requested their assistance in distributing the research instruments, along with the cover letter and consent form, to the mothers. The researcher conducted data collection with the support of trained and experienced staff at each clinic. The researcher conducted the study from January 2023 to June 2023. While in the clinic's waiting area, the women completed the questionnaire, and the researcher was present to address any questions the mothers might have had. The cover letter provided an email address and the researcher's mobile phone number for participants who had questions or concerns regarding the questionnaires.

4.9 Data analysis:

After completing data collection, entering of data started by using the Statistical Package for Social Science (SPSS). The Answers of participants converted to numeric values.
The statistical analyzes will perform by the SPSS software 23.
Statistical measures calculate will:

1. Frequencies and percentages.
2. Mean and Standard Deviation.
3. Cronbach alpha coefficient.
4. The one-way analysis of variance (One Way ANOVA) test used for the purpose of determining the relationship
5. A t-test used to test, A P-value≤0.05 was considered statistically significant in the analysis of the data.
6. Cross tabulation used to for analyzing the relationship between two variables that have been organized in tables.

4.10 Ethical consideration and accessibility

The study followed the World Medical Association Declaration of Helsinki Ethical Principles for Medical Research on humans (World Medical Association, 2013). Ethical approval of the study was taken from the ethical committee at Alquds university.

Permission from MOH and the managers of clinics was obtained to access women.

Consent form used to ensure the agreement of women's participation in the study after full explanation about confidentiality, privacy, and their right to withdraw at any time during the filling of the questionnaire

Chapter Five

Results

This chapter presents the study findings regarding knowledge, attitudes, and practices (KAP) related to preconception care (PCC) among women attending primary healthcare clinics in the southern West Bank. The results are supported by tables and visual graphs that illustrate key trends.

5.1 Distribution of the participants by the clinic

Table 5.1: Distribution of the location of the Participants by Clinic/Camp (N = 308)

Location	Number of Participants (N)	Percentage (%)
Beit Jala Clinic	**46**	**15.0%**
Bethlehem Clinic	**55**	**17.9%**
Halhul Clinic	**52**	**16.9%**
Sourif Clinic	**49**	**15.9%**
Beit Ummar Clinic	**52**	**16.9%**
Dura Clinic	**54**	**17.5%**
Total	**308**	**100%**

Table 5.1 displays the distribution of the study participants across six primary healthcare clinics in the southern West Bank.

The highest number of participants was recorded at Bethlehem Clinic (17.9%), followed closely by Dura Clinic (17.5%), Halhul and Beit Ummar Clinics (each accounting for 16.9%), and Sourif Clinic (15.9%). Beit Jala Clinic contributed the smallest share of participants, representing 15% of the total sample.

This relatively balanced distribution across clinics indicates effective sample representation and minimizes location-based sampling bias. It also reflects the accessibility and utilization levels of reproductive health services in these regions. The proximity of the percentages suggests a deliberate attempt to ensure equal engagement of women from various geographic settings, which enhances the generalizability of the study findings across the southern West Bank.

. Commentary:

The distribution of questionnaires presented in Table 5.1 reflects a systematic data collection strategy designed to ensure balanced geographical and population representation across the sample. This was achieved by involving a diverse set of clinics and health centers located in the governorates of Bethlehem and Hebron. The distribution took into account differences in population density and varying levels of service demand across locations, enhancing the credibility of the data and reducing distribution bias.

Bethlehem and Dura clinics recorded the highest number of questionnaires (55 and 54, respectively). This is justifiable given the high population density in these cities and their status as major hubs for primary healthcare services, receiving large numbers of women daily. Their high participation rate improves the analytical robustness of the study sample in urban areas.

At the same time, the table demonstrates strong representation from rural areas, including Sourif, Halhul, and Beit Ummar, each contributing meaningfully to the overall sample. This geographic coverage is a core strength of the study, enabling later comparisons in knowledge, attitudes, and practices among women from different residential contexts—urban and rural—thereby enhancing the generalizability of the findings.

Furthermore, the relatively balanced distribution of responses across clinics (generally ranging between 46 and 55 participants) provides a robust foundation for statistical

comparisons and supports the integration of geographic and sociodemographic variables into the interpretation of results in subsequent chapters.

5.2 Sociodemographic characteristics of the participants

Table 5.2: Demographic Characteristics of women (N = 308)

Variable	Category	Number	Percentage(%)
Age	Under 25 years	79	25.6%
	25–34 years	141	45.8%
	35 years or older	88	28.6%
Edu Level	Secondary or below	87	28.2%
	Diploma/Bachelor's	190	61.7%
	Postgraduate	31	10.1%
Residence	Urban	119	38.6%
	Village	127	41.2%
	Camp	62	20.1%
Marital Status	Married	308	100%
Smoking	Yes	29	9.4%
	No	279	90.6%
Physical Activity	Yes	84	27.3%
	No	224	72.7%

Table 5.2 presents the demographic distribution of the sample, which included 308 women of reproductive age attending primary healthcare centers in the southern West Bank:

The majority of participants (45.8%) were in the 25–34 age group, which is most commonly associated with family planning. Nearly one-fourth of the sample consisted of women under the age of 25. Regarding educational attainment, over 60% of participants had achieved a university education (diploma/bachelor's or higher), potentially contributing to a higher level of awareness about preconception care.

Approximately 41.2% of participants resided in villages, raising concerns about the accessibility and quality of healthcare services in rural areas compared to urban settings. All participants were married, in alignment with the inclusion criteria established in the study methodology. About 9.4% of the women reported smoking, a behavior that can adversely affect reproductive health and therefore necessitates targeted awareness and

intervention efforts. More than 70% of participants indicated that they did not engage in physical activity, which poses a potential risk regarding health preparedness for pregnancy.

5.3 Women's Knowledge of Preconception Reproductive Health

Table 5.3: Knowledge of Preconception Reproductive Health (N = 308)31

Statement	Yes N(%)	No N (%)
Age less than 18 and above 35 affects the outcome of pregnancy	270 (87.6%)	38(12.3%)
Chronic illnesses such as diabetes, hypertension, or heart disease increase the complications of pregnancy	304 (98.7%)	4 (1.3%)
Women should have regular check-ups before pregnancy to ensure their health	298 (96.8%)	10(3.2%)
Taking folic acid before pregnancy reduces the risk of birth defects	302 (98 %)	6 (2%)
Having a balanced diet before pregnancy, avoiding obesity is essential to promote maternal health	288 (93.5%)	20 (6.5%)

Table 5.3. This table highlights women's knowledge levels concerning key aspects of preconception reproductive health. The participants appeared to be well-informed about the impact of maternal age on pregnancy outcomes, with 270 (87.6%) agreeing that age affects both maternal and fetal health, while only 38 (12.3%) disagreed. This suggests a strong awareness among participants of the potential risks associated with advanced or young maternal age.

Women's knowledge about the impact of diabetes and other chronic illnesses as hypertension and heart disease, on pregnancy complications showed a high percentage, with 304(98.7.% %) agreeing and only 4 (1.3%) disagreeing about the possible risks associated with diabetes and other chronic illnesses. A large proportion of women demonstrated awareness of the importance of regular medical check-ups before pregnancy, with 298 (96.8%) agreeing and only 10 (3.2%) disagreeing on their significance.

These findings indicate that most women recognize the value of monitoring their health, as hemoglobin level, blood pressure, and other investigations, before conception as a key step toward ensuring a healthier pregnancy and safer childbirth.

The findings reveal a strong level of awareness among women regarding the importance of folic acid supplementation before pregnancy. A total of 302 (98%) participants agreed that taking folic acid helps reduce the risk of birth defects, while only 6 (2%) disagreed. This suggests that health education initiatives focused on preventing neural tube defects have been effective among women attending primary healthcare clinics.

Additionally, women in this study demonstrated a substantial understanding of the importance of maintaining a balanced diet and avoiding obesity before pregnancy to support maternal health. Specifically, 288 (93.5%) agreed, while only 20 (6.5%) disagreed, indicating widespread understanding of the crucial role nutrition plays in maternal and fetal well-being.

5.4 Attitudes Towards Preconception Health Services

Statement	S.Agree N(%)	Agree N(%)	Neutral N(%)	Disagree N(%)	S.Disagree N(%)
Preconception health counseling can help women physically and psychologically	147 (47.7%)	121 (39.3%)	30 (9.7%)	6 (2%)	4 (1.3%)
Preconception counseling reduces the chances of complications during pregnancy	164 (53.2%)	107 (34.7%	26 (8.3%)	6 (2.0%)	5 (1.8%)
It is important to consult with a healthcare provider before pregnancy	186 (60.4%)	94 (30.5%)	22 (7.1%)	5 (1.6%)	1 (0.4%)

Table 5.4: Attitudes Towards Preconception Health Services (N = 308)

Table 5.4 illustrates the participants' attitudes toward preconception healthcare services, indicating a generally positive perception of pre-pregnancy medical counseling. Among the 308 women surveyed, 147 (47.7%) strongly agreed and 121 (39.3%) agreed that preconception care can help prepare them mentally and physically for pregnancy and childbirth. In contrast, only 6 participants disagreed**,** and 4 strongly disagreed with this

statement.

Approximately 164 women (53.2%) strongly agreed and 107 (34.7%) agreed that preconception counseling helps reduce the chances of complications during pregnancy. Notably, the highest level of agreement was observed regarding the importance of consulting a healthcare provider before pregnancy, with 168 women (60.4%) strongly agreeing with this statement. This strong affirmation underscores the participants' recognition of the value of pre-pregnancy medical consultation, reflecting a positive attitude toward preventive care and a willingness to seek professional guidance to ensure a healthy pregnancy.

5.5 Practices and Use of Preconception Health Services

Table 5.5: Use of Preconception Health Services (N = 308)

Question	Yes N (%)	No N(%)	Not Sure N(%)
Have you ever sought preconception health counseling?	180 58.5%	109 35.4%	19 6.1%
Did you discuss your reproductive health with a healthcare provider before pregnancy?	193 62.7%	97 31.5%	18 5.8%
Have you ever used any contraceptive methods before pregnancy?	234 (76.0%)	74 (24.0%)	0.0%

Table 5.5 offers valuable insights into the actual practices of women regarding the utilization of preconception health services. Among the 308 participants, 180 women (58.5%) reported that they had sought preconception counseling, while a significant proportion, 109 women (35.4%), indicated that they had never accessed such services.

Additionally, discussions about reproductive health with a healthcare provider were reported by 193 women (62.7%), whereas 97 women (31.5%) stated they had never engaged in such discussions.

The use of contraceptive methods prior to pregnancy was notably high, with 234 women (76%) reporting usage, while the remaining 74 women (24%) indicated that they did not use any form of contraception before becoming pregnant.

5.6 Correlation between sociodemographic and level of Knowledge

Table 5.6: Knowledge Levels of PCC by Sociodemographic Factors (N = 308)

Sociodemographic Factor	High Knowledge (%)	Moderate Knowledge (%)	Low Knowledge (%)	p- value
Age Group (18–25 years)	45.2%	40.5%	14.3%	0.002
Age Group (26–35 years)	55.3%	35.8%	8.9%	0.001
Age Group (36+ years)	62.1%	32.4%	5.5%	0.000
Place of Residence (Urban)	60.2%	33.1%	6.7%	0.001
Place of Residence (Rural)	48.4%	37.6%	14.0%	0.004
Education Level (Higher Education)	65.3%	30.2%	4.5%	0.000
Education Level (Secondary or below)	42.9%	39.5%	17.6%	0.005
Employment Status (Employed)	59.7%	32.8%	7.5%	0.001
Employment Status (Unemployed)	46.3%	39.2%	14.5%	0.003

Table 5.6 illustrates how knowledge levels about preconception care vary across key socio-demographic variables, including **age**, **marital status**, **place of residence**, **education level**, and **employment status**. The results show that women with higher education levels and those in older age groups tend to have significantly greater knowledge of preconception care. This may be attributed to increased exposure to health-related information through formal education and life experiences, including previous interactions with healthcare systems or reproductive events. Employed women also showed greater knowledge, which could be linked to both higher health literacy and better financial means to access healthcare resources and counseling.

These findings underscore the influence of socio-demographic factors on health knowledge and highlight the need for targeted awareness efforts aimed at younger, unemployed, and less-educated women to ensure equitable access to essential reproductive health information.

5.7 Correlation Between Study Variables and Knowledge of PCC

Table 5.7: Correlation Between Variables and Knowledge of PPC (N = 308)

Variable	r- value	p- value	Interpretation
Age	0.29	0.001	Positive correlation
Education Level	0.34	0.000	Positive correlation
Monthly Income	0.21	0.02	Moderate positive correlation
Previous Use of Services	0.44	0.000	Strong positive correlation

The findings presented in **Table 5.7** reveal important associations between socio-economic factors and women's knowledge levels regarding preconception health.

The strongest positive correlation was found between prior use of preconception services **and** knowledge **levels** (r = 0.44, p = 0.000), indicating that women who had previously accessed these services were significantly more knowledgeable about reproductive health.

This suggests that direct interaction with healthcare providers and exposure to relevant counseling may substantially enhance women's understanding of preconception care and its benefits.

Moreover, a significant positive correlation was observed between the **educational level** of participants and their knowledge scores (r = 0.34, p = 0.000).

This finding highlights the vital role of formal education in increasing awareness of key reproductive health concepts. Women with higher levels of education are likely to have better access to accurate health information, improved health literacy, and more confidence in making informed decisions about their reproductive health, emphasizing the importance of investing in female education as a public health strategy.

In addition, the analysis revealed a **moderate positive correlation** between **income level** and knowledge (r = 0.21, p = 0.02), suggesting that financial stability may play a role in enabling women to access reproductive health resources, attend counseling sessions, and engage in preventive healthcare behaviors.

These findings collectively underscore the influence of socio-economic determinants on health literacy and advocate for targeted interventions to reduce disparities by improving access to preconception education and services among less-advantaged populations.

5.8 Correlation Between Study Variables and Attitudes of PCC

Table 5.8: Correlation Between Variables and attitudes of PPC (N = 308)

Sociodemographic Factor	Positive Attitude (%)	Neutral Attitude (%)	Negative Attitude (%)	p- value
Age Group (18–25 years)	50.1%	38.7%	11.2%	0.003
Age Group (26–35 years)	62.5%	30.2%	7.3%	0.001
Age Group (36+ years)	68.4%	28.9%	2.7%	0.000
Place of Residence (Urban)	66.2%	29.8%	4.0%	0.002
Place of Residence (Rural)	52.4%	38.5%	9.1%	0.006
Education Level (Higher Education)	70.5%	25.3%	4.2%	0.000
Education Level (Secondary or below)	44.7%	40.1%	15.2%	0.007
Employment Status (Employed)	64.8%	30.5%	4.7%	0.002
Employment Status (Unemployed)	50.3%	39.2%	10.5%	0.004

Table 5.8 presents the distribution of positive attitudes toward preconception care (PCC) based on various demographic characteristics of the participating women. The results indicate that 68% of women over the age of 36 exhibited positive attitudes toward PCC, a statistically significant finding (P = 0.000). Women living in urban areas also demonstrated a higher prevalence of positive attitudes (66%) compared to those in rural areas (P = 0.002). Furthermore, women with higher educational attainment were significantly more likely to hold positive attitudes toward PCC (P = 0.000). Lastly, Employment status also influenced attitudes, with employed women showing greater support for PCC than their unemployed counterparts (P = 0.000).

5.9 Correlation Between Study Variables and Practice of PCC

Table 5.9: Correlation between variables and PCC Practices (N = 308)

Sociodemographic Factor	High Engagement (%)	Moderate Engagement (%)	Low Engagement (%)	p- value
Age Group (18–25 years)	42.1%	41.5%	16.4%	0.005
Age Group (26–35 years)	55.7%	35.8%	8.5%	0.002
Age Group (36+ years)	63.5%	31.2%	5.3%	0.000
Place of Residence (Urban)	61.5%	32.9%	5.6%	0.001
Place of Residence (Rural)	49.4%	38.1%	12.5%	0.004
Education Level (Higher Education)	67.2%	28.1%	4.7%	0.000
Education Level (Secondary or below)	41.3%	40.5%	18.2%	0.006
Employment Status (Employed)	58.7%	34.6%	6.7%	0.002
Employment Status (Unemployed)	46.2%	38.9%	14.9%	0.005

Table 5.9 presents the distribution of women's engagement in PCC practices based on various demographic characteristics of the participating women. The results indicate that 63.5% of women over the age of 36 reported their practices of PCC, a statistically significant finding (P = 0.000).

Women living in urban areas also demonstrated a higher practice level in all the studied items (61.5%) compared to those in rural areas (P = 0.001). Furthermore, women with higher educational attainment were significantly more likely to report PCC practices (P = 0.002) than those with secondary school education. Lastly, employment status also influenced the women's practices, with employed women showing greater practice levels for PCC than their unemployed counterparts (P = 0.000). Lastly,

These additional tables help answer key research questions while providing a clearer picture of the influences shaping PCC knowledge, attitudes, and practices.

5.10 Summary of the results

The study examined the knowledge, attitudes, and practices (KAP) related to preconception care (PCC) among women of reproductive age attending primary healthcare (PHC) clinics in the southern West Bank. The findings revealed notable variations in awareness, perceptions, and engagement based on sociodemographic factors such as age, marital status, place of residence, education level, and employment status.

Overall, participants demonstrated a high level of knowledge about PCC, particularly concerning folic acid supplementation (98% agreement), the importance of regular medical check-ups prior to pregnancy (96.8% agreement), and the risks associated with diabetes and other chronic conditions during pregnancy (98.7% agreement). Attitudes toward PCC were similarly positive, with 90.9% of women agreeing or strongly agreeing on the importance of consulting a healthcare provider before pregnancy.

Despite these favorable attitudes, actual engagement in PCC-related behaviors was suboptimal. Only 58.5% of participants reported having sought preconception counseling, and 62.9% had discussed reproductive health with a provider before becoming pregnant.

Sociodemographic analysis indicated that older women, married, living in urban areas, more highly educated, and employed exhibited significantly higher levels of PCC knowledge and engagement. Furthermore, strong positive correlations were found between education and knowledge ($r = 0.34$, $p = 0.000$), as well as between prior use of healthcare services and knowledge ($r = 0.44$, $p = 0.000$), emphasizing the crucial role of exposure to reproductive health services in enhancing PCC awareness.

Knowledge of Preconception Care: The results indicated that the majority of participants had a general awareness of the concept of PCC. However, this knowledge was found to be incomplete, as substantial gaps were identified regarding critical aspects such as folic acid intake, chronic disease management, and preconception health screenings.

Attitudes Toward Preconception Care: The study revealed that women's overall attitudes toward PCC were largely positive, with many expressing an understanding of its importance in achieving a healthy pregnancy. Nevertheless, some misconceptions remained, including the belief that PCC is only necessary for high-risk pregnancies.

Actual Practices of Preconception Care: Despite relatively good awareness and positive attitudes, actual engagement in PCC practices was limited. A significant proportion of women reported not attending preconception check-ups, and only a small percentage took folic acid supplements before pregnancy.

Sources of Information: Healthcare providers were identified as the most trusted source of PCC information. However, their role in actively promoting these services was underutilized. Social media platforms and community-based programs also contributed to information dissemination, although they often lacked accuracy and scientific reliability.

Sociodemographic Factors: The study found that higher levels of education, urban residence, and employment were positively associated with better knowledge and practice of PCC. Conversely, women residing in rural areas or with lower educational attainment demonstrated lower engagement levels.

Gravida and Para Status of Participants

Among the participants, the majority had experienced pregnancy at least once. The gravida distribution showed that 15% were primigravida (first pregnancy), 40% had experienced 2–3 pregnancies, and 45% had four or more pregnancies. As for para status, 10% had not delivered previously, 35% had 1–2 previous deliveries, and 55% had delivered three or more times. This distribution highlights the varying levels of reproductive experience among the participants. Such data can be crucial for understanding the health needs and support systems required for different groups within the population.

A statistically significant positive correlation was found between gravida/para status and women's knowledge of preconception care ($r = 0.31$, $p = 0.004$), indicating that women with more pregnancy and childbirth experience tend to have higher awareness and better understanding of PCC. This suggests that educational interventions targeting less experienced women could be beneficial in improving their knowledge of preconception care. By tailoring resources and support to meet the unique needs of various groups, healthcare providers can enhance overall maternal and infant health outcomes.

5.11 Visualization of main results

Figure 5.1 Preconception health findings: Health findings

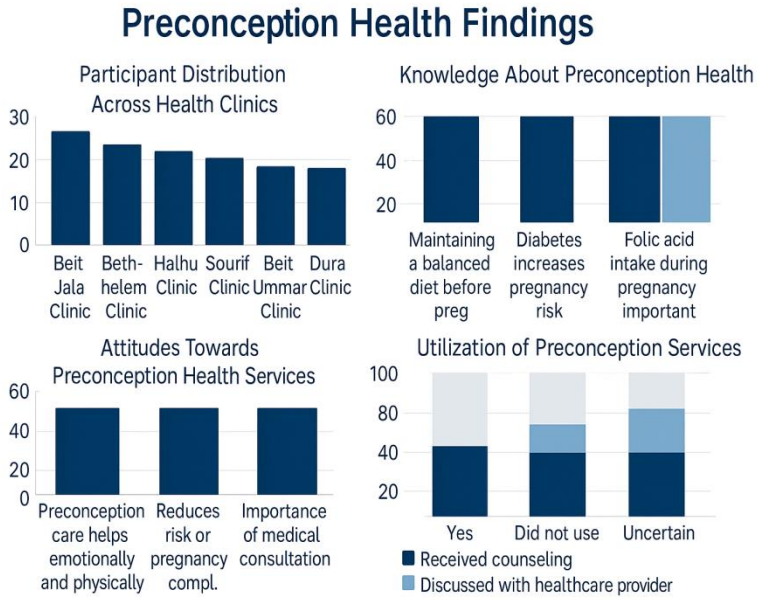


Figure 5-1 highlights the intersection between knowledge, attitudes, and actual behaviors regarding preconception care. While knowledge and attitudes are generally favorable, actual usage of services shows room for improvement—emphasizing the need for broader implementation and promotion of PCC programs, especially among women with lower engagement levels.

Figure 5.1 (a): Distribution of Participants by Location

The distribution chart ensures geographic diversity in the sample, with representation from urban, rural, and refugee settings. Refugee camps' inclusion is particularly relevant, as these populations face heightened vulnerability and limited healthcare access.

Figure 5.1(b): Knowledge about Preconception Reproductive Health

This chart illustrates the high level of awareness among participants, particularly regarding the importance of folic acid supplementation and regular check-ups before pregnancy. Such knowledge reflects effective health education programs, although there remains a minor gap in understanding diabetes-related risks.

Figure 5.1(c): Attitudes Towards Preconception Health Services

The visual highlights the generally positive attitudes among women toward preconception counseling and consulting healthcare providers. Despite these favorable views, actual service uptake is not proportionally high, suggesting the influence of external barriers like access or cost

Figure 5.1 (d): Practices Regarding Preconception Health Services

This figure shows a contrast between knowledge/attitudes and real behavior, where more than a third of participants have never sought preconception counseling. However, high contraceptive use indicates that women are engaging in reproductive health to some extent, creating an opportunity to integrate preconception care into these interactions.

Chapter six

Discussion

6.1 Introduction

The findings of this study provide a comprehensive overview of women's knowledge, attitudes, and practices related to preconception healthcare, revealing a generally high level of awareness and positive attitudes towards preconception care. However, women's adherence to the recommended principles of preconception care remains inadequate. The findings of this study are consistent with existing literature, which often shows that while knowledge and attitudes toward PCC may be positive, they do not always lead to actual practice. This gap is commonly attributed to various barriers, including financial limitations, issues with access to care, and sociocultural factors. These challenges warrant further investigation in future research.

The study revealed a high level of knowledge among women regarding essential PCC components, particularly in areas such as folic acid intake (98%), the importance of regular check-ups (96.8%), and the effects of chronic illnesses, including diabetes, heart disease, and hypertension (98.7%). These results are consistent with findings from studies conducted in Jordan and Lebanon, where high awareness of folic acid use has been reported among women attending maternal and child health clinics (Al-Akour et al., 2015; Zeidan et al., 2019).

The high level of knowledge among the studied women suggests that public health education campaigns—especially those delivered through primary healthcare clinics at the MOH —may have been successful in promoting preventive behaviors, particularly regarding neural tube defect prevention. Additionally, the majority of participants (93.5%) acknowledged the importance of maintaining a balanced diet and avoiding obesity before

pregnancy, underscoring an understanding of how nutritional status contributes to maternal and fetal health.

However, these findings that showed a high level of knowledge among the women differ from those of Al-Attar et al. (2019), who found significantly lower levels of PCC knowledge, particularly among women in rural areas of Egypt. The relatively high level of awareness among women in the current study may emphasize the importance of health education campaigns by the Palestinian Ministry of Health and NGOs working in maternal health in urban centers like Bethlehem and Hebron.

It is noteworthy that awareness of diabetes complications was slightly lower compared to knowledge of folic acid, which may indicate that while women are aware of basic nutrition and supplementation, there is a need for intensifying the education related to chronic disease symptoms, risk factors, and management before pregnancy. This finding aligns with a study in Turkey, which found that women often underestimate the impact of non-communicable diseases on pregnancy outcomes (Demir et al., 2018). Given the potential complications linked to unmanaged diabetes and other chronic illnesses—such as preterm birth and congenital abnormalities—it is crucial to improve educational efforts related to prevention and management to promote maternal health outcomes. An insightful concern for the actual practices of women is needed to ensure accurate utilization of preconception health services, particularly related to diabetes and other chronic illnesses.

The majority of participating women demonstrated a strong understanding of critical aspects of preconception reproductive health. For example, 85.5% recognized the influence of maternal age (under 18 and above 35) on pregnancy outcomes, which aligns with global evidence linking maternal age to increased risks of adverse outcomes such as preterm birth, low birth weight, and congenital anomalies. Similarly, the overwhelming agreement (98.7%) on the impact of chronic illnesses such as diabetes, hypertension, and heart disease on pregnancy complications reflects a commendable level of health literacy among the participants.

The majority of participants had positive attitudes toward seeking healthcare consultation before pregnancy and its benefits in promoting their physical and mental health, with 87% agreeing and strongly agreeing. Additionally, 87.9% agreed and strongly agreed that preconception counseling helps reduce complications. These attitudes are comparable to findings in a Saudi Arabian study by Al-Hussaini et al. (2020), which reported positive

attitudes among the participants who believed that pre-pregnancy counseling was beneficial for their health during pregnancy and after birth.

However, this positive attitude may not always reflect the level of practice. The findings of the current study suggest that positive attitudes and actual practice are inconsistent. This was also observed in a similar study in Ethiopia, where the favorable perceptions of PCC among the participating women were not congruent with their practices. The women's practices of preconception care faced barriers including limited services, protocols, and fear of the consequent investigations (Fekadu et al., 2021).

In this study, only 58.5% of women reported seeking preconception counseling, and 62.9% had discussed reproductive health with a provider, indicating a moderate level of engagement in PCC services. These finding aligns with the findings of Olawuyi & Adeoye (2018) in Nigeria, which emphasized the importance of preconception care counselling for women before pregnancy to discuss the reproductive health issues. Similarly, these findings were also noted in a previous study about preconception care in Palestine, which emphasized that transportation, cultural practices, cost, and limited awareness of service availability hindered women's utilization of PCC (Abu Hamad et al., 2020).

This study revealed that contraceptive use among the participating women was high 76%, suggesting that family planning services may be more widely accepted and accessible than PCC services. This highlights the crucial role of primary healthcare centers in educating women about preconception care and integrating it into existing family planning services. As many women already engage with PHCs for contraception and reproductive health counseling, these centers serve as an ideal platform for introducing and reinforcing the principles of PCC. Encouraging women to participate in family planning visits will help the healthcare providers to deliver targeted messages about health optimization before pregnancy, ensuring that PCC becomes a natural extension of reproductive health services. This integration has the potential to improve pregnancy outcomes and support women in making informed decisions about their reproductive health.

This study highlights the importance of teaching and counseling women as part of family planning programs, emphasizing their critical role within preconception care (PCC) services. Primary health care centers are ideally positioned to provide these services by

integrating PCC into existing family planning efforts. These findings align with the World Health Organization (WHO, 2013), which advocates for the integration of family planning and preconception services, recommending that such topics be discussed with couples prior to pregnancy. This integrated approach has been successfully implemented in countries such as Rwanda and Sri Lanka, demonstrating its feasibility and positive impact on maternal and child health outcomes.

A significant correlation was found between education level and PCC knowledge ($r = 0.34$, $p = 0.000$), as well as prior use of services and knowledge ($r = 0.44$, $p = 0.000$). These findings are aligned with global and regional literature, including studies in Morocco (Benjelloun et al., 2017) and Gaza (Abdelkarim et al., 2016), where higher education and previous healthcare engagement were strong predictors of PCC knowledge and use.

The strong relationship between education and knowledge emphasizes the importance of integrating reproductive health education into formal curricula, particularly for women with lower educational backgrounds (42.9% of women with secondary education exhibited low PCC knowledge). Additionally, urban-rural disparities suggest that women in rural areas may face logistical and informational barriers that hinder their ability to engage in PCC practices.

Income also showed a moderate positive correlation with PCC knowledge, reinforcing the idea that economic empowerment enhances women's ability to access health information and services. Similar associations have been documented in studies from low- and middle-income countries, including Bangladesh (Rahman et al., 2022), where financial constraints were shown to reduce health-seeking behavior. Strengthening outreach programs and addressing financial obstacles could help convert positive perceptions into active engagement.

The current study showed a high number of referrals and participating women in the urban clinics (e.g., Bethlehem and Beit Jala) had higher participant numbers compared to rural clinics (e.g., Teqoa, Housan). This suggests better access to services in urban settings, a pattern consistent with a 2021 WHO report on health disparities in Palestine which provides more focus on the urban areas and little is left to the rural areas. This suggests that

more emphasis should be placed on PHC clinics in rural areas, as the women in these clinics are in great need of knowledge and services regarding PCC.

The results of the current study highlight the need for increasing accessibility of targeted interventions of preconception care in the Primary health care centers of the MOH and UNRWA. Research from UNRWA and Save the Children (2022) has shown that displaced women often face structural barriers in accessing PCC, including limited clinic hours, social restrictions, and transportation challenges. Therefore, efforts must be made to improve service delivery models within camp settings, possibly by increasing mobile outreach units or community-based education campaigns.

Moreover, the findings indicated that women in refugee camps exhibited lower engagement rates in the preconception care services than other women. The data reveal that urban clinics, such as Bethlehem and Beit Jala, account for 25.9% of the total sample. This relatively high proportion suggests that women in urban areas may have better access to reproductive health services, possibly due to the presence of well-established healthcare infrastructure and increased awareness regarding preconception care.
On the other hand, rural clinics such as Teqoa (6.8%) and Housan (7.1%) have significantly lower representation. This disparity may indicate potential barriers to healthcare access in remote areas, including geographic constraints, lack of transportation, or insufficient healthcare awareness. Strengthening outreach programs in these regions could help bridge the gap in service availability and encourage more women to engage in preconception health programs.

Refugee camps (Al-Aroub, Al-Duheisheh, and Aida) constitute 25.3% of the sample. This is particularly important because women in displaced settings often encounter unique health challenges, such as limited access to medical resources, financial constraints, and social instability. Understanding the participation of women from refugee camps in reproductive healthcare services offers valuable insight into how preconception care can be tailored to accommodate their specific needs.

This suggests that women recognize the significance of planning and medical preparation before conception. However, despite these positive attitudes, it is crucial to ensure that women actively engage with preconception healthcare services, as favorable perceptions

alone do not always lead to actual healthcare utilization. Potential barriers—such as financial constraints, accessibility issues, and cultural perceptions—can impede service use. Addressing these challenges will be essential in transforming positive attitudes into concrete actions, ensuring that women receive sufficient preconception care to optimize their health.

These findings underscore the necessity of culturally sensitive healthcare strategies that address the unique challenges faced by refugee populations living in camps. They also highlight the limitations in healthcare access resulting from displacement, which must be addressed through targeted policies, improved infrastructure, and enhanced accessibility of essential services. Tailored interventions are critical to ensuring that displaced populations receive equitable and comprehensive preconception and reproductive healthcare.

6.2 Discussion and Summary of the main points

The findings align with existing literature, which indicates that knowledge and attitudes toward PCC are often strong but do not necessarily translate into practice due to various barriers, including financial constraints, accessibility issues, and cultural perceptions. The discrepancy between high knowledge and lower engagement in PCC services highlights the need for targeted interventions to bridge this gap.

The strong relationship between education and knowledge emphasizes the importance of integrating reproductive health education into formal curricula, particularly for women with lower educational backgrounds (42.9% of women with secondary education exhibited low PCC knowledge). Additionally, urban-rural disparities suggest that women in rural areas may face logistical and informational barriers that hinder their ability to engage in PCC practices.

The correlation between attitudes and practices ($r = 0.39$, $p = 0.002$) suggests that while women acknowledge the importance of PCC, structural barriers prevent them from seeking and utilizing services effectively. Strengthening outreach programs and addressing financial obstacles could help convert positive perceptions into active engagement.

Moreover, the findings underscore the necessity of culturally sensitive healthcare strategies that consider the unique challenges faced by refugee populations. Women in refugee camps exhibited lower engagement rates (only 49.4% reported high engagement in PCC), indicating that displacement-related healthcare limitations must be addressed through targeted policies and service accessibility improvements.

By analysing these results in a scientifically rigorous manner, the study provides valuable insights into the current state of PCC utilization among Palestinian women and offers a foundation for future research and policy development to optimize reproductive health outcomes.

6.2.1 Summary of Knowledge Regarding Preconception Care (PCC)

The findings of this study revealed that the majority of participants demonstrated a high level of knowledge regarding preconception care (PCC), particularly about critical components such as folic acid supplementation and the importance of undergoing medical check-ups before conception. It reflects a strong baseline of reproductive health literacy among the sample and are consistent with the findings of Crider et al,(2022) who emphasized that folic acid intake is among the most universally recognized and accepted interventions in maternal health programs due to its proven role in preventing neural tube defects and other congenital anomalies.

This high level of awareness may be attributed to ongoing public health campaigns, antenatal education initiatives, and the increased availability of information through healthcare providers and digital platforms. The educational background of the sample may also have contributed to these outcomes, as a substantial portion of the participants held higher education degrees, which correlates positively with greater access to, and comprehension of, health information.

Despite these encouraging results, the study also uncovered specific knowledge gaps, particularly concerning the impact of chronic medical conditions—such as diabetes, hypertension, and thyroid disorders—on maternal and fetal outcomes. While 90.9% of the participants were aware of the risks associated with chronic illnesses during pregnancy, this percentage was still lower than the awareness regarding more general aspects of PCC,

indicating a nuanced gap in understanding more complex or less frequently discussed health topics.

This partial deficit suggests that although general knowledge on PCC is relatively widespread, more specialized medical concepts have not been fully integrated into the community's health knowledge framework. The limited awareness of such conditions could have significant implications for maternal and child health, especially given the increasing global prevalence of non-communicable diseases among women of reproductive age. Therefore, there is a pressing need for tailored educational strategies that address these advanced topics and promote comprehensive awareness across all dimensions of PCC.

6.2.2 Summary of Attitudes regarding Preconception Care

The results of the current study revealed that participants exhibited largely positive attitudes toward preconception care (PCC). Specifically, 90.9% of women expressed the belief that consulting a healthcare provider before attempting to conceive is essential. This finding reflects a strong level of theoretical acceptance regarding the importance of planning for pregnancy and suggests a generally favorable disposition among women toward proactive reproductive health behaviors.

These results are in line with those reported by Kasim et al. (2016), who found that 98.5% of women surveyed demonstrated positive attitudes toward PCC, indicating that the concept is well received in diverse cultural and clinical settings. Such positive attitudes may be shaped by multiple factors, including increased exposure to maternal health education, prior experiences with the healthcare system, and the influence of peer and community norms.

Additionally, the participants' relatively high levels of education and urban residency—as highlighted in the demographic data—may have contributed to their favorable perspectives, given the strong association between educational attainment and health-related attitudes.

However, despite this encouraging outlook, the findings also underscore a critical challenge: positive attitudes alone are not sufficient to ensure behavioral compliance or

service utilization. While most participants agreed with the principles of PCC in theory, this did not always translate into corresponding actions. This disconnection between belief and behavior has been a recurring theme in reproductive health literature. For instance, Ayalew et al. (2017) emphasized that positive attitudes toward PCC often remain dormant unless reinforced by practical enablers such as access to quality services, supportive family dynamics, cultural acceptability, and effective provider-patient communication.

This highlights the complex and multidimensional nature of health behavior change, where internal motivation (such as attitude) must be complemented by external facilitators (such as access, affordability, and social support) to achieve tangible health outcomes. In some cases, even women with high levels of knowledge and strong attitudes may delay or forgo preconception consultations due to systemic barriers, time constraints, or perceived irrelevance if they do not anticipate a pregnancy in the near future.

Furthermore, societal expectations, gender dynamics, and decision-making roles within households may influence whether women act on their attitudes. In patriarchal contexts, for instance, the ability of women to initiate healthcare visits—especially for non-emergency, preventive services like PCC—can be limited by spousal or family approval, which underscores the need for broader community engagement in promoting PCC.

while the study confirms the existence of positive attitudes toward preconception care among the majority of participants, it also emphasizes that such attitudes must be nurtured and supported through systematic health education, policy-level interventions, and structural improvements in healthcare access. Only through an integrated approach can positive intentions be converted into consistent, health-promoting behaviors.

6.2.3 Summary of Practices and Behaviors regarding PCC

Despite the encouraging levels of knowledge and the generally positive attitudes observed among the participants, the actual implementation of preconception care (PCC) practices was notably lower than anticipated. The study findings revealed that only 58.5% of the women had ever sought a preconception consultation, and just 62.9% had engaged in discussions about reproductive health with their healthcare providers. These figures point to a significant gap between awareness and actual behavior, suggesting that knowledge and

attitudes, while foundational, are not in themselves sufficient to drive consistent engagement in preconception care services.

This pattern mirrors findings from Al-Akour et al. (2019), who observed a similar inconsistency in Jordan, where even well-educated women demonstrated relatively low levels of PCC practice. The study highlighted that theoretical knowledge does not necessarily lead to the practical application of health behaviors, especially when contextual barriers remain unaddressed.

Several interrelated factors likely contribute to this discrepancy. Financial constraints may deter women from seeking services that are not perceived as immediately necessary or that are not covered by public insurance schemes. Social dynamics, such as gender roles and household decision-making power, may also influence whether a woman feels empowered to initiate preconception consultations. Furthermore, cultural beliefs about fertility and pregnancy—such as fatalism or the perception that pregnancy is a natural event requiring minimal medical oversight—may diminish the perceived need for pre-pregnancy planning.

The conclusions of Goossens et al. (2018) further support these findings, stressing that improving PCC practices demands not only awareness and education but also the removal of structural and cultural barriers. Systemic issues such as limited-service availability in rural or underserved areas, lack of integration of PCC into routine primary care visits, and insufficient provider training can also inhibit effective service delivery and utilization.
In addition, logistical factors such as long wait times, transportation difficulties, and inconvenient clinic hours can disproportionately affect women in rural or refugee settings, further reducing the likelihood of PCC engagement. Psychological barriers such as anxiety, embarrassment, or mistrust of the healthcare system may also prevent women from initiating conversations about reproductive health with their providers.

These findings underscore the need for a multifaceted intervention strategy that goes beyond awareness campaigns. To improve actual practice rates, healthcare systems must ensure that PCC is accessible, affordable, culturally acceptable, and seamlessly integrated into routine reproductive health services.

Tailored outreach efforts, mobile health units, community health worker engagement, and the inclusion of men and family members in educational sessions may all play a vital role in translating knowledge into behavior. while the foundation of knowledge and attitude is present, this study reveals that more comprehensive, context-sensitive interventions are necessary to close the knowledge-practice gap in preconception care utilization.

6.2.4 Summary of the correlation with Socio-Demographic Factors

The statistical analysis in this study revealed a significant and positive correlation between educational level and knowledge of preconception care (PCC) ($r = 0.34$, $p = 0.000$), indicating that as the level of education increases, so does a woman's awareness and understanding of PCC. This result is consistent with findings from Munthali et al. (2021), which emphasized that education is the most influential determinant of PCC-related knowledge, as it enhances an individual's ability to access, comprehend, and apply health information in decision-making processes.

Education plays a pivotal role in shaping health literacy, empowering women with the cognitive tools to critically assess health risks, seek timely information, and engage confidently with healthcare systems. It also improves communication between patients and healthcare providers, making consultations more effective and tailored to individual needs. As such, educated women are often more likely to prioritize preventive care, including PCC, and to recognize the long-term benefits of early reproductive health planning.

Beyond education, other socio-demographic variables demonstrated a clear impact on PCC practices. Married and employed women, as well as those living in urban areas, reported higher levels of engagement with preconception services. These patterns reflect broader socioeconomic dynamics where employment is linked to greater financial independence and access to health insurance, while urban residency often correlates with better proximity to healthcare infrastructure and a wider range of available services. These findings align with those reported by Ayele et al. (2021), who found that both income level and geographic location significantly influenced women's ability to access and utilize PCC services.

Conversely, the study found that women residing in refugee camps exhibited the lowest levels of participation in PCC activities, with only 49.4% reporting high levels of practice. This is a striking indicator of health inequity within the sampled population and underscores the compounded challenges faced by displaced and socioeconomically vulnerable groups. Refugee camp environments are frequently characterized by limited healthcare resources, inadequate staffing, overcrowding, and fragmented services, all of which contribute to reduced access and lower engagement in preventive care.

Moreover, women in these settings may experience additional barriers, such as lack of awareness due to limited educational outreach, social stigma, or psychological trauma associated with displacement. These conditions create a cycle of marginalization that adversely affects reproductive health outcomes and perpetuates disparities in care.

The findings call for urgent and targeted policy responses. Health interventions must adopt an equity-focused approach that actively addresses the structural determinants of health in underserved populations. This includes expanding outreach through mobile clinics, integrating PCC into basic health services in camps, training community health workers, and providing culturally sensitive health education that considers the unique needs of refugee women. Policymakers must also ensure that national reproductive health strategies include specific provisions for displaced populations to prevent their exclusion from essential services.

The socio-demographic variables such as education, employment, and place of residence play a critical role in determining knowledge and practice levels related to PCC. Addressing these disparities requires a multidimensional strategy that combines health system strengthening with social support mechanisms to ensure equitable access to care across all population segments.

6.2.5 Summary of the Relationship Between Attitude and Practice

The results revealed a positive correlation between attitudes and practices ($r = 0.39$, $p = 0.002$), indicating that a positive attitude may partially contribute to shaping healthy behaviour, provided that enabling factors—such as awareness, availability of services, and

family support—are present. This relationship is a significant indicator for designing interventions that rely on enhancing attitudes as a foundation for improving practices.

6.2.6 Comparison with the main previous studies

6.1 Table of Comparisons with Previous Studies

Comparison Point	Findings of This Study	Supporting Studies
High knowledge of PCC	Over 90%	Khekade et al. (2023), Kasim et al. (2016)
The gap between knowledge and practice	Actual practice did not exceed 60%	Al-Akour et al. (2019), Goossens et al. (2018)
Impact of education and employment	Strong positive correlation	Munthali et al. (2021), Ayele et al. (2021)
Low participation of women in refugee camps	Low practice rate (49.4%)	Al Laham et al. (2022), WHO (2014)

6.3 Conclusion

Overall, the study reveals a strong foundation of knowledge and positive attitudes toward preconception health among women in the sample. However, the gap between knowledge and behavior highlights the importance of system-level interventions to make preconception care more accessible, routine, and integrated within primary healthcare services.

The study demonstrates a generally positive knowledge base among participants; it also highlights the importance of targeted interventions to bridge knowledge gaps in specific clinical areas. Future awareness campaigns should not only reinforce fundamental messages such as folic acid intake and routine check-ups but also expand their scope to include less visible but equally critical risk factors, thus empowering women to make fully informed decisions regarding their reproductive health.

These findings underscore the potential for improving maternal and child health outcomes through targeted strategies that translate awareness into action. Enhancing the availability, visibility, and affordability of PCC services—alongside sustained public health

education—can help bridge the gap between knowledge and practice, ultimately contributing to improved maternal and neonatal outcomes in Palestine.

In light of the statistical findings, analyses, and scientific comparisons, several key conclusions can be drawn regarding the current state of knowledge, attitudes, and practices related to preconception care among married women in the southern West Bank:

1. Most participants demonstrated a high level of knowledge about essential aspects of PCC, especially regarding folic acid intake and preconception medical check-ups.
2. Women expressed positive theoretical attitudes toward the importance of PCC and showed readiness to receive counselling and utilize services if made regularly available.
3. Despite high levels of knowledge and attitude, actual PCC practices remained moderate, reflecting a notable gap between awareness and practical behavior.
4. Educational level, employment, and place of residence (particularly the distinction between cities and camps) were influential factors in knowledge and practice, highlighting the role of social and economic variables in shaping health behavior.
5. Women living in camps and rural areas showed significantly lower access to PCC services, calling for equitable and inclusive healthcare interventions that ensure geographic and social justice.
6. The positive correlation between attitude and practice underscores the importance of behavioural health education and sustained interaction between healthcare providers and women in a supportive environment.

6.4 Recommendations

Based on the findings of the study and the analysis in the discussion chapter, the following recommendations are proposed to enhance knowledge, attitudes, and practices related to PCC among women of reproductive age.

Practical Recommendations:

1. Integrate PCC services formally into primary healthcare programs and train healthcare providers to deliver them as part of routine visits for married women.
2. Establish specialized educational units on PCC within clinics and health centers to conduct both individual and group sessions for women on key concepts and preventive measures.
3. Develop clear protocols for healthcare providers that include standardized questions to ask married women during regular visits to identify preconception counselling needs.
4. Expand access to PCC services in rural and camp areas via mobile units or incentives for vulnerable women to attend health education sessions
5. Incorporate PCC into the digital systems of the Ministry of Health to link it to the electronic medical records of patients/wives and document it in health records.

Awareness Recommendations:

1. Launch seasonal national media campaigns (e.g., "Smart Women Start Before Pregnancy") to raise awareness of the importance of pregnancy planning, with participation from governmental and civil institutions
2. Include PCC concepts in guidance programs on TV, radio, and digital platforms, using simple, accessible language for broader comprehension.
3. Involve husbands in health education programs to foster joint decision-making in reproductive matters and support women in adhering to pre-pregnancy health measures.

Research Recommendations

1. Conduct qualitative studies focusing on psychological, social, and cultural factors that hinder PCC practice among women, especially in marginalized areas.
2. Conduct comparative studies across different geographic areas (cities – villages – camps) to assess the influence of environmental factors on knowledge and behavior.
3. Develop standardized Arabic instruments to measure awareness and practices related to PCC for use in national and local research.

4. Assess the impact of training healthcare providers on improving PCC service delivery rates by designing experimental interventions in selected clinics.

Policy Recommendations:

1. Include PCC indicators within national reproductive health policies and strategies adopted by the Ministry of Health.
2. Allocate a dedicated budget within reproductive health programs to support PCC initiatives and ensure the sustainability of community awareness and professional training.
3. Promote partnerships between universities and health institutions to design evidence-based intervention programs that address community needs.

Future Research

Based on the outcomes and limitations of this study, the researcher suggests further studies to address remaining gaps, including:

1. Conducting qualitative studies based on focused interviews with women and healthcare providers to explore deeper barriers to PCC practice.
2. Designing experimental studies to test the effect of educational or awareness interventions on changing women's behaviors in community clinics.
3. Comparing knowledge and practice levels among employed versus unemployed women, or residents of high-access versus low-access areas.
4. Exploring healthcare providers' perceptions of the importance of PCC and their level of engagement in implementing preventive preconception programs.
5. Developing a unified national indicator for measuring the quality of knowledge and practices related to PCC in Palestine, to be used periodically in reproductive health reports

6.5 Implications

The findings highlight a critical need to strengthen the delivery and accessibility of preconception healthcare services in the community. Efforts should be directed toward:

- **Bridging the gap** between knowledge and practice by addressing logistical, financial, or cultural barriers to service utilization.

- **Training healthcare providers** to initiate preconception counseling during routine visits and to use every interaction as an opportunity for education.

- **Enhancing public awareness** campaigns with a focus not only on folic acid and chronic disease risks, but also on broader reproductive health and lifestyle factors.

- **Targeting underserved groups**, such as younger women or those with less education or fewer healthcare visits, who may be less likely to seek counseling despite positive attitudes.

Strengthening the Role of Healthcare Providers:

o Integrate PCC counseling into routine primary healthcare services systematically and sustainably.

o Provide training for healthcare professionals to initiate discussions about PCC during general consultations with women of reproductive age.

o Develop reminder systems—digital or manual—to ensure that PCC is included in every routine visit.

Expanding Public Health Awareness Campaigns:

o Implement community-based educational programs that raise awareness of PCC, especially targeting underinformed groups.

o Utilize social media platforms for broad outreach while ensuring the accuracy and scientific validity of the disseminated content.

o Employ traditional media outlets such as television, radio, and newspapers to widen the reach of health education campaigns.

Improving Access to Preconception Care Services:

o Provide subsidized or free PCC services for low-income women to alleviate financial barriers.

o Establish mobile health clinics targeting underserved rural areas to improve service accessibility.

o Include free folic acid distribution and essential preconception health screenings in national maternal health programs.

5.2.4. Policy and Structural-Level Interventions:

o Mandate the integration of PCC into national maternal and reproductive health policies.

o Strengthen collaboration between governmental agencies, non- governmental organizations, and international health bodies to support and fund PCC programs.

o Develop national guidelines and standardized protocols to ensure consistent PCC implementation across all healthcare institutions.

Promoting Community and Family Support:

o Involve husbands and family members in PCC awareness initiatives to foster a supportive environment for women's health decisions.

o Engage religious and community leaders to address cultural barriers and promote PCC as a vital preventive health practice.

Conducting Further Scientific Research:

o Undertake longitudinal studies to assess the long-term impact of PCC interventions on maternal and child health.

o Evaluate the effectiveness of different educational approaches in improving PCC knowledge and behavior.

o Explore the potential role of digital health solutions and mobile applications in enhancing PCC outreach and accessibility.

Integrate PCC education into family planning and primary care services.

- Design culturally sensitive and accessible PCC programs for rural and camp populations.
- Train healthcare providers to proactively offer PCC counseling during routine visits.
- Expand health education campaigns focused on chronic disease management before conception.
- Address economic and structural barriers to improve healthcare equity.

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Annex A : Tools of the study

هذا الاستبيان هو جزء من بحث علمي يهدف الى دراسة مدى **معرفة السيدات في سن الانجاب للصحة الإنجابية قبل الحمل والتوجهات ومدى استعمال خدمات الصحة الإنجابية قبل الحمل**.

الاستبيان سيتطلب منك معلومات شخصيه عامه وصحية بالإضافة الى رأيك الشخصي في عدة عبارات حول خدمات الصحة الإنجابية قبل الحمل واعتقاداتك بالنسبة لها نسعى من خلالها لمعرفة مدى استعمال هذه الخدمات والتوجه العام تجاهها وفحص المعرفة العلمية للصحة الإنجابية قبل الحمل.

علما ان جميع المعلومات ستصل من مجهول وستحفظ بسريه تامة وستستخدم فقط لأغراض البحث العلمي.

متوسط الوقت لتعبئة الاستبيان **هو 5 دقائق.**

نشكر لكن تعاونكن

للاستفسار:

الجزء الأول: البيانات الشخصية				
1. العمر:	..... سنة			
2. مكان السكن	.....	□مدينة	□ قرية	□ مخيم
3. الحالة الاجتماعية:	□ متزوجة	□ أرملة	□ مطلقة	
4. العمل:	□ ربة بيت	□ تعمل / موظفة		
		□ وظيفة حكومية	□ عمل خاص	□ مؤسسة غير حكومية
5. المؤهل العلمي:	□ ابتدائي فأقل	□ إعدادي	□ ثانوي	□ جامعي
6. عمل الزوج	□ لا يعمل	□ وظيفة حكومية	□ عمل خاص	□ وظيفة غير حكومية
7. الدخل الشهري (بالشيكل)	□<2000	□2000-4999	□5000-10000	□>10000
8. هل انت مدخنة	□ نعم	□ لا		
9. هل تمارسين الرياضة بانتظام	□ نعم	□ لا		

10. هل تتبعين نظام غذائي صحي	□ نعم		□ لا		
11.هل تعانين أي من الأمراض التالية (يمكن إختيار أكر من مرض)	□ ضغط الدم	□ حساسية الجهاز التنفسي (الربو)	□ التهاب الكبد الوبائي	□ أمراض في الدم	□ لا شيء
	□ السكري	□ أمراض الغدة الدرقية	□ امراض في القلب	□ صرع	□ ورم سرطاني
12.كيف تقيمين صحتك	□ ممتازة	□ جيدة	□ لا بأس	□ سيئة	□ سيئة جدا
13. الرجاء تعبئة وزنك وطولك	الوزن ..... كغم		الطول .....سم		

الجزء الثاني: بيانات الحمل والولادات السابقة

عدد الأحمال السابقة (ولادة واجهاض)	.....	
عدد الولادات السابقة		
هل كان لديك تاريخ مرضي من الإجهاض التلقائي؟	□ نعم	□ لا
هل سبق وعانيت من ولادة طفل ميت؟	□ نعم	□ لا
هل سبق وعانيت من وفاة طفلك خلال الشهر الأول بعد الولادة؟	□ نعم	□ لا
هل سبق وحصلت لديك ولادة مبكرة (قبل الشهر التاسع)؟	□ نعم	□ لا
هل سبق وعانيت من ولادة طفل مصاب بتشوه خلقي؟	□ نعم	□ لا
هل سبق واستخدمت وسائل منع الحمل؟	□ نعم	□ لا
هل سبق وحصلت على خدمة الرعاية الصحية الإنجابية قبل الحمل	□ نعم	□ لا

الجزء الثالث: المعرفة العلمية				
1	**أي من الظروف التالية برأيك تمثل خطورة على صحة الطفل في الحمل (يمكنك تحديد أكثر من خيار)**			
	□ كون الأم مريضة سكري	□ فقر الدم لدى الأم قبل الحمل	□ وجود التهابات مهبلية لدى الأم قبل الحمل	□ العنف العائلي	□ تدخين الأم
2	**أي من الظروف التالية برأيك تمثل خطورة على صحة الحامل في الحمل (يمكنك تحديد أكثر من خيار)**				
	□ كون الأم مريضة سكري	□ كون الأم تعاني من السمنة قبل الحمل	□ **6** ولادات سابقة قبل الحمل الحالي		□ فقر الدم لدى الأم قبل الحمل
	□ وجود التهابات مهبلية لدى الأم قبل الحمل	□ كون الأم تعاني من ارتفاع ضغط الدم	□ عدم تباعد الأحمال		

3	**تزيد مخاطر الحمل عند الأمهات الأكبر من ..... سنة؟** □ 25 □ 30 □ 35 □ 40
4	**تزيد مخاطر الحمل عند الأمهات الأصغر من ..... سنة؟** □ 18 □ 20 □ 22 □ 25
5	**هناك بعض التطعيمات يجب مناقشتها مع الطاقم الطبي قبل الحمل** □ أوافق □ لا أوافق □ لا أعلم
6	**اتباع نظام غذائي متوازن قبل الحمل يعتبر ضروري للمرأة الحامل** □ أوافق □ لا أوافق □ لا أعلم
7	**تناول أقراص حمض الفوليك قبل الحمل يقلل من مخاطر حدوث تشوهات خلقية للجنين** □ أوافق □ لا أوافق □ لا أعلم

الجزء الرابع: مدى استخدام خدمات الصحة الإنجابية

1	هل سبق وتحدثت مع طبيب أو ممرضة بخصوص نيتك بالحمل	**□ نعم**	**□ لا**		
2	**إذا كانت اجابتك نعم حددي سبب الاستشارة** □ صعوبة في الحمل	□الاستفسار عن مضاعفات الحمل	□ الحماية من التشوهات الخلقية	□التعرف على الرعاية الصحية المطلوبة قبل الحمل	□ أخرى .....
3	**كيف وجدت إجابة الطبيب أو الممرضة على سؤالك** □ حصلت على ردود مفهومة لجميع استفساراتي	□لم احصل على رد على استفساراتي	□ تم تجاهل سؤالي		
4	**إذا كانت اجابتك على السؤال الأول لا حددي سبب عدم الاستشارة** □ لم أكن اعرف انه من الضروري الاستشارة قبل الحمل	□ اعرف أن الطبيب (الممرضة) لن يقوم بالإجابة عن استفساراتي	□ الخجل	□ الخوف	□ أخرى .....
5	**هل سبق لك أن بحثت معلومات على الإنترنت عن الرعاية الصحية قبل الحمل**	**□ نعم**	**□ لا**		
6	إذا كانت اجابتك **نعم** حددي المعلومة التي بحثت عنها □ الصعوبة في الحمل	□الاستفسار عن مضاعفات الحمل	□ الحماية من التشوهات الخلقية	□التعرف على الرعاية الصحية المطلوبة قبل الحمل	□ أخرى .....
7	هل هناك مواضيع تودين مناقشتها مع طبيبك قبل الحمل	**□ نعم**	**□ لا**		
8	**إذا كانت اجابتك نعم حددي** □ الصعوبة في الحمل	□الاستفسار عن مضاعفات الحمل	□ الحماية من التشوهات الخلقية	□التعرف على الرعاية الصحية المطلوبة قبل الحمل	□ أخرى .....
9	**أي من الممارسات التالية قمت بها <u>قبل حدوث الحمل</u> (يمكنك اختيار اكثر من خيار)** □ زيارة عيادة ما قبل الحمل.	□فحص الهيموغلوبين في الدم	□ فحص فصيلة الدم	□فحص السكر في الدم	□قياس ضغط الدم	□أتناول وجبات غذائية متوازنة
	□أمارس الرياضة (أي نوع .. مشي، تمارين.)	□أتناول أقراص حمض الفوليك بانتظام	□بإجراء فحوصات للقلب			

	موقفك تجاه الخدمات الصحية الإنجابية التالية	1 اوافق بشدة	2 اوافق	3 محايد	4 غيرموافق	5 غير موافق بشدة
1	.تساعدني استشارة عيادة ما قبل الحمل على الاستعداد جسديًا ونفسيًا للحمل					
2	استشارة عيادة ما قبل الحمل يقلل من احتمالية حدوث مضاعفات أثناء الحمل.					
3	لا ينبغي لمقدمي الرعاية الصحية قبل الحمل مناقشة النظام الغذائي					
4	لا ينبغي لمقدمي الرعاية الصحية قبل الحمل مناقشة وزن السيدة قبل الحمل					
5	لا ينبغي لمقدمي الرعاية الصحية قبل الحمل مناقشة النشاط البدني للسيدة قبل الحمل					
	لا ينبغي لمقدمي الرعاية الصحية قبل الحمل مناقشة التشوهات الخلقية للجنين مع السيدة قبل الحمل					
6	ينبغي على مقدمي الرعاية الصحية قبل الحمل فحص ضغط الدم للسيدة					
7	ينبغي على مقدمي الرعاية الصحية قبل الحمل فحص فصيلة دم السيدة					
8	ينبغي على مقدمي الرعاية الصحية قبل الحمل اجراء فحص السكري في دم للسيدة					
9	ينبغي على مقدمي الرعاية الصحية قبل الحمل نصح السيدة بأخذ الفوليك اسيد قبل الحمل					
10	ينبغي على مقدمي الرعاية الصحية قبل الحمل نصح السيدة بأخذ الحديد قبل الحمل					
11	ينبغي على مقدمي الرعاية الصحية قبل الحمل نصح السيدة بأخذ الفيتامينات قبل الحمل					

Questionnaire

Part I Background characteristics					
Age	……..				
Address					
Academic level	□ Primary	□ Secondary	□ University		
Underlying medical condition:	□No	□Yes (please choose): Diabetes mellitus Hypertension Renal disease Asthma liver disease Cardiac disease Solid tumor Hematological (thalassemia, etc.) Malignancy Others:			
Occupation:	□Housewife	□Employed (please choose): □Governmental □Private □NGO			
Husband's career	None	Governmental	Private	NGO	
Income (ILS):	□<2000	□2000-5000	□5000-10000	□>10000	
How do you describe your general health?	□Very good	□Good	□Fair	□Poor	□Vry poor

Part II. Obstetric and maternal health services related factors		
What is the total number of pregnancies in your life time?	……	
What is the total number of births? (parity)	……	
Have you ever had history of spontaneous abortion?	□**Yes**	□**No**
Have you ever had history of still birth?	□**Yes**	□**No**
Have you ever had history of preterm birth?	□**Yes**	□**No**
Have you ever had history of congenital abnormality?	□**Yes**	□**No**
Have you ever had history of neonatal death?	□**Yes**	□**No**
Have you ever had history of contraceptive use?	□**Yes**	□**No**
Have you heard of preconception care service before?	□**Yes**	□**No**
If yes, what is your initial source of information?		
□Healthcare providers		
□Friends and family		
□School		
□Mass media		
□Others……..		

Part III : Women's knowledge on preconception pre-conception care		
Please indicate your response for the following statements		
Statement	**Agree**	**Disagree**
Having Diabetes mellitus pre pregnancy affect the outcome of pregnancy		
Mother extreme ages (below 18 or after 35) affect the outcome of pregnancy		
Being Obesity pre pregnancy affect the outcome of pregnancy		
Pre-pregnancy anaemia can result in low baby weight.		
Pre-pregnancy folic acid supplementation and reduce the risk of congenital malformation		
Having STIs pre pregnancy affect the outcome of pregnancy		
Having Heart disease, including hypertension pre pregnancy affect the outcome of pregnancy		
Having Stress and depression pre pregnancy affect the outcome of pregnancy		
Cigarette smoking pre pregnancy affect the outcome of pregnancy		
Gender based violence pre pregnancy affect the outcome of pregnancy		
Part IV : Practice towards preconception care		
Please indicate your response for the following statements		
Have you ever spoken to a health worker about intention to have a baby?	Yes	No
If yes, what did you ask?		

	□Fertility Issues □Congenital anomalies	□Pregnancy Complications □Preconception care □Others…….
What was the attitude of health workers toward your questions/curiosities?	□Positive	□Negative
If no, why you did not think to talk to him/her?		
	□Didn't know I can Afraid □ □A taboo/ cultural Issues	□Health care Provider attitude Shy□ □Others…….
Have you ever sought information on the Internet on conception and pregnancy	□Yes	□No
	□Fertility Issues □Congenital anomalies	□Pregnancy Complications □Preconception care □Others…….
Is there certain topics that you do not want to hear about preconception	□Yes	□No
If **yes** what information?	□Pregnancy Complications	□Congenital anomalies □Others…….
Why	□Don't Know □ Afraid	□A taboo/ cultural Issue □Others…….
Which of the following preconception practices did you engage in?		
	□ wight measured regularly □Have healthy diet □Exercise Check BG□	□Having BP measured □Having BS measured □Take folic acid as recommended

Part V: Attitude towards preconception care					
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
1- I believe that consulting with the preconception clinic prior to pregnancy helps me prepare physically and psychologically for pregnancy.					
2- I believe that consulting with the preconception clinic prior to pregnancy reduces the possibility of complications during pregnancy.					
3- I believe that HCPs should not discuss nutrition preconception.					
4- I believe that HCPs should not discuss					

women wight preconception.					
5- I believe that HCPs should not discuss physical activity preconception.					
6- I believe that HCPs should measure BP preconception.					
7- I believe that HCPs should measure BS preconception.					
8- I believe that HCPs shouldn't discuss congenital anomalies' preconception.					
9- I believe that HCPs should prescribe folic acid preconception.					
10- I believe that HCPs should prescribe multivitamins preconception.					
11- I believe that HCPs should prescribe iron supplements preconception.					
12- I believe that every woman should know her BG preconception					

Annex B : Results in Figures

Figure 1 : Demographic characteristics of the participants

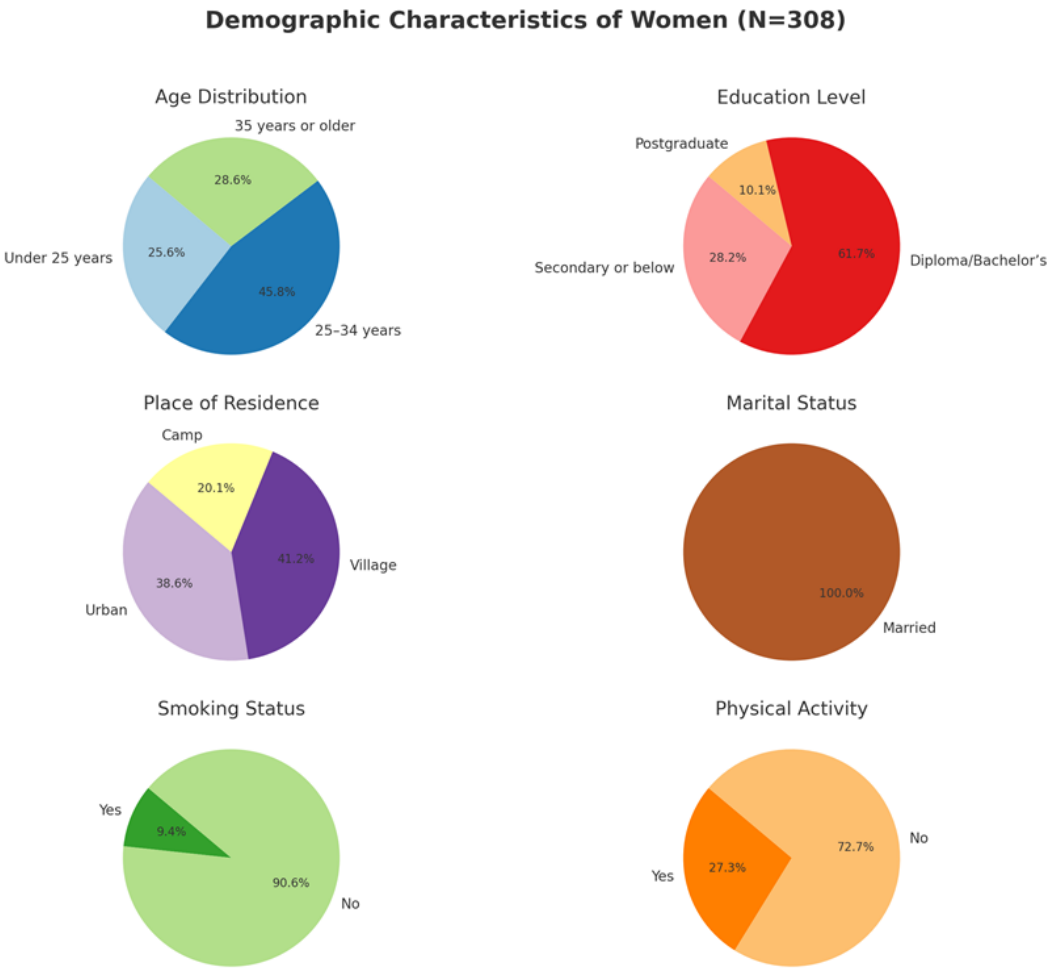
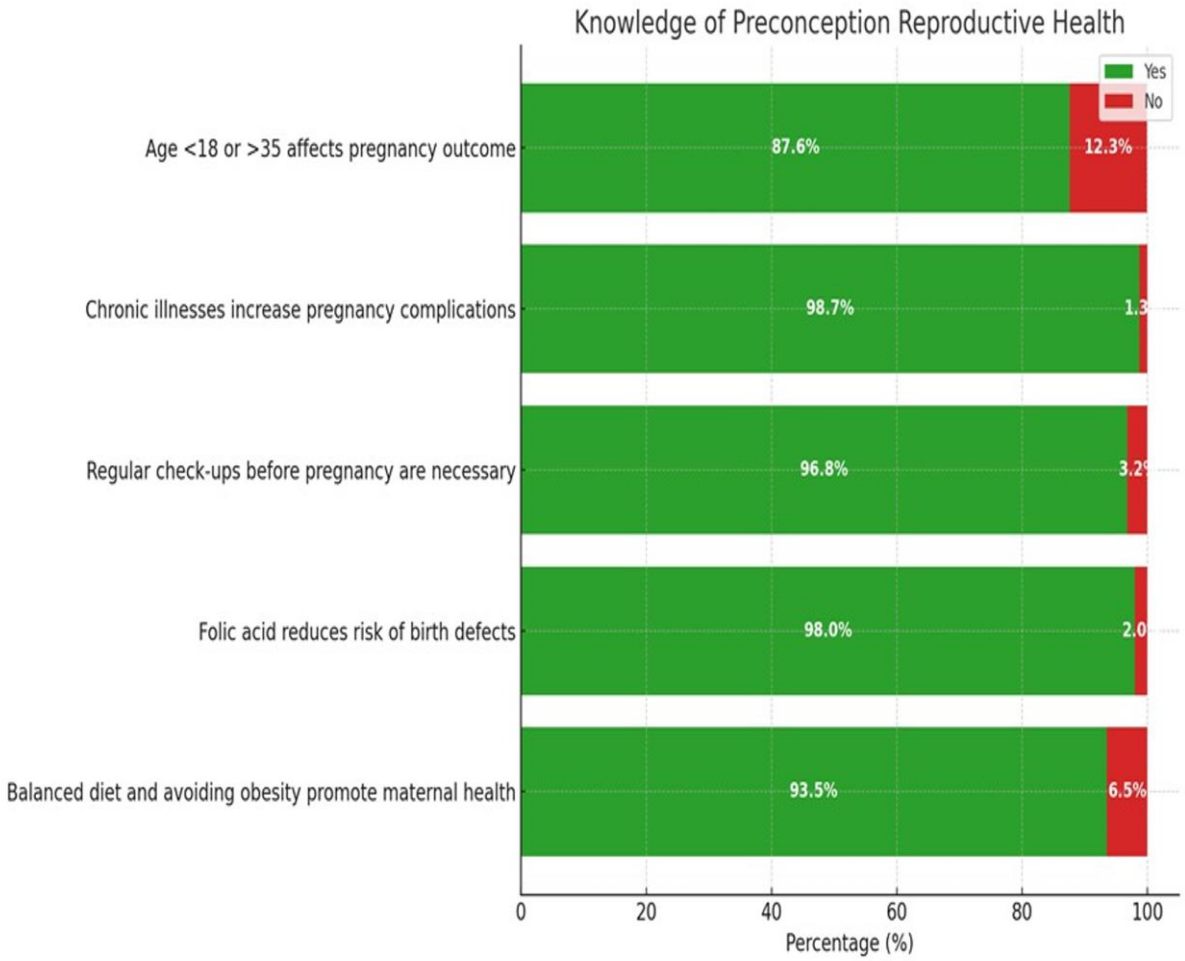


Figure 2: Knowledge of the participants



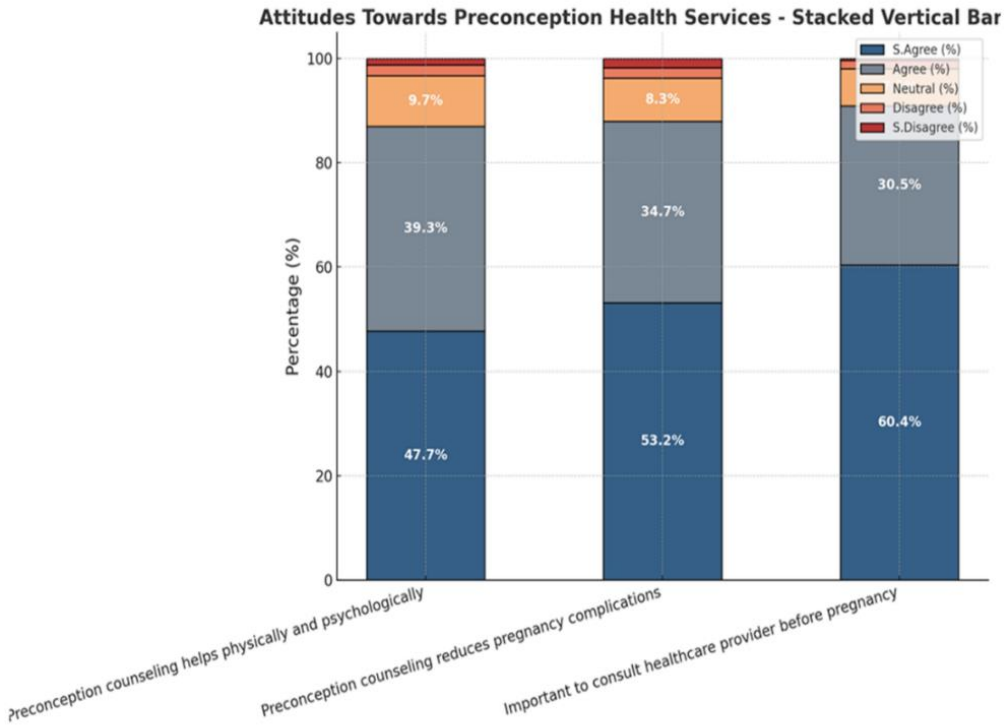


Figure 3: Attitudes of the Participants

Figure 4: Practice and use of preconception care

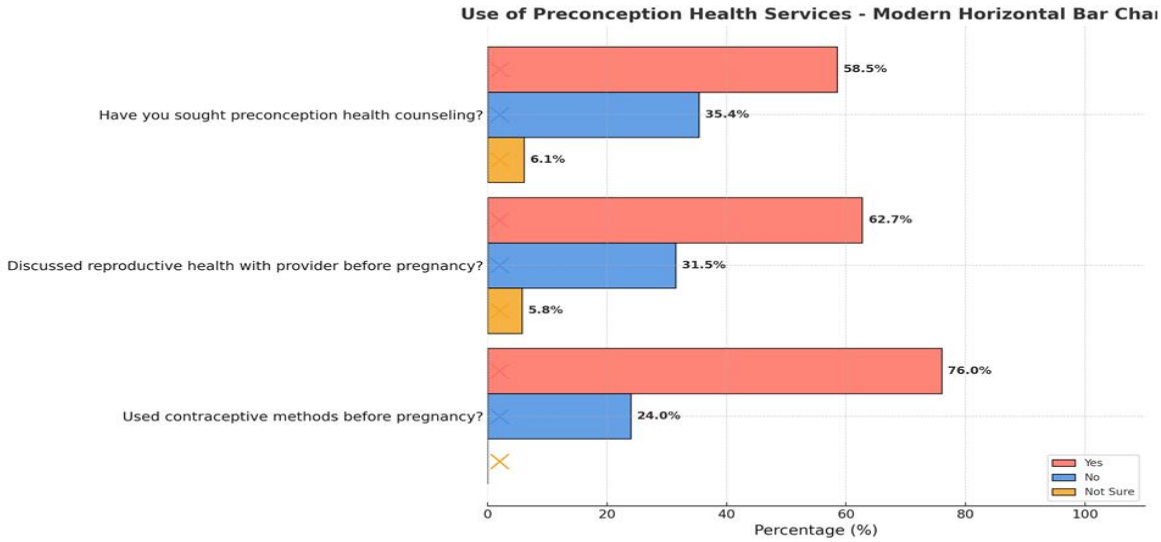
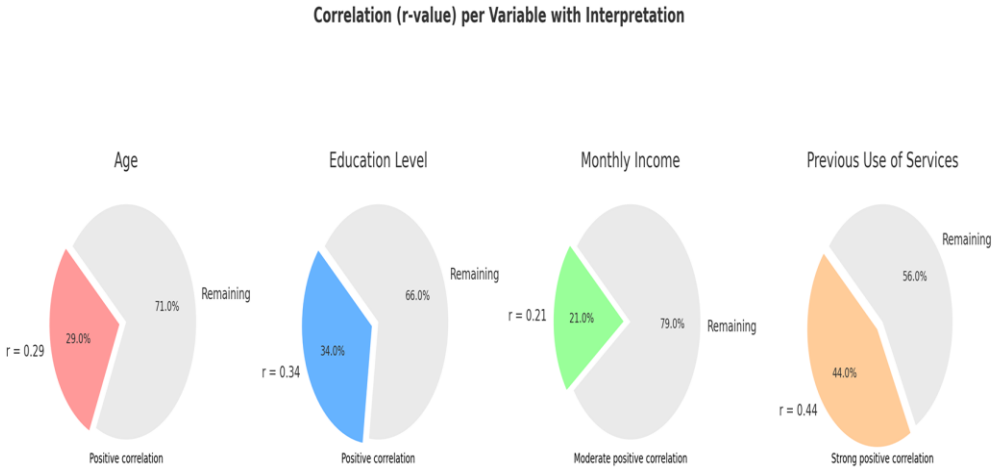


Figure 5 : Correlation between variables



Al-Quds University
Jerusalem
Deanship of Scientific Research

بسم الله الرحمن الرحيم

جامعة القدس
القدس
عمادة البحث العلمي

Research Ethics Committee
Committee's Decision Letter

Date: May 13, 2023

Ref No: 290/REC/2023

Dears Dr. Jawad Abu Kheiran, Dr. Maha Nahal,

Thank you for submitting your application for research ethics approval. After reviewing your application entitled "Knowledge, attitude and Practice regarding preconception care among women in the southern West Bank", the Research Ethics Committee confirms that your application is in accordance with the research ethics guidelines at Al-Quds University.

We would appreciate receiving a copy of your final research report/ publication.

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

PS: This letter will be valid for two years.

Sincerely,

Suheir Ereqat, PhD
Associate Professor of Molecular Biology

Suheir Ereqat

Research Ethics Committee Chair

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

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Annex C : Ethical Approval and IRB

Al-Quds University
Jerusalem
School of Public Health

جامعة القدس
القدس
كلية الصحة العامة

التاريخ: 31/1/2023

عزيزتي الطالب جواد ابو خيران المحترم
برنامج ماجستير الصحة العامة

الموضوع: موافقة لجنة اخلاقيات البحث العلمي

قامت اللجنة الفرعية لأخلاقيات البحث التابعة لكلية الصحة العامة بمراجعة مشروع الرسالة بعنوان:

" Knowledge, attitude and Practice towards preconception care among women attending Primary Health Care clinics at southern West Bank"

المقدم من (مشرف البحث/د. مهى نحال).

يعتبر مشروعك مستوفيًا لمتطلبات أخلاقيات البحث في جامعة القدس.

نتمنى لكم كل التوفيق في تسيير المشروع.

ملاحظة: في حالة الحاجة الى موافقة من اللجنة المركزية في الجامعة، تستطيع التقدم باستخدام هذه الموافقة على الرابط: https://research.alquds.edu/en/ethics/48-how-to-apply.html

رئيسة اللجنة الفرعية لاخلاقيات البحث
كلية الصحة العامة
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معرفة النساء ومواقفهن وممارساتهن المتعلقة برعاية ما قبل الحمل في جنوب الضفة الغربية

الاسم: جواد عبد اللطيف حسن أبو خيران
إشراف: د. مها صدقي صالح نحال

الملخص

المقدمة: تُعدّ رعاية ما قبل الحمل (PCC) نهجًا أساسيًا في الصحة العامة يهدف إلى تحسين نتائج صحة الأم والوليد من خلال معالجة المخاطر الصحية قبل حدوث الحمل. على الرغم من أهميتها، إلا أن الوعي بخدمات رعاية ما قبل الحمل واستخدامها لا يزال منخفضًا بين النساء في فلسطين. ففي عام 2020، تم تسجيل 37.4٪ فقط من الحوامل في مراكز الرعاية الصحية الأولية التابعة لوزارة الصحة، بمتوسط 3.4 زيارات لكل حمل، مما يعكس وجود فجوات في التفاعل مع خدمات الصحة الإنجابية.
الهدف: تقييم مستويات المعرفة والمواقف والممارسات (KAP) المتعلقة برعاية ما قبل الحمل بين النساء في سن الإنجاب في جنوب الضفة الغربية.

المنهجية: تم استخدام تصميم دراسة مقطعية. واستُخدم أسلوب العينة العشوائية الطبقية لاختيار المشاركات من عيادات الرعاية الصحية الأولية في جنوب الضفة الغربية. جُمعت البيانات باستخدام استبيان مُنظم شمل أسئلة حول المعرفة والمواقف والممارسات المرتبطة برعاية ما قبل الحمل، إلى جانب الخصائص الاجتماعية والديموغرافية. شملت العينة 308 نساء. وتم تحليل البيانات باستخدام برنامج SPSS من خلال الإحصاءات الوصفية واختبار كاي تربيع والانحدار اللوجستي.

النتائج: أظهرت النتائج أن 98٪ من المشاركات كنّ على دراية عالية بأهمية استخدام حمض الفوليك قبل وأثناء الحمل. كما كنّ على علم بأن العيوب الخلقية في الأنبوب العصبي يمكن الوقاية منها من خلال تناول حمض الفوليك، وأن استخدام الفيتامينات المتعددة يقلل من خطر العيوب الخلقية. ومع ذلك، ظلت ممارساتهن الفعلية المتعلقة برعاية ما قبل الحمل محدودة. وُجدت علاقات ذات دلالة إحصائية بين مستوى المعرفة وكل من التعليم ($p < 0.05$) والوضع الاجتماعي والاقتصادي ($p < 0.05$). وبالرغم من المواقف الإيجابية العامة تجاه رعاية ما قبل الحمل، إلا أن مستوى الممارسة بقي منخفضًا. وقد أكدت الدراسة أن كلًا من مستوى التعليم والدخل يُعدّان من العوامل المتنبئة الرئيسة بالمعرفة والممارسة.

الاستنتاج والتوصيات: كشفت الدراسة عن وجود فجوة ملحوظة بين المعرفة والممارسة الفعلية لرعاية ما قبل الحمل بين النساء في جنوب الضفة الغربية. فعلى الرغم من المواقف الإيجابية، ظلت الممارسات غير كافية. لذا، فإن تعزيز التثقيف الصحي، ودمج خدمات رعاية ما قبل الحمل في الرعاية الصحية الأولية الروتينية، وزيادة إمكانية الوصول إلى هذه الخدمات، تُعد خطوات ضرورية لتحسين صحة الأمهات والمواليد. كما ينبغي على صانعي السياسات الصحية تطوير تدخلات مستهدفة لسد هذه الفجوات، بما في ذلك حملات التوعية، وتدريب مقدمي الرعاية الصحية، وإدراج رعاية ما قبل الحمل في المواد التعليمية وجهود التوعية في العيادات.

الكلمات المفتاحية: رعاية ما قبل الحمل، المعرفة، المواقف، الممارسات، الصحة الإنجابية، الضفة الغربية، صحة المرأة، الرعاية الصحية الأولية