

Deanship of Graduate Studies

Al-Quds University



**Preconception Care Knowledge, Attitudes, and Practices among
Reproductive Age Women in West Bank**

Nour Jamal Mohammad Farsakh

M.Sc. Thesis

Jerusalem- Palestine

1446\2025

**Preconception Care Knowledge, Attitudes, and Practices among
Reproductive Age Women in West Bank**

Prepared By:

Nour Jamal Mohammad Farsakh

B.Sc. in Nursing Sciences (Ibn Sina College) (Palestine)

Supervisor: Dr. Maysa Al Usta

A thesis submitted in Partial fulfillment of the requirements for the degree of
Master of Maternal and Child Health Nursing (MCH)

Faculty of Health Professions/ Nursing Department - Al-Quds University

Jerusalem- Palestine

1446\2025

Al-Quds University

Deanship of Graduate Studies

Maternal and Child Health



Thesis Approval

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Prepared by: Nour Jamal Mohammad Farsakh

Registration Number: 2120207

Supervisor: Dr. Maysaa Al Usta

Thesis Submitted and accepted. Date: 16/1/2025

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

- | | |
|--|---|
| 1. Head of committee: Dr.Maysa Al Usta | Signature  |
| 2. Internal examiner: Dr. Kawther Al Ayasa | Signature  |
| 3. External examiner: Dr.Nisreen Salama | Signature  |

Jerusalem- Palestine

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Dedication

To the soul of my good father who passed away and whose ultimate dream for me was to see me complete my educational journey.

I would like to extend my endless thanks to my mother who has always been there for me with endless love.

Special appreciation to my beloved husband (Taleb), who overcame all obstacles and difficulties for me, and who always supports and encourages me.

To my children (Sama, Rasheed, Shatha, and Abdul Rahman), my happiness forever.

To my beloved brothers and sisters for the support at all stages of study.

To my colleagues and everyone who encouraged me, supported me, and helped me along the way.

To my colleagues in health care field, especially in primary health centers who spend their time helping clients with love, and I also thank them for helping me collect data from the respondents.

To all of them I dedicate my research
Nour Farsakh

Declaration

I certify that this thesis submitted for the degree of master in Master of Knowledge, Attitude, and practice regarding Preconception Care among Reproductive Age women in west Bank, is the result of my own research, except where otherwise acknowledged, and this (or any part of the same) has not been submitted for a higher degree to any other university or institution.

Signed: *Nour Farsakh*

Nour Jamal Mohammad Farsakh

Date: 16/1/2025

Acknowledgment

Firstly, I would like to express my sincerest gratitude to my supervisor, Dr. Maysaa Al Usta, for the continuous support, great knowledge and advice, guidance and patience to make the study possible.

Thank you to Dear coordinator and beloved teacher Dr., for the support, help and patience. Special thanks to Al-Quds University in general and my teachers in specific for all the hard work, knowledge and collaboration they gave for me.

I would like to extend my thanks to all gentle ladies and women in all participant antenatal care centers, without whom this thesis would not have been possible.

Finally, my thanks go to all the people who have supported me to complete the study work.

Abstract

Background: Preconception care (PCC) is crucial for optimizing maternal and neonatal health by addressing modifiable risk factors and promoting healthy pregnancies.

Objective: This study aimed to assess the knowledge, attitudes, and practices (KAP) of Palestinian women of reproductive age regarding PCC in the northern West Bank.

Methods: A cross-sectional study was conducted from June to September 2024 in the Ministry of Health primary care clinics across six northern West Bank districts. A structured questionnaire was administered to 400 women aged 18-45, covering sociodemographic characteristics, gynecological factors, and KAP regarding PCC.

Results: Among the 400 surveyed women, the largest age group was 23 to 27 years (25.5%). The majority of participants were married (82.3%). Regarding marital relationships, 77.5% of married women reported they have no relationship with their husbands (kinship). Most respondents (59%) had a university education. In terms of family income, 34.3% had a moderate income between 2000-3000 NIS per month. The majority of women were housewives (63%), followed by employees (29.5%), with only a small percentage being students (2.3%) or other occupations (2.3%). Most participants (77.25%) reported having previous information about preconception care, primarily sourced from gynecologists (40.45%), followed by the internet (17.75%) and friends and family (16.85%). In the term of Knowledge regarding PCC the majority of respondents (61.75%) had moderate level of knowledge with a mean score of 0.602, while 25.75% had poor knowledge and 12.5% exhibited good knowledge regarding PCC. The findings also revealed that the majority of women 83.79% had a positive attitudes about PCC. According to practice toward PCC the study finding found that most of respondents 74.5% had a good practices with a mean practice score of 1.83 (SD = 0.673). Education level was moderately correlated with knowledge ($r = 0.146$, $p = 0.003$), while other demographic and gynecological variables showed weak or insignificant correlations.

Conclusion: Palestinian women in the northern West Bank demonstrate fair knowledge, positive attitudes, and good practices regarding PCC. Increased efforts to provide PCC education, starting in schools and extending through healthcare facilities, are recommended to enhance knowledge and outcomes. To further enhance knowledge and outcomes, it is recommended to expand PCC education, beginning in schools and continuing through healthcare facilities, to bridge existing gaps and promote better health practices

Keywords: Preconception care, Knowledge, Attitude, Practice, Reproductive age

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Abbreviations

Abbreviation	Definition
PCC	Preconception care
WHO	World Health Organization
MOH	Ministry of Health
KAP	Knowledge, Attitudes, and Practice.
MMR	maternal mortality ratio
MCH	Maternal and Child Health
AAP	American Academy of Pediatrics
ACOG	American College of Obstetricians and Gynecologists
CDC	Centers for Disease Control and Prevention
UNFPA	United Nations Population Fund.
UNRWA	The United Nations Relief and Works Agency for Palestine Refugees)
ANC	Antenatal Care

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Chapter One

Introduction

1.1 Background:

Preconception care (PCC) refers to the delivery of medical, behavioral, and social interventions to women and couples prior to conception with the goal of enhancing their overall health and addressing factors that may contribute to adverse maternal and child health outcomes. The primary objective of PCC is to improve the health outcomes of mothers and children in both the immediate and long-term perspectives (Lassi et al., 2014). According to the World Health Organization (WHO) report regarding maternal mortality, the maternal mortality rate is alarmingly elevated, with approximately 287,000 women losing their lives during and after pregnancy in 2020. , The maternal mortality ratio (MMR), which measures the number of maternal deaths per 100,000 live births, decreased significantly worldwide between 2000 and 2020, by approximately 34 percent (WHO, 2020). The vast majority, nearly 95%, of these tragic deaths occurred in countries categorized as low and lower-middle-income, and it is crucial to note that the majority of these maternal fatalities were preventable (Samuel et al., 2021).

Despite this progress, almost 95% of maternal deaths persisted in low and lower-middle-income countries, underscoring significant disparities in access to quality health services and accentuating the existing divide between affluent and impoverished regions. In 2020, the MMR in low-income countries was alarmingly high at 430 per 100,000 live births, in stark contrast to the considerably lower rate of 12 per 100,000 live births in high-income countries (WHO, 2020). Maternal mortalities are often the result of complications arising during or after pregnancy, many of which are preventable or treatable if properly managed as part of the woman's care (Samuel et al., 2021).

In Palestine, the maternal mortality ratio during 2020 was estimated to be 28.5 deaths per 100,000 live births (Palestinian Ministry of Health [PMoH], 2019). A significant majority of maternal deaths in Palestine, accounting for 78.4% of the cases, were deemed preventable. These deaths could have been avoided through potential interventions during the preconception period, adequate antenatal care, and improved healthcare practices within

hospitals. This highlights the importance of implementing effective strategies and interventions at various stages of maternal care to prevent avoidable maternal deaths and improve overall maternal health outcomes (PMoH, 2020).

Reproductive health has shown limited progress over the past decades, with experiencing relatively high rates of perinatal death. Despite improved access to and quality of prenatal care, the lack of improvement in reproductive outcomes suggests that focusing solely on prenatal care is insufficient. Therefore, the need for reinforcements such as the adoption of PCC has become a vital requirement for further maintenance and development of the health of mothers and children (Goldenberg & McClure, 2018).

In the Palestinian context, within the reproductive and sexual health sector, between the years 2014-2016, the National Reproductive Health Strategy was created in cooperation between the Palestinian Ministry of Health and the United Nations Population Fund to enhance reproductive health in Palestine through participatory work from all partners and service providers. The strategy framework was based on four main strategic priorities: safe pregnancy and childbirth, and promoting healthy families across various sectors.

age stages, enhancing and supporting health services for youth, and qualified and sufficient human resources. For safe pregnancy and childbirth, it focused on preconception services, pregnancy and antenatal care services, obstetric services, maternal mortality monitoring, and postnatal care. At the national level, Palestine maintained coverage levels Pregnancy and prenatal care services are very high, reaching 95.5% in 2014, through primary health care services and centers and maternal and child care centers spread throughout all governorates. Palestinian. The coverage rate for pregnant women in Ministry of Health centers reached 45.2% in 2016, and the rate reached 4.6 visits/woman during pregnancy. The Obstetrics and Gynecology Protocol was also updated and approved to be a unified tool for providing obstetrics and gynecology services to ensure the safety of the mother and child at the various stages of pregnancy and childbirth. It was applied in government hospitals, primary care centers, and then private hospitals after 2018 (PMoH, 2022, United Nations Population Fund [UNPF], 2018).

Preconception care can have short-term and long-term benefits for both mothers and their children. In the short term, it can reduce the risks associated with pregnancies that occur too early, too close, or are unplanned ; additionally, it can reduce the risk of genetic disorders, environmental exposure, and maternal and childhood mortality while improving maternal and child health outcomes. PCC can also address other public health concerns such as nutrition, mental health, intimate partner violence, and substance use. In the long term, PCC can improve the health and well-being of babies and children as they grow into adulthood (Atrash & Jack, 2020; Fowler et al., 2017; Khekade et al., 2023).

In addition to the aforementioned benefits, preconception care is anticipated to yield various advantages, extending beyond individual health outcomes. Preconception care is anticipated to yield significant social and economic benefits that extend beyond individual health outcomes, positively impacting families and communities. By addressing health risks and promoting healthy behaviors before conception, preconception care can lead to healthier pregnancies and better birth outcomes, which in turn reduce healthcare costs associated with complications during pregnancy and childbirth (Poix & Elmusharaf, 2024). Healthier mothers are more likely to engage in productive activities, contributing to the workforce and enhancing family income stability. Furthermore, children born to healthier mothers tend to have improved health trajectories, leading to reduced rates of chronic diseases and disabilities, which can alleviate the burden on healthcare systems and social services (Poix

& Elmusharaf, 2024). This preventive approach fosters a cycle of health that benefits not only individual families, but also the broader community by promoting a healthier population, reducing healthcare expenditures, and enhancing economic productivity through a more capable and healthy workforce. Thus, investing in preconception care can create a ripple effect, yielding substantial long-term social and economic advantages (Poix & Elmusharaf, 2024).

Additionally, promoting men's active involvement in women's health can enhance their own well-being, irrespective of immediate plans for parenthood. Moreover, preconception care plays a crucial role in managing exposure to environmental risk factors during early life, thereby mitigating potential long-term effects (Association, 2019). For instance, addressing the issue of smoking before or during pregnancy has the potential to prevent a significant number of adverse outcomes, such as 5-7% of preterm-related deaths and 23-24% of sudden infant death syndrome cases (Lassi et al., 2014).

In high-income countries, preconception care serves not only to enhance overall preconception health and risk awareness among the general population but also to address the relatively higher rates of maternal and childhood mortality and morbidity found within socially marginalized and economically disadvantaged families and communities. Similarly, in low-income countries, preconception care can have a broader impact, leading to significant improvements in maternal and child health outcomes across large segments of the population (Ekawati et al., 2024, Kedzior et al., 2024).

The implementation of preconception care initiatives has been increasingly observed in various countries, including high-income nations like Italy, the Netherlands, and the United States, as well as low- and middle-income countries such as Bangladesh, the Philippines, and Sri Lanka. Recognizing the significance of these initiatives, there is a consensus on the importance of identifying and documenting these experiences to provide valuable insights and inspire others to engage in similar work in the field of preconception care (WHO, 2014).

1.2 Problem statement:

Based on the vital role of PCC in mitigating maternal and neonatal mortality risks, especially in low and middle-income countries, despite global initiatives aimed at achieving sustainable development goals and reducing pregnancy-related deaths, a substantial number of mothers continue to confront significant health risks, as highlighted by the World Health Organization (WHO, 2020). The lack of comprehensive PCC exacerbates morbidity and mortality rates among mothers and infants (Sori et al., 2021). Comprehensive knowledge and utilization of PCC among women have been linked to heightened awareness, increased service utilization, and a proclivity for risk-mitigating behaviors. Understanding the influential factors in PCC awareness and adoption, particularly among women and healthcare providers, is pivotal for targeted interventions. This insight is crucial in the Palestinian context, where addressing preventable preconception risk factors can significantly contribute to improved maternal and neonatal health outcomes, aligning with global commitments to reduce mortality and advance sustainable development goals (Lemma et al., 2022; Fekene et al., 2020).

There is a gap in knowledge in regard to the uptake of PCC, influenced by factors such as resource limitations, unplanned pregnancies, negative attitudes, and women's lack of awareness. Despite the critical role it plays in advocating maternal and child health, a significant majority of women lack awareness regarding the impact of their preconception health on the likelihood of experiencing adverse pregnancy outcomes.

Recognizing PCC as a key strategy, its implementation and success vary globally. Understanding the factors influencing the success of PCC initiatives is crucial for informing interventions and policies to reduce preventable maternal and child morbidity and mortality (Muthiyan & Musale, 2022). Moreover, preconception care plays a crucial role in empowering women to make informed decisions about their fertility and overall health, which can contribute to the social and economic development of families and communities (Lassi et al., 2014). Therefore, assessing the knowledge and perception of women in Palestine about preconception care is significant. There are scarcity of studies in Palestine on knowledge and attitudes about preconception care among women in northern West Bank of Palestine. Therefore, this research aims to evaluate the knowledge, attitudes, and practices regarding PCC among women of reproductive age in northern West Bank.

1.3 Significance of the study:

Preconception care plays a crucial role in empowering women to make informed decisions about their fertility and overall health, which can contribute to the social and economic development of families and communities (Lassi et al., 2014). Therefore, assessing the knowledge and perception of women in Palestine about preconception care is significant for several reasons:

- The results of this study will offer a clear picture and assessment perception, and nature of practice about PCC among Palestinian women, that allow for identification of areas where women may have low and lack information or have misconceptions about PCC. By addressing these gaps, women can make informed decisions and take appropriate actions to optimize their health before pregnancy, leading to improved maternal and child health outcomes.
- Participation in such studies by women in the Palestinian context may open the door to knowing new information and adopting and practice a right approach for their reproductive health that may benefit their future health and that of their children.
- The findings of this study will lead to Understand women's knowledge and attitude toward PCC in Palestine which can guide the development of policies and programmes aimed at improving and apply PCC programs.
- This study findings will help policy maker in primary healthcare to recognize the relationship between knowledge and attitude and that would help design programs and campaigns that would improve knowledge about preconception care, reduce the false information that might be possessed by women, and change attitude towards the subject. Understanding the correlation between knowledge and attitude can inform the development of targeted interventions and educational campaigns to enhance women's knowledge, address any misconceptions, and promote positive attitudes towards preconception care.
- The importance of this study lies in the lack of studies that assess knowledge and attitudes regarding PCC among women in Palestine. At a more educational level, the findings can be used to develop targeted awareness campaigns and educational programs to enable women to be more informed about key aspects of preconception health. On an academic level, it adds to the scarce literature on PCC in the Palestinian context, creating a foundation for future explorations of the barriers, healthcare practices and customs that influence the culture of care in Palestine. The study can positively inform administratively.

1.4 Aim of the study, Research Questions, and Hypothesis:

The objective of this study is to:

1. **Objective:** Assess the knowledge of Palestinian women in the reproductive age about preconception care in North West Bank.
 - **Research Question:** What is the level of knowledge regarding preconception care among women of reproductive age in the North of the West Bank of Palestine?
 - **Hypothesis:** Women of reproductive age in the North of the West Bank of Palestine have good level of knowledge regarding preconception health.
2. **Objective:** Identify the main sources of information regarding PCC among women of reproductive age in North of West Bank.
 - **Research question:** What are the main sources of information regarding PCC among women of reproductive age in North of West Bank?
3. **Objective:** Assess the attitudes towards preconception care among women of reproductive age in the North of West Bank of Palestine.
 - **Research Question:** What are the attitudes towards preconception care among women of reproductive age in the North of the West Bank of Palestine?
 - **Hypothesis:** Women of reproductive age in the North of the West Bank of Palestine hold positive attitudes towards preconception care.
4. **Objective:** Assess practice towards preconception care among women of reproductive age in the North of West Bank of Palestine.
 - **Research Question:** What are the practices related to preconception care among women of reproductive age in the North of the West Bank of Palestine?
 - **Hypothesis:** Women of reproductive age in the North of the West Bank of Palestine engage in good practices related to preconception care.
5. **Objective:** Examine the correlation between knowledge, attitudes and practices regarding preconception care among women in the North of the West Bank of Palestine.
 - **Research Question:** Is there a correlation knowledge, attitudes and practices regarding preconception care among women in the North of the West Bank of Palestine?
 - **Hypothesis:** There is a positive correlation between the knowledge, attitudes and practices regarding preconception care among women in the North of the West Bank of Palestine.
6. **Objective:** Identify the relationship between knowledge, attitudes and practices regarding preconception care, and the sociodemographic and gynecological variables age, educational level, number of previous pregnancies and number of deliveries among women in the North of the West Bank of Palestine.
 - **Research Question:** Is there an association between knowledge, attitudes and practices regarding preconception care and selected sociodemographic and gynecological variables among women in the North of the West Bank of Palestine?

- **Hypothesis:** knowledge, attitudes and practices regarding preconception care vary significantly across the demographic and gynecological variables age, education, and sociodemographic variables among women in the North of the West Bank of Palestine.

1.5 Study Variables

Dependent variables: In the current study, the dependent variables were as follows:

- Knowledge regarding pre-conception care among women of reproductive age.
- Attitudes regarding pre-conception care among women of reproductive age.
- Practice regarding pre-conception care among women of reproductive age.

Independent variables: in this study the independent variables were:

- Sociodemographic characteristics as: age, educational level, marital status, place of residence, employment status, educational level of husband, relation with husband.
 - Reproductive characteristics such as: history of previous pregnancy, number of previous pregnancies, history of abortion, history of still birth.
 - Health status: history of previous disease as diabetes, hypertension.
 - Source of information regarding PCC, as internet, friends, gynecologist, nurses or midwives.

1.6 Conceptual definition

Knowledge: Knowledge is a collection of data and information to which expert opinions, skills and experiences are added, and the result is a valuable resource that can be used in decision-making (Khan, 2023; Jakubik, 2023)

Attitude: is the evaluative process through which individuals assess information as either good or bad, accepted or rejected, based on their accumulated life experiences and mental perceptions. This evaluation is influenced by cognitive centers that integrate knowledge (Iknow), desires (Iwant), and emotional experiences (Ilove). The decision-making process relies on comparing new information to internal reference standards learned from childhood and personal experiences, where positive or negative emotional associations play a critical role in shaping judgments and influencing future decisions (Gaiseanu, 2020)

Practice: In the medical field, clinical practice describes the day-to-day activities of healthcare providers who use their medical expertise to identify, treat, and manage patients' conditions. It is an essential part of the healthcare system and includes everything from simple checkups to intricate surgical operations. Clinical practice takes place in settings such as clinics, hospitals, and private practices, where professionals follow evidence-based protocols to guarantee high-quality patient care (Berg et al., 1997).

Preconception Care: The provision of biological, behavioral, and social health interventions to women and couples prior to conception, aims to improve health status and

decrease environmental, behavioral, and personal factors that may be responsible for poor health outcomes for mothers and children. Its ultimate goal is better short- and long-term health outcomes for mothers and children [World Health Organization, (WHO), 2013]

1.7 Conceptual Framework

Figure 1.1 represents the study framework, showing the relationship between the independent variables (demographic and gynecological data) and their relationship with the study's s(dependent variables); knowledge, attitudes and practice regarding PCC.

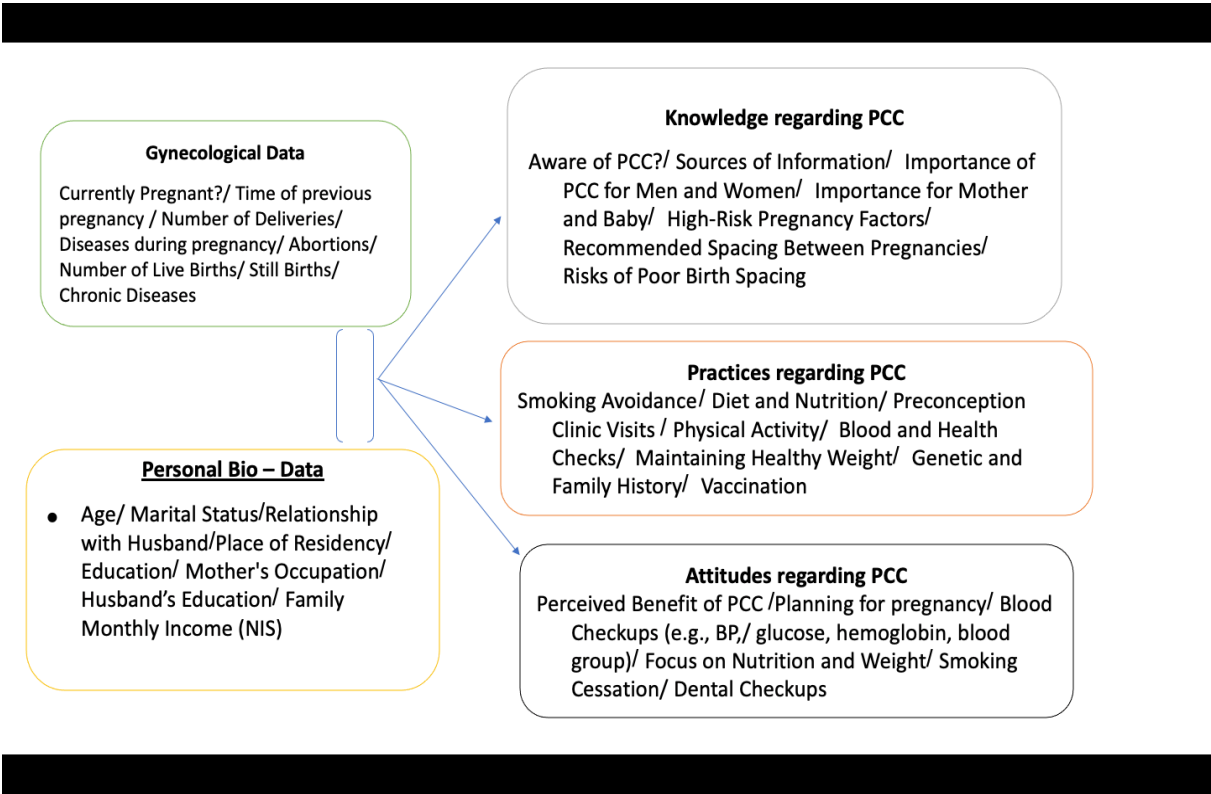


Fig 1.1 Conceptual Framework of the study

Chapter Two

Literature Review

2.1 Introduction

The overall objective of this chapter is to review research findings on Knowledge, Attitudes and Practice regarding preconception care among women in childbearing age and identifying gaps for further investigation.

2.2 Research Strategy:

To conduct a comprehensive literature review on the topic of "Knowledge and attitudes regarding Preconception Care among women," a systematic approach was adopted. The search strategy included electronic databases such as PubMed, Scopus, and Web of Science. The search terms used included variations of "preconception care," "knowledge," "attitudes," "practice," "perception", "behavior", "women," and related keywords. The search was limited to studies published in English from the past 10 years.

2.3 History of Preconception care (PCC)

It is important to note that the conception of the PCC is not recent, for as earlier noted the belief in the influence of women's health, behavior and the environment on pregnancy outcomes has always been around for centuries. Majority of the documents available, as sources of reference on how the health of a mother enhanced pregnancy outcomes, date back centuries (Freda et al., 2006). As early as 1825, William Potts Dewees stressed the importance of the conduct of a mother even prior to marriage and during pregnancy and her impact on the child, historically, PCC was first defined as a focused service for women who had previously experienced adverse pregnancy outcomes by Chamberlain, 1980 (Atrash & Jack, 2020). The United States Public Health Service further developed the concept in the publication "Preventing Low Birth Weight" and its Expert Panel on the Content of Prenatal Care defined the components of PCC, emphasizing its effectiveness when integrated into primary care services (Quist-Nelson, 2022).

In 2004, the United States Centers for Disease Control and Prevention published “Recommendations to Improve Preconception Health and Health Care”, due to which health departments of the states and cities of the US started introducing PCC programs. In the same way, Canada, Belgium and the Netherlands have also begun to adopt PCC programs (Atrash & Jack, 2020). In early 2012 specifically, WHO convened a meeting to set out international reference point with regards to the implementation of PCC in preventing maternal and neonatal as well as childhood mortality and complications (WHO, 2012). The resulting reports, titled "Preconception Care: “Maximizing the Gains for Maternal and Child Health” and “Meeting to Develop a Global Consensus on Preconception Care to Reduce Maternal and Childhood mortality and morbidity” contain detailed analysis regarding the principles, components, delivery systems and suggestions of PCC. These reports focus on the effectiveness of PCC in improving maternal and child health outcomes and the importance of intersectoral coordination with regard to scaling up PCC for all women, children, and families. The mentioned WHO reports also play the role of a guide for the set of health activities to enhance the MCH situation. They call upon other sectors of government, foundations, and civil society organizations to assist public health policy makers to optimize the value of PCC for MCH (WHO,2020).

2.4 Importance of Preconception Care (PCC)

This section introduces the concept of (PCC) and highlights its importance in improving maternal and child health. It outlines the objectives and key components of PCC, emphasizing its role as an essential part of reproductive health. The section also discusses the need to strengthen the implementation of PCC to reduce maternal and infant morbidity and mortality, showcasing its potential to enhance overall health outcomes (Mason, 2014).

Preconception care can be delivered in various forms including general or specific individual care. Preconception care has been thus associated with improving pregnancy outcomes and has an important role in reducing maternal and child mortality and morbidity (Tydén et al., 2016). The benefits of preconception care include; it helps in the prevention or reduction of potential health hazards to the woman, the fetus or the newborn as the health is enhanced and preceded understanding during the course of planning for conception. This shows that preconception care also has other advantages of enhancing individual health hence enhancing public health. It provides chance to work out and prevent current and future health risks including malnutrition and obesity (Gautan & Dhakal, 2016).

PCC has an important focus on improving health status and raising awareness of risks of pregnancy amongst women in high income setting. Apparently, given the information about certain risk factors that can influence perinatal outcomes, one will be in a position to explain the risks to a woman duly. Various studies have established that starting prenatal care early is also linked with a decreased likelihood of preterm labor, birth weight less than 2500 g, maternal irregularity, and neonatal complications and therefore has positive effects on maternal and child health (Jourabchi et al., 2019).

Predicting the exact time of conception is uncertain and requires a comprehensive approach that considers all factors influencing pregnancy outcomes, including the health of both parents. Therefore, preconception care (PCC) should be available to all reproductive-age individuals. Unfortunately, PCC is often provided too late globally, and poor health conditions such as obesity and alcohol use increase the risk of premature births and low birth weights. Providing PCC leads to increased awareness of public health risks and a greater likelihood of maintaining a healthy lifestyle in the future (Blencowe et al., 2010).

Complications during pregnancy can lead to adverse health outcomes for both mothers and children, particularly during the neonatal period. Risk factors and health problems are often present before pregnancy. Therefore, providing a continuum of care for adolescent girls and women before conception can help reduce risk factors and address health problems. Poor nutritional intake and partner violence are examples of risk factors while chronic medical conditions and infectious diseases are health problems that need to be addressed. Uncontrolled diabetes during pregnancy can lead to fetal malformations. Lack of preconception care can lead to babies being small for their gestational age or macrosomic. Preconception care has significantly improved congenital malformations, perinatal mortality, and preterm delivery by including interventions such as folic acid supplementation, normalization of blood glucose, and detection/treatment of diabetic complications (Backes et al., 2020; Bernstein et al., 2023; Bhutta et al., 2014).

Complications during pregnancy and childbirth are a major cause of death in developing countries. According to the World Health Organization (2017), a significant number of women died each day in 2017 due to preventable factors related to pregnancy and childbirth. The global maternal mortality ratio has shown a decline of approximately 38% between 2000 and 2017. Poor maternal health is one of the leading causes of death worldwide. Women of childbearing age and those who are pregnant are susceptible to debilitating illnesses.

Excessive weight gain, exposure to dangerous substances, and attractive in high-hazard behaviors can grow the probability of unfavorable being pregnant effects, at the same time as PCC plays a critical position in minimizing those dangers and ensuring foremost maternal fitness before the critical fetal improvement period. Reducing or quitting smoking, warding off alcohol consumption in the course of being pregnant, and taking folic acid dietary supplements are measures which could improve the fitness of each mom and children (Delgado, 2008; Langley-Evans et al., 2022).

According to findings of systematic review findings that conducted by Zaçe et al., (2022) the use of preconception care among women is somehow low, with only about one-third of women having access to it. The study cites some factors leading to lower rates of PCC; specifically, these are unintended pregnancies, prior lack of health insurance, unmarried status, being less than 20 years of age, and having under-college education, i.e., less than 12 years of academic work. PCC is once again proven essential within the primary care systems in that women with higher trust levels for their healthcare providers discuss reproductive health issues. In yet another study, primary care physicians and obstetrician/gynecologists were the sources of choice for PCC. These findings reinforce the call for greater public awareness and access to PCC in primary care settings as a means of promoting comprehensive reproductive healthcare among women.

Preconception care is crucial for couples preparing for pregnancy, helping them avoid risk factors and enhance their chances of a healthy pregnancy. Integrating preconception care into primary and preventive healthcare systems can significantly reduce maternal and childhood mortality and morbidity on a population level (Kandel et al., 2023). Nationally, the implementation of preconception care practices varies across the world. For instance, the USA recommends the initiation of preconception examinations for couples wishing to conceive. On the European front, support for preconception care in high-risk women alone can be seen in countries such as Belgium, Denmark, Italy, the Netherlands, Sweden, and the United Kingdom. In most cases, opportunistic care may be given to women without any preconception care risk factors, and the only notable exception to this rule is found again in

the Netherlands (Shawe et al., 2015). Maternal and child health has always been a top priority in China. To show its dedication to an all-encompassing welfare program, the Chinese government launched the National Free Preconception Health Examination Project in 2010. This national program has produced significant progress over the years and could serve as a template for other nations and areas worldwide (Xu et al., 2022).

In their systematic review, Dean et al., (2013) found that women who received preconception care in healthcare centers or community settings experienced positive outcomes in terms of maternal, newborn, and child health. These outcomes included smoking cessation, increased use of folic acid, higher rates of breastfeeding, improved likelihood of receiving antenatal care, and reduced neonatal mortality rates. The analysis of the interventions showed that preconception care and counseling had a beneficial impact on women's health behaviors. For instance, counseling led to three times higher chances of quitting smoking, and receiving counseling in a healthcare facility increased the likelihood of using folic acid by five to six times. Moreover, the likelihood of breastfeeding newborns increased by 71%, there was an 82% increase in the use of safe delivery kits during home births in developing countries, and the likelihood of obtaining antenatal care increased by 39% (Dean et al., 2013).

In an Iranian a quasi-experimental study conducted by Jourabchi et al. (2019) at maternal health-care clinics in Alvand and Qazvin cities that aimed to assess the relationship between preconception care and the risk of adverse birth outcomes. The study compared two groups: one receiving integrated maternal health care with preconception care and the other receiving standard maternal health care without preconception care. The study measured various birth outcomes such as low birth weight, preterm birth, maternal and neonatal complications, and mode of delivery. The results showed that a total of 147 women in the integrated maternal health care (MHC) group and 218 women in the standard MHC group participated in the study. The results indicated that preconception care was linked to a decreased risk of preterm birth (odds ratio [OR] = 0.298; 95% confidence interval $p = 0.009$), low birth weight $p = 0.043$), maternal complications $p < 0.001$), and neonatal complications ($p = 0.003$).

Under supervision of Chinese Nationwide-free preconception care strategy to identify, the benefits of comprehensive preconception-to-pregnancy management for women with pre-gestational type 1 diabetes were emphasized in a systematic analysis of preconception care in China by (Xu et al., 2022). Pregnancy outcomes significantly improved in the research, which included a prospective cohort from several locations. Furthermore, the prevalence of birth abnormalities decreased from 5.6% to 2.5% in a recent Chinese birth cohort research, which may have been caused by the country's free preconception care service system offering prompt primary intervention.

2.5 Components of Preconception Care

Preconception care comprise a number of strategies classified according to the American Academy of Pediatrics (AAP) and the American College of Obstetricians and Gynecologists (ACOG into assessment, screening, immunizations, and education (Witt & Huntington, 2016 (Witt & Huntington, 2016)). The risk screening component comprises of eight areas which include reproductive awareness and environmental hazard, nutrition and genetics, substance use and medical history, communicational diseases, and psychosocial factors. It is absolutely essential for such risks and concerns related to reproductive goals and preferences for a woman to be discussed considering that age-related risks involve certain

potential complications and where contraception should be considered for women who postponed childbearing (Farahi & Zolotor, 2013). Interview for assessing medical history, family history, and medications is critical in the management of chronic diseases (Carroll et al., 2017). Still, family history screening assists in the identification of congenital anomaly or genetic disorder and might need a referral to genetic counseling when risk factors exist (Witt & Huntington, 2016). (Witt & Huntington, 2016). Medication review avoids continuation of use of drugs that are not needed or identification of safer substitutes prior to child bearing (Dathe & Schaefer, 2019).

Nutrition and weight counseling, substance abuse evaluation and screening, as well as assessment of infections and immunizations are critical integrative components. It is advisable to keep fit prior to the pregnancy and take proper diets, as well as folic acid supplements to prevent neural tube defects. Alcohol or illicit drugs must not be used, nor even small quantities of alcohol are supposed to be safe for pregnant or potentially pregnant women. It is essential to stop smoking before getting pregnant in order to minimize the risk levels that come with it (Frayne et al., 2016; Jourabchi et al., 2019).

The infectious disease screening with updating the necessary immunizations against influenza, hepatitis B, rubella, varicella, tetanus, diphtheria, pertussis, and human papillomavirus is important Verbiest, (2020). Environmental exposures are evaluated to construct a profile that will assist in determining in detail other concerns which impact the health status of mothers and the outcome of their pregnancy, including thorough physical assessment with emphasis on different domains of health Frayne et al., (2016) (Frayne et al., 2016). Preconception care is now viewed as a whole package that contains assessment, education, and preventive measures with a goal of enhancing the health of both the mother and the fetus before a pregnancy occurs (Witt & Huntington, 2016).

2.6 CDC Recommendations to Improve Preconception Health and Health Care

In order to promote preconception health understanding, attitudes, and practices, the CDC has developed what it terms as the “10 Commandments to Improve Preconception Health and Healthcare”. Aim is to provide all women of child bearing age in the US with risk assessment that is evidence based, risk reduction promotion and risk mitigation strategies for past adverse pregnancy outcome before conception so as to increase pregnancy success rates and decreasing pregnancy outcome variances. The initiative is aimed at addressing interconception health care which is defined as that provided between two occurrences of pregnancy as it can avert or ameliorate risks to mother and children to be born (CDC, 2010). Recommendation 1. Individual Responsibility Across the Lifespan. “Each woman, man, and couple should be encouraged to have a reproductive life plan”.

Recommendation 2. Consumer Awareness. The goal is to enhance the understanding of the development of behaviors and care services related with preconception health among the public, thus employing the suitable instruments and proper, understandable information with consideration of age, illiteracy rate or ethnic barriers.

Recommendation 3. Preventive Visits. In primary care practice, risk assessments and education and health promotion counselling should be performed for female patients of childbearing age. This approach focuses on approaches that would reduce of reproductive complications and/or improve the pregnancy consequences.

Recommendation 4. Risk management for titled risks. Increase the number of women who are offered preconception risk screening and specific effective intervention strategies with an equal focus on the effectiveness of interventions and on the potential for high yield.

Recommendation 5. Interconception Care. They should provided intense counseling to women with previous childbirth complications (infant death, miscarriage, congenital abnormality or newborn death, low birth weight or premature baby) during the period between pregnancies.

Recommendation 6. Prepregnancy Checkup Provide a single preconception visit for individuals and couples who are planning to become pregnant as a part of their maternity care.

Recommendation 7. Health Insurance Coverage for Women with Low Incomes. Enhance both public and private health insurance coverage for women with limited incomes to enhance their accessibility to preventive women's health services as well as preconception and interconception care.

Recommendation 8. Public Health Programs and Strategies. Incorporate elements of preconception health into established local public health and related programs, with a particular focus on interconception interventions for women who have experienced previous adverse outcomes.

Recommendation 9. Research.” Increase the evidence base and promote the use of the evidence to improve preconception health.”

Recommendation 10. Monitoring Improvements. Maximize public health surveillance and related research mechanisms to monitor preconception health.

2.7 Nature of PCC in Palestine context:

In 2020, the Palestinian Ministry of Health with contributions from Women Development Directorate, the Institute of Public Health, the World Health Organization, UNFPA, UNRWA, UNICEF, Health Work Committees, and the National Committee issued National Guidelines for health providers on preconception care under the slogan “Maximizing the gains for Maternal and Child Health.” The Minister of Health at the time, Dr. Mai Al-Kaila, explained this guideline: Preconception Care (PCC) is widely acknowledged as a top priority on the agenda for enhancing MCH and the results of reproductive health. It is an additional element that enhances the life cycle continuum of care in order to improve health and pregnancy outcomes and lower pregnancy-related morbidities and mortality, this program component will assist men and women in making the best plans for their pregnancies. The purpose of the Preconception Health Care Guidelines is to help primary care practitioners provide the standard PCC services, which are meant to supplement rather than replace the current content of preventive care services. All healthcare providers should have access to and follow these national guidelines at their respective facilities. (Ministry of Health, PMoH, 2020).

2.8 Knowledge regarding PCC among women

To assess the level of knowledge regarding PCC among mothers attending primary health care centers in Gaza strip (Al-Kasseh & Jarad, 2021) conducted a cross-sectional study which included 372 mothers aged between 16-49 years. The finding of this study revealed that the level of knowledge among mothers was moderate 60%, and 75% of respondents said they knew the most about the significance of consuming folic acid and maintaining a well-balanced diet.

Mustafa, (2023) conducted a descriptive, cross-sectional study, to evaluate level of knowledge between primigravida women who attend primary healthcare centers, particularly the ANC program. the study comprised 376 primigravida Palestinian women with a mean score of 5.6, the results showed that most women knew a decent deal about PCC (55.9%), and there was a substantial association between knowledge and practice ($r=0.507$, $p=0.000$).

To investigate the knowledge regarding PCC and detect association factors regarding PCC, Khalaf et al. (2017) conducted a cross-sectional study among 201 women who attended PMoH clinics in Nablus and Tulkarm using a questionnaire for gathering data. The results of this study indicated that while the majority of women (81.2%) are aware of the phrase "pre-conception" and only 66.8% of them actually get it. Additionally, a higher percentage of doctors (34.7%) than midwives (23.4%) are the source of this information about PCC.

Al-Akour et al. (2015) carried out a cross-sectional study among 763 married women and men in Jordan (537 women and 226 men) to assess the knowledge of preconception care among them. The finding of this study revealed that, the factors such as family history of chronic disorders, first-degree consanguineous marriages, and pregnancy planning were found to be associated with awareness of preconception care. Approximately 50% of the participants were aware of the significant impact that a woman's and man's family history can have on the health of their future babies. The majority of participants were also aware of the necessary changes that should be made prior to conception. Over 58% of surveyed individuals, encompassing both women and men, acknowledged the significant impact of a woman's health before conception on the baby's well-being. However, only 39.5% of women and 32.7% of men were aware of the potential consequences of a man's health on the baby. Regarding awareness of necessary changes before conception, a high percentage, with 92.7% of women and 88.5% of men.

In a previous Saudi study conducted by (Sabr et al., 2021) at King Saud University Medical City, the aim of this study was to evaluate the level of awareness among women about PCC. Researcher used cross-sectional design with survey for data collection, the finding of this study synthesized that, 1135 respondents, ranging in age from 18 to 45, filled out a questionnaire with four sections that assessed sociodemographic information, preconception care awareness, perceptions, and experiences. According to the findings, 51.9% of respondents had a solid comprehension of preconception care, 45.2% had good practices, and 98.5% had positive opinions. In summary, most women showed neutral attitudes and a modest level of awareness regarding preconception care. To improve women's knowledge, attitudes, and development of positive preconception habits, educational interventions that emphasize the promotion of a belief paradigm of well-being are advised.

A descriptive exploratory study conducted in Egypt by Aboushady et al., (2021) to assess the knowledge related to preconception care among women of childbearing age and propose an action plan. The sample of this study consisted of 300 participants recruited from outpatient clinics at a maternity hospital. Four tools were used to collect data, including a structured interviewing questionnaire, a preconception knowledge tool, a Likert belief scale, and a self-reported behavior tool. The results showed that, the majority of the participants in the study, accounting for 54%, had an average level of knowledge with regards to the topic. The overall average score for their knowledge was 46.6 ± 4.7 which indicate the level is moderate.

Ahmed and Piro (2017) conducted a cross-sectional study in Maternity Teaching Hospital, Iraq from November 26, 2015, to April 10, 2016, the objective of this study was to evaluate the knowledge of married women towards preconception care. The research involved 150 married women who had been pregnant at least once and had been admitted to Maternity Teaching Hospital. Data was collected through Interviews and questionnaires that included sections on sociodemographic and obstetric data, as well as the participants' knowledge, practice, and attitude regarding preconception care. The study's findings indicated that 76.7% of mothers had a moderate level of knowledge about preconception care, while 20% had poor knowledge and only 3.3% had good knowledge.

Muthiyan and Musale, (2022) carried out a cross-sectional study in Pune city (India) which aimed to assess the knowledge and attitude towards preconception health among 217 reproductive-age women (18-35 years). A self-administered questionnaire was designed and distributed through Google forms to collect data. The questionnaire consisted of three sections: demographic data, questions about preconception health knowledge, and questions about preconception health attitude. The study obtained ethical permission and gathered responses from females of reproductive age through social media. The results indicated that the participants had a mean knowledge score of 76.34% and an attitude score of 84.7%. Overall, the study revealed a positive attitude and good knowledge of preconception health among the women surveyed.

Gautam and Dhakal (2016) study aimed to evaluate Indian women's knowledge on preconception care, the study recruited 227 respondents examining the relationship between their knowledge and demographic variables, using a descriptive research design. The study showed that 43.61% of participants were aged 21-25, the findings showed that 84.58% of respondents, including 192 reproductive-age women, had average knowledge about preconception care, with the highest knowledge in reproductive health risk factors and the lowest in health promotion.

To evaluate the awareness level of preconception care among 200 women aged 18-44 years in Ernakulam District, India Viswanath, (2019) carried out a quantitative research approach with a descriptive survey design. The findings of this study showed that, the women's level of awareness regarding preconception care was assessed using a semi-structured questionnaire, and the data were analyzed using descriptive and inferential statistics. The study found that only 15% of participants had good awareness, 74% had average awareness, and 11% had poor awareness of preconception care. The areas where participants had the least awareness included smoking cessation, Rubella immunization, and birth spacing. The study highlights the important role of nurses in educating women about preconception care and its significance.

In Mzuzu City, Malawi, (Munthali et al., 2021) conducted a study to find out what healthcare professionals and women of reproductive age knew and thought about preconception care. A descriptive cross-sectional study using a mixed techniques approach was conducted. Purposive and multistage sampling methods were used to choose the respondents. Twenty health workers were interviewed for the study, and 253 women of reproductive age filled out the questionnaire. According to the findings, 54% of those surveyed were aware of preconception care. Of these, 42.3% had inadequate knowledge, whereas 57.7% showed good knowledge. It's interesting to note that 72% of people with high knowledge were not aware that they may talk to a healthcare professional about their plans to become pregnant. Furthermore, 74.7% of women thought that preconception care was good. According to the study, favorable perception was well predicted by preconception care knowledge. However,

the academic degree reached had an impact on the predictability of knowledge. Compared to those who had just completed elementary school, those with secondary and postsecondary education were more likely to possess strong knowledge. Additionally, although acknowledging their role in delivering preconception care services, 95% of the health workers lacked comprehensive understanding regarding preconception care.

2.9 Attitude regarding PCC among women

To evaluate Jordanian women of reproductive age's preconception care practices, attitudes, and knowledge, (Alkhatib et al., 2024) carried out a cross-sectional research comprising 1,368 women between the ages of 18 and 44. Of all the responses, 47.0% had good practice, 48.6% had good knowledge, and 48.1% had a positive mindset. The age group of 35 to 44 years old had a higher percentage of participants with inadequate knowledge (37.3%). Good practice (63.5%) and a more positive attitude (57.2%) were exhibited by those with good knowledge. The negative attitude was stronger among married participants (82.9%). University-educated participants exhibited positive attitudes (52.9%), good practices (44.5%), and knowledge (58.5%). Knowledge, attitude, and practice were all positively correlated. Participants in the youngest age group had better preconception care knowledge, whereas those in the 25–29 age range had a more positive attitude.

for studying an Australian women's preconception and pregnancy health knowledge, attitudes, and behaviors as well as their information preferences. (Musgrave et al.) (2023) conducted cross-sectional study via survey. From 2017 to 2018, the poll was disseminated via local, national, and social media networks. Findings There were 553 ladies that filled out the surveys. Most (80.4%) had a high level of education. Both before conception (65%) and during pregnancy (78%), checking immunization status and making sure one is mentally well were ranked as equally significant acts. Reducing sedentary behavior was not considered a crucial step to adopt either before or during pregnancy (36% and 38%, respectively). Women are well-informed about how weight affects their own health outcomes (such as gestational diabetes), but they are less aware of the negative effects on their unborn children, such as stillbirth and preterm birth.

Kasim et al., (2016) carried out a study for assessing attitudes related to preconception care among women attending antenatal care appointments. The research was conducted as a cross-sectional study from April to December 2012 at Klinik Kesihatan, Malaysia. A self-administered questionnaire was given to 135 respondents aged between 18 and 45 years. The findings revealed that the mean scores attitudes, and practices were 15.39 (SD 2.12). Overall, 98.5% of the respondents demonstrated good attitudes, in conclusion, women in Bachok displayed a positive attitude towards preconception care.

(Umar et al., 2019) conducted a cross-sectional study at Usman Danfodio University Teaching Hospital (UDUTH) Sokoto, Nigeria, from February 5 to March 1, 2018, the objective of the study was to evaluate the level of perception of preconception care among women. A total of 131 women were recruited through simple random sampling from the ante-natal care clinic, and they completed semi-structured interviewer questionnaires. The participants' ages ranged from 16 to 46 years, with 32.8% (43/131) falling within the 26-30 age group, and the mean age was 28.10 ± 6.064 . Only 20.61% of the women were aware of preconception care. There was a significant association between awareness and the women's tribe, as well as their employment status, with P-values of 0.004 and 0.017, respectively.

Among those who were unaware, 88.46% would accept preconception care if offered, while about 45.75% of those who declined believed it was unnecessary.

(Ukoha & Mtshali, 2021) conducted a descriptive study to investigate the perceptions care among healthcare workers and high-risk women in Kwa-Zulu-Natal, South Africa. A qualitative approach was employed, utilizing individual in-depth interviews with 24 high-risk women and five healthcare workers. Thematic analysis using Nvivo version 12 was conducted, leading to the identification of five main themes: participants' perspectives, patient access to information, practices, and perceived benefits of preconception care. While healthcare workers demonstrated a good understanding of preconception care. However, both groups recognized the potential role of preconception care in reducing maternal and child mortality. The study recommends that healthcare workers utilize the "One key" reproductive life plan question as an entry point to provide preconception care.

At Southwest Ethiopia to determine the utilization of preconception care and its associated factors among reproductive age women (Setegn Alie et al., 2022) carried out a research among 624 women participated in the community-based cross-sectional study, which was conducted from April 16 to May 26, 2020. Data were collected through pre-tested interviewer-administered questionnaires. The study found that only 28.6% of the women received at least one item of preconception care, with only 1.5% receiving the complete set of recommended services. Micronutrient supplementation was the most common service received. Factors such as age, education status, husband's education and occupation, wealth status, distance from health facility, waiting time to receive services, pregnancy planning, age at first pregnancy, previous use of antenatal and postnatal care, adverse pregnancy experience, women's knowledge of and attitude towards preconception care were all associated with preconception service utilization.

2.10 Practice regarding PCC among women

(Martínez et al., 2024) conducted a cross-sectional study to assess the knowledge and practices related to preconception care (PCC) and how these relate to sociodemographic and obstetric factors among women of childbearing age in southeastern Mexico. The study involved 138 participants who attended healthcare centers and were selected through consecutive sampling. Data were gathered using a structured questionnaire, and the analysis included frequencies, percentages, and inferential statistical tests. Results indicated that the average PCC knowledge score was 13.3 ± 3.24 , and the average practice score was 8.13 ± 3.44 , both of which were considered low. Significant associations were found between PCC knowledge and variables such as educational level ($r_s = .460$, $p < .05$) and monthly income ($r_s = .334$, $p < .05$). Additionally, a positive correlation emerged between PCC knowledge and practice ($r_s = .267$, $p < .05$).

A study was conducted by (Mustafa, 2023) to assess the knowledge and practices of preconception care (PCC) among primigravida women in the Gaza Strip. The research, utilizing a descriptive, cross-sectional design, included 376 primigravida women who visited the ANC service in primary healthcare centers. Results indicated that the majority of women had good knowledge (55.9%) about PCC, with a mean score of 5.6, and a significant correlation was found between knowledge and practice ($r=0.507$, $p=0.000$). The study identified factors influencing knowledge and practice, including the presence of a PCC unit, accessibility to a health care center, and education level. Multivariate regression analysis

revealed that higher education and good practice were predictors of increased knowledge, while factors such as place of residence, knowledge level, and ease of access to healthcare centers predicted women's practice. The study concluded that primigravida women in Gaza have good knowledge and high practice regarding PCC, suggesting the need for increased awareness through educational sessions and informative materials in healthcare settings.

(Habte et al., 2021) conducted a study to evaluate the practice of preconception care (PCC) and its determinants among recently postpartum mothers in Wolkite town, southern Ethiopia, in 2020. Using a community-based cross-sectional approach, 600 mothers who had given birth in the last 12 months were randomly selected through a two-stage sampling technique. Data was collected using a pre-tested, semi-structured questionnaire, and household wealth status was determined using principal component analysis (PCA). The PCC practice score, ranging from 0 to 10, had a mean of 3.94 ($\pm$ 1.98) that's indicate low level. Only 6.4% of mothers received all selected PCC services, with the most common service being Folic acid supplementation (67.2%) and the least common being optimizing psychological health (16.1%). Significant predictors of PCC practice included the mother's education status, time spent accessing nearby health facilities, availability of PCC units, mother's knowledge on PCC, being a model household, and women's autonomy in decision-making. The study underscores the need for targeted interventions to improve the practice of PCC, particularly focusing on identified determinants.

A Nepalian study carried out by (Nepali & Sapkota, 2017) to evaluate the practice of preconception care among antenatal mothers. A descriptive cross-sectional study was conducted among antenatal mothers at Bharatpur Hospital. A sample of 100 antenatal mothers was selected using purposive sampling, and data was collected through semi-structured interviews. The results showed that half of the respondents were in the age group of 21-25 years, with a mean age of 23.5. All respondents were married, and most of them were multiparous. Regarding the level of practice, approximately half of the respondents had poor practice, while others had either good or fair practice. No significant associations were found between socio-demographic characteristics and the level of practice. However, there was a significant correlation between the level of knowledge and practice. The study highlights the relatively poor knowledge and practice of antenatal mothers regarding preconception care, emphasizing the need for awareness programs to enhance their knowledge and promote better practices.

Shibata et al., (2023) conducted a study to evaluate the knowledge and practice of preconception care (PCC) among women in a rural town in central Japan, mixed methods design, the research involved interviews exploring perceptions and practices of PCC in women of childbearing age, followed by a survey developed based on qualitative findings. The survey, which included 13 interviewees and 232 participants. The study finding found that, practices of preconception care among 145 parous women revealed variations in behavior, with screening for sexually transmitted infections being the least practiced (46%), followed by folic acid intake (60%), dental checkups (61%), and cervical cancer screening (68%). Notably, folic acid intake was rarely performed before pregnancy (3%), while cervical cancer and dental screenings were carried out to some extent (41%, 33%). The majority of respondents reported ceasing smoking and alcohol consumption after pregnancy awareness, with smoking cessation often practiced since the pre-pregnancy period (75%). Practices related to nutrition and weight management were adopted after pregnancy in about 75% of cases. Information sources for preconception care included the Internet (70%),

family and friends (60%), books and magazines (57%), and obstetricians and gynecologists (54%), while primary care physicians were less frequently consulted (10%).

(Abayneh et al., 2022) carried out a cross sectional study from August 1 to September 8, 2021 to assess the practice toward PCC among 359 healthcare provider in Ethiopia by using questionnaire. The finding of this study revealed that 124 (34.5%) of the obstetric care providers had good practice of preconception care.

(Kasim et al., 2016) conducted a cross sectional study among 178 women to evaluate the practice toward PCC in Bueanue region in India. The data collection instrument employed in this study was a well-organized questionnaire comprising a combination of closed and open-ended questions, designed to align with the research objectives. The findings of the study indicated that a significant proportion of the participants, specifically 27.5% (47 individuals), reported engaging in preconception care (PCC) practices prior to conception. Conversely, the majority, accounting for 72.5% (124 individuals), did not incorporate PCC into their preconception routine.

2.11 Literature Gap:

While the existing studies provide valuable insights into PCC knowledge, attitude, and practice globally, there is a notable gap in the literature concerning the West Bank, Palestine. There is a previous study conducted in Nablus and Tulkarm cities among women who attending ANC clinics that affiliated to PMoH to assess knowledge and behavior (Khalaf et al. 2017) . In Gaza strip there were two studies about PCC. Al-Kasseh and Jarad (2021) study aimed to assess the level of knowledge regarding PCC among mothers, and Mustafa (2023) study aimed to assess the knowledge and practices of preconception care (PCC) among primigravida women in the Gaza Strip.

Our study reached three dimensions knowledge, attitude, and practice among women who attending to primary healthcare in the North of Westbank because:

- **Lack of Comprehensive Studies in the West Bank:** Nevertheless, most of the above studies are lacking in assessing the level of knowledge, attitude and practice regarding PCC among reproductive age women in the West Bank.
- **Limited Geographical Scope:** From the studies carried out in the Gaza Strip it is realized that they do not capture the socio cultural and healthcare system characteristics found in the West Bank. This geographical limitation underlines that further research in this field should better be focused.
- **Focus on Specific Populations:** Prior research mostly focuses on pregnant women who attend ANC clinics or certain or specific groups, which may not capture demographic rep of reproductive age women seeking care in other settings and with other levels of awareness and access.

Chapter Three

Methodology

3.1 Introduction

This study aims to assess the knowledge and attitudes regarding preconception care among women of reproductive age (18-45 years) attending primary healthcare clinics in Northern West Bank. The findings of this study will provide insights into the current level of knowledge and attitudes towards preconception care, which can inform the development of targeted interventions to improve reproductive health outcomes in this population.

3.2 Study Design:

In this current study, a cross-sectional study was employed to achieve the study aims at a specific point in time . This design allows for the assessment of knowledge and attitudes regarding preconception care among women attending primary healthcare clinics in the North of the Westbank.

Quantitative research is a formal and systematic scientific process for gathering information or investigating phenomena and relationships, so it involves collecting numerical data where there is often considerable control and analysis of data by using statistical procedures (Hoare, 2013). Using quantitative cross-sectional study design is common in healthcare because cross-sectional studies are generally quick, easy, and cheap to perform. They are often based on a questionnaire survey, and there will be no loss to follow-up because the population sample participates at only one point in time (Sedgwick, 2014).

3.3 Setting:

The study was conducted in primary health care clinics located in the northern West Bank and affiliated with the Palestinian Ministry of Health in Nablus, Tulkarm, Tubas, Jenin, Salfeet, and Qalqilya.

3.4 Period:

Data were collected over a period of four months, starting from [June 2024 - September 2024].

3.5 Target Population:

The target population for this study is women of reproductive age (18-45 years) who are attending primary healthcare clinics in the mentioned cities in the North of Westbank.

3.6 Inclusion Criteria:

- Women aged between 18-45 years.
- Currently attending a primary healthcare clinic in the North of Palestine.
- Willing to participate in the study and provide informed consent.

3.7 Exclusion Criteria:

- Women aged less 18 years or more than 45 years.
- Women who have cognitive impairment that may hinder their understanding of preconception care information and participation in the study .
- Women who did not complete the questionnaire.

3.8 Sampling Method and Size:

Convenience sampling technique was used to select participants for this study. Participants were selected from primary health care clinics in northern Palestine based on their availability and willingness to participate.

Convenience sampling is a non-probability sampling technique where participants are selected based on their availability, accessibility, and willingness to participate. This method is often chosen due to its practicality and efficiency, particularly in studies with limited time or resources (Etikan et al., 2016).

In this study, convenience sampling was used to recruit participants from primary healthcare clinics in Northern of West Bank, as they were easily accessible and willing to participate. The key advantages of sampling include its cost-effectiveness, ease of implementation, and suitability for exploratory studies . However, this technique has notable limitations, such as lack of generalizability and potential sampling bias, as the participants may not represent the broader population. These limitations should be appreciated to ensure transparency and accuracy in interpreting study findings (Etikan, 2016).

The sample size for this study was 400 respondents who filled a questionnaire. We determined the required sample size using Raosoft software (providing a confidence level of 95% and a margin of error of 5% as the confidence level, with a 50%), the calculated sample size was 385, which is the minimum number required to examine the variables and to test the study hypotheses.

3.9 Data Collection:

Data were collected from the participants after obtaining approval from the Palestinian Ministry of Health. Data were collected from women with the help of nurses working in primary care centres. During working hours, women who met the inclusion criteria were

interviewed in each of the targeted centers (primary health care centers in the north of the West Bank) after the aim of the study and the mechanism for filling out the paper questionnaire were explained.

3.10 Study instruments:

To assess and identify KAP among women regarding PCC, researcher established a questionnaire based on previous studies that used a questionnaire for data collection from respondents (Abayneh, 2022; Alkhatib, 2024; Kasim, 2016). After reviewing previous studies that addressed KAP about PCC, all questions that were used to assess the level of knowledge, attitudes, and practice among respondents were collected, and questions repeated in previous studies, covering all aspects of PCC, were selected. Some questions were modified and some were used without modification.

The questionnaire consisted of 5 sections:

Section one: sociodemographic characteristics as age, marital status, educational level, monthly family income.

Section two: this section deal with gynecological characteristics for women who participated in our current study, as experiences of previous pregnancy (yes or no, if yes Number of previous pregnancies) , experience of abortion, history of stillbirth, number of children.

Section three: knowledge: contains 17 questions 2 questions about the source of information toward PCC and 15 question to assess women knowledge. (To measure knowledge, 15 questions were used, 5 multiple-answer questions and 10 yes or no questions)

Section four: attitude regarding PCC 13 question 5 points Likert scale (strongly agree =1 - strongly disagree = 5).

Section five: practice regarding PCC 14 question 5 points Likert scale (strongly agree- strongly disagree).

3.11 Validity and Reliability

The original questionnaire was in English, but to accommodate Arabic-speaking participants, it was translated into Arabic by a bilingual expert, ensuring that cultural nuances were preserved. Following this, a back-translation was conducted by another bilingual expert to identify any discrepancies in meaning. To validate the translation, a pilot test was carried out with a small group of Arabic speakers, whose feedback led to further refinements. This thorough translation process ensured that the questionnaire was clear, culturally appropriate, and accurately reflected the constructs being measured, enhancing the study's reliability and validity. Content and face validity were used to assure validity of questionnaire: The questionnaire were evaluated by 5 experts in research and MCH to validate the questions and their comments were taken into consideration to do some modifications on medical terminology and statements consequences.

3.12 Pilot study:

Before starting the actual study, researchers can test their questionnaire design and data collection methods by conducting a pilot study, which is a crucial step in the research process. Any problems with the questionnaire, such as unclear instructions, missing response options, or questions that are misleading or confusing, can be found with the aid of the pilot study. Additionally, it offers a chance to evaluate the questionnaire's length and completion time, which may have an impact on the data quality and response rate (Van Teijlingen, 2001). Prior to beginning data collection, a pilot study was carried out with 40 women from the researcher's community. To evaluate internal consistency and dependability, Cronbach's

alpha was computed (Noble & Smith, 2015). With a total $\alpha = .803$ (α was .657 for knowledge, .850 for attitude, and .900 for practice), the results demonstrated good reliability.

3.13 Ethical Consideration:

The study was conducted in accordance with the principles of the Declaration of Helsinki. Ethical approval was obtained from the Scientific Ethical Committee at the Faculty of Health Professions at Al-Quds University (Annex4), and from the PMoH. Informed consent was attached to the questionnaire. Participants were asked to read a questionnaire and agree to participate in the study by signing in the designated place (Annex 2) before starting to fill out the questionnaire and participate in the study. Confidentiality and anonymity were maintained throughout the study. Participants were informed about their right to withdraw from the study at any time without any consequences.

3.14 Data Analysis

The collected data were analyzed by the Statistical Package for Social Sciences (SPSS, Version 28). Data entry was performed by the researcher and double-checked for outliers or errors. A data analysis of descriptive and inferential statistics was conducted. Regarding descriptive statistics, frequency, percentages, mean scores, and Standard Deviation (SD) tests were used to describe the study variables. Regarding inferential statistics, parametric tests included the independent t-test, and an ANOVA and Spearman r was used to assess the relationship and difference between socio-demographic and gynecological characteristics in terms of PCC KAP scores. A p-value of <0.05 was considered statistically significant.

Chapter Four

Results

4.1 Introduction

This chapter provides the descriptive and analytical results of the current study, where descriptive results include the description of the participants' responses to questions related to demographic and professional data, as well as questions related to their knowledge, attitude and practice towards PCC, while the analytical results are dedicated to analyzing the relationship between participant's demographic variables and the scores of knowledge, attitude and practice.

4.2 Sociodemographic characteristics

4.2.1 Age of respondents:

Among the 400 surveyed women, the age distribution revealed that 25.5% were between 23 and 27 years, making this the largest group. This was followed by 23% who were aged 18 to 22 years. Women aged 28 to 32 years comprised 19.5% of the sample, while those between 33 and 36 years accounted for 15.5%. The oldest group, aged 37 years and above, represented 16.5% of the participants.

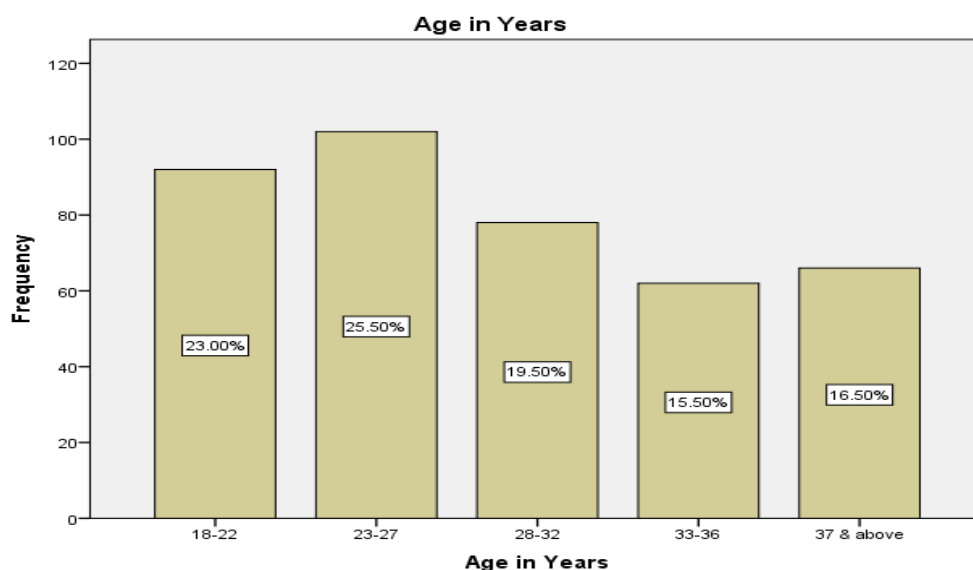


Fig 1. Age of respondents

4.2.2 Marital Status:

Regarding marital status, most of the participants were married, and the percentage reached 82.3%, 12.5% were single, and 5.2% were divorced or widowed (table 4.1).

4.2.3 Relationship with the husband (Kinship):

Regarding the relationship with the husband (Kinship), among the 329 married women, 255 have no relationship with the husband, while only 74 women were related to their husband (table 4.1).

4.2.4 Educational Level:

The majority of the respondents (59%) had university education, 30.8% had secondary education, while the women who had primary education or were illiterate had the least frequencies (7.2%, and 3% respectively) (table 4.1).

4.2.5 Family Monthly Income:

According to the family income per month in NIS the majority of respondents had a moderate income 2000-3000 per month which represent 34.3%, followed by less than 2000 NIS per month 24.8% low income, 3001-4000 NIS was 18%, 4001-5000 was 13.8%, and more than 5000 NIS was 9.2% (table 4.1).

4.2.6 Occupation:

Regarding the occupation of respondents, the majority of them were housewives (63%), followed by employees (29.5%), students represented 2.3%, and others were 2.3% (table 4.1).

Table 4.1

Distribution of Demographic characteristics

Variable	Frequency	Percent
Marital Status		
Single	50	12.5
Married	329	82.3
Widow	9	2.3
Divorced	12	3
Relationship with husband		
Yes	74	22.5
No	255	77.5
Education Level		
Illiterate	12	3.0
Primary	29	7.2
Secondary	123	30.8
University	236	59
Family Monthly Income		
Less than 2000	99	24.8
2000-3000	137	34.3
3001-4000	72	18.0
4001-5000	55	13.8
More than 5000	37	9.2
Occupation		
Employee	118	29.5
Housewife	252	63.0
Student	21	5.3
Other	9	2.3

4.3 Gynecological Characteristics

Among the 350 women who were married or previously married women (married, divorced, and widowed) 310 had experienced a previous pregnancy. 157 of women had 1-2 pregnancies, 153 had 3 or more pregnancies. Regarding previous abortion 109 had a previous experience with miscarriage, and 28 of them had a history of stillbirth.

4.3.1 Do you have a chronic disease?

The following table illustrates that majority of respondents have no chronic disease (n=355) 88.75%, only 11.25% (n=45) have a chronic disease (15) have diabetes mellites, (9) hypertension, and 21 have other chronic diseases (table 4.2).

Table 4.2
Distribution of Women's Reproductive History

	N	%
Previous Pregnancy	310	77.5
1-2 pregnancies	157	50.6
3 or more	153	49.4
Previous abortions	109	35.2
Previous stillbirth	28	9
Chronic disease	45	11.3
Yes	45	11.2
No	355	88.8

4.4 Knowledge regarding PCC among respondents:

Most of the participants (77.25%) responded that they had knowledge about PCC. (see table 4.3).

Table 4.3

Knowledge About Preconception Care (N = 400)

Response	N	%
Do you have information about PCC		
Yes	309	77.25
No	91	22.75

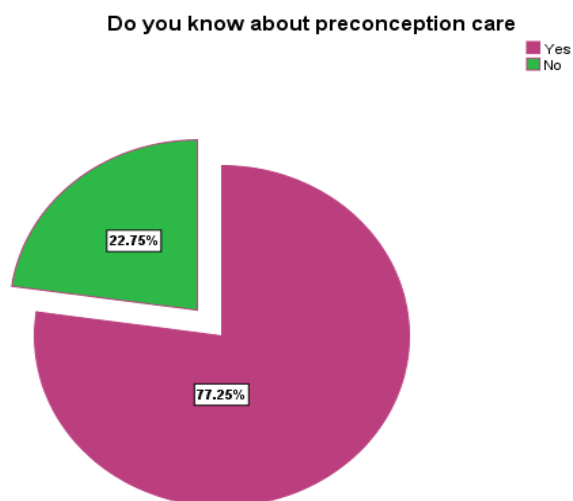


Fig 2: Previous information about PCC

4.4.1 Source of information about PCC among respondents

Among the 309 respondents who were aware of preconception care, the gynecologist was the primary source of information (40.45%), followed by the Internet (17.75%) and friends and family (16.85%). Social media was cited by 13.9%, while midwives contributed 5.2% and school was the source for a small proportion (0.65%). This highlights the significant role of healthcare providers and online platforms in educating individuals about preconception care. (see table 4.4).

Table 4.4

Distribution of Sources of Information about PCC

Source	N	%
Social media	43	13.9
Internet	55	17.75
Gynecologist	125	40.45
Midwife	16	5.2
Friends & family	52	16.85
School	2	0.65
Books	16	5.2
Total	309	100

4.4.2 Level of knowledge regarding PCC:

The analysis of data revealed that 25.75% of respondents had poor knowledge, majority of respondents (61.75%) had moderate knowledge about PCC and only 12.5% had good knowledge regarding PCC.

The level of knowledge was assessed by asking 15 questions about PCC. The following table shows the questions with percentages of correct and incorrect answers. The question whose answers were most correct is the seventh question (It is essential for pregnant women to take supplements of iron) and the answers were correct 91.3%, but the question that had the least correct answers was the last question (Decreasing the distance between pregnancies may lead to congenital anomalies), where the percentage of correct answers was 22.3%. The mean of correct answers reached 61.13%, (see table 4.5).

Table 4.5
Distribution of Women's Responses About PCC Knowledge

Question	Correct		Incorrect	
	%	(n)	%	(n)
1. In your opinion, preconception care is needed for:	64.3	(257)	35.7	(143)
2. In your opinion, preconception care is important for:	88.3	(353)	11.7	(47)
3. What factors make a pregnancy more likely to be high-risk?	39	(157)	61	(243)
4. What is the recommended time between pregnancies (spacing) for better health outcomes?	75.8	(303)	24.2	(97)
5. What are the potential risks associated with having poor birth spacing?	26%	(104)	74	(296)
6. It is essential for the mother to eat balanced meals (meals that contain a variety of nutrients) before pregnancy.	89	(356)	11	(44)
7. It is essential for pregnant women to take supplements of iron.	91.3	(365)	8.7	(35)
8. It is essential for pregnant women to take folic acid supplements.	89.5	(358)	10.5	(42)
9. Consumption of folic acid before pregnancy decreases the risk of fetal anomalies.	79.3	(317)	20.7	(83)
10. Pregnancy is risky if the mother is obese	58.3	(233)	41.7	(167)
11. Pregnancy is risky if the mother's weight is low.	42.5	(170)	57.5	(230)
12. Pregnancy is risky if the mother's age is less than 18 years	64	(256)	36	(144)
13. Having pregnancies spaced closely together, around 2-3 years apart, may lead to an increased risk of postpartum hemorrhage.	24.5	(98)	75.5	(302)
14. Pregnancy is risky in case of twin pregnancy.	47.5	(190)	52.5	(210)
15. Decreasing the distance between pregnancies may lead to congenital anomalies.	22.3	(89)	77.7	(311)
Level of knowledge	n	%		
Good	12.5	50		
Moderate	61.75	247		
Poor	25.75	103		

Hypothesis: Women of reproductive age in the North West Bank of Palestine possess a good level of knowledge regarding preconception health.

To evaluate this hypothesis, means and standard deviations were calculated for each survey item and for the overall knowledge score. Knowledge levels were categorized into low, moderate, and high based on the proportion of correct answers relative to the total number of questions (15). The classification was derived using the formula:

Knowledge level = Number of correct answers \ Total number of questions

For the assessment, a set of 15 questions was utilized. Each correct answer was scored as 1, and each incorrect answer was scored as 0, resulting in a total possible score ranging from 0 to 15. Knowledge levels were defined as follows:

- **Good:** Mean score > 0.76
- **Moderate:** Mean score between 0.56 and 0.75
- **Poor:** Mean score < 0.55

In this study, a mean score of 0.602 indicates a moderate level of knowledge. Thus, participants scoring between 0.56 and 0.75 were classified as having a moderate level of knowledge. (see table 4.6).

Table 4.6
Distribution Items of knowledge

Ran k		Items	Mean	Std.	Level
1		In your opinion, preconception care is needed for	.643	.479	
2		In your opinion, preconception care is important for:	.882	.322	
3		What factors make a pregnancy more likely to be high-risk?	.392	.488	
4		What is the recommended time between pregnancies (spacing) for better health outcomes?	.757	.429	
5		What are the potential risks associated with having poor birth spacing?	.260	.439	
6		Decrease the distance between pregnancies leads to congenital anomalies	.222	.416	
7		Decrease the distance 2-3 years between pregnancies leads to postpartum hemorrhage	.245	.494	
8		Pregnancy is risky if the mother's weight is low.	.425	.494	
9		Pregnancy is risky in case of twin pregnancy	.475	.500	
10		Pregnancy is risky if the mother was obese.	.585	.493	
11		Pregnancy is risky if the mother's age is less than 18 years.	.640	.480	
12		Consumption of folic acid before pregnancy decreases the risk of fetal anomalies	.792	.406	
13		It is essential for the mother to eat balanced meals before pregnancy.	.907	.435	
14		It is essential for pregnant women to take folic acid	.895	.306	
15		It is essential for pregnant women to take supplements of iron.	.912	.282	
Knowledge Mean			.602	.165	moderate level

4.5 Attitude toward PCC

The analysis of respondents' attitudes toward PCC was measured using a 5-point Likert scale, reveals a consistently high level of positive attitudes. The overall mean attitude score is 1.5940 (SD = 0.5046), which falls within the range of high positive attitude (≤ 2.33). The finding of data analysis about attitudes statements showed that the majority of women 83.79% had positive attitudes regarding PCC (respondents agree with statements reflecting the value of PCC, such as its physical and psychological benefits, its role in reducing potential complications during pregnancy, and the necessity of pre-pregnancy medical assessments.), only 4.63% of respondents had negative attitudes indicates that a small minority of women disagreed with the statements suggesting that Preconception Care (PCC) has benefits. (This means that these respondents do not believe in the advantages of engaging in PCC practices), and 11.67% of them had a neutral attitude (The finding that 11.67% of respondents had a moderate or neutral attitude indicates that this portion of women neither strongly agrees nor disagrees with the statements regarding the benefits of PCC. All individual items assessing beliefs about PCC, such as its physical and psychological benefits, its role in reducing complications, and the necessity of pre-pregnancy medical investigations. For instance, the belief that "consultation with the preconception clinic is helpful to prepare myself for pregnancy physically" has a mean of 1.3625 (SD = 0.7193), while "the necessity to quit smoking before planning a pregnancy" scored 1.6400 (SD = 0.7628). These findings indicate that respondents strongly recognize the importance of PCC and its positive impacts on pregnancy preparation and outcomes, reflecting a proactive and favorable attitude across all assessed dimensions.

In the questionnaire, the answers were as follows: strongly agree = 1, agree = 2, neutral = 3, disagree = 4, strongly disagree = 5. Therefore, a small average indicates positivity.

Statistically to calculate the level for Likert scale big number of responds – small number/ number of levels (3) positive, neutral, and negative
 $5-4 / 3 = 1.33$ (interval)

Level classified as : positive or good $1+1.33=2.33$ (1-2.33)

Neutral $2.33 + 1.33=3.66$ (2.34-3.67).

Negative or poor $3.67+1.33= 5$ (3.68-5), (see table 4.7).

Table 4.7.A
Distribution of Attitudes Statements

Statement	N	Mean	Std. Deviation
1. I believe that consultation with the preconception clinic is helpful to prepare myself for pregnancy physically?	400	1.3625	.71930
2. I believe that consultation with the preconception clinic is helpful to prepare myself for pregnancy psychologically?	400	1.5125	.83161
3. I believe that preconception healthcare has positive effects on pregnancy?	400	1.4100	.73023
4. I believe that preconception healthcare has positive effects on delivery	400	1.4750	.76212
5. I believe that consultation with the preconception clinic decreases the chance of complications during pregnancy	400	1.5325	.82804
6. I believe that it is necessary to do medical investigations, such as checking blood pressure before pregnancy?	400	1.6400	.93143
7. I believe that it is necessary to do medical investigations, such as checking glucose level before pregnancy.	400	1.7425	.99683
8. I believe that it is necessary to check blood group before pregnancy.	400	1.5375	.82480
9. I believe that it is necessary to check hemoglobin level before pregnancy.	400	1.6275	.86638
10. I believe that it is necessary to visit a dentist to examine teeth before planning a pregnancy.	400	1.9500	1.14051
11. I believe it is necessary to focus on nutrition before planning a pregnancy?	400	1.5775	.87229
12. I believe it is necessary to maintain a suitable weight before planning a pregnancy?	400	1.7150	.94393
13. I believe it is necessary to quit smoking before planning a pregnancy.	400	1.6400	.76279
Valid N (listwise)	400		
Total		1.5940	50455

Table 4.7.B
Distribution of Attitudes Statements

	N	Minimum	Maximum	Sum	Mean	Std. Deviation
Attitude mean	400	1.00	5.00	637.62	1.5940	.50455
Valid N (listwise)	400					

Hypothesis: Women of reproductive age in the North of the West Bank of Palestine hold positive attitudes towards preconception health.

To address the hypothesis that women of reproductive age in the North of the West Bank of Palestine hold positive attitudes towards preconception health, means and standard deviations were calculated for each item as well as the overall attitude score. Attitude levels were categorized on a scale from 1 to 5, divided into low, moderate, and high categories using the formula (upper limit - lower limit) / number of levels, specifically $(5 - 1) / 3 = 1.33$. Consequently, scores of 2.33 or less represent a low level of positive attitude, scores between 2.34 and 3.66 indicate a moderate level, and scores from 3.67 to 5.00 signify a high level of positive attitude.

4.6 Practice toward PCC

The descriptive statistics for practice regarding preconception care (PCC) among the respondents indicate that the mean practice score is 1.83 (SD = 0.673), based on 400 valid responses. Scores ranged from a minimum of 1 (indicating the best practice) to a maximum of 5 (indicating the poorest practice). Using the categorization thresholds for practice (good practice: ≤ 2.33 , moderate practice: 2.34–3.66, negative practice: ≥ 3.67), the mean score of 1.83 falls within the "good practice" range. This finding found that the majority of respondents 74.5% had a positive practice regarding PCC, 17.95% of respondents there responses were neutral but only 7,55% of them had a negative practice, (see table 4.8).

Table 4.8. A
Distribution of Practice Statements

Statement	N	Sum	Mean	Std. Deviation
1. I am not exposed to active smoking.	400	691.00	1.7275	.95421
2. I am not exposed to passive smoking.	400	713.00	1.7825	.97085
3. I take balanced meals regularly before getting pregnant.	400	705.00	1.7625	.94516
4. I take folic acid tablets regularly before getting pregnant	400	669.00	1.6725	.92865
5. I visited the preconception clinic before getting pregnant.	400	740.00	1.8500	1.06317
6. I engage in exercise/sport activities before getting pregnant.	400	781.00	1.9525	1.08082
7. I checked my blood group before getting pregnant.	400	668.00	1.6700	.94781
8. I checked my hemoglobin level before getting pregnant.	400	721.00	1.8025	1.00799
9. I check my blood pressure before getting pregnant.	400	738.00	1.8450	1.01417
10. I check my blood glucose level before getting pregnant.	400	755.00	1.8875	1.14153
11. I made heart investigations before getting pregnant.	400	792.00	1.9800	1.08745
12. I maintain a healthy weight before getting pregnant.	400	702.00	1.7550	.98611
13. I discuss any family history of genetic disorders with my healthcare provider before getting pregnant.	400	805.00	2.0125	1.06073
14. I ensure my vaccinations are up to date before getting pregnant.	400	768.00	1.9200	1.06369

Table 4.8.B
Distribution of Practice Statements

Descriptive Statistics						
	N	Minimum	Maximum	Sum	Mean	Std. Deviation
Practice mean	400	1.00	5	732.00	1.8300	.67256
Valid N (listwise)	400					

Hypothesis: Women of reproductive age in the North of the West Bank of Palestine engage in good practices related to preconception health.

To address the hypothesis that women of reproductive age in the North of the West Bank of Palestine engage in good practices related to preconception health, means and standard deviations were calculated for each practice item and the overall practice score. Practice levels were categorized on a 1 to 5 scale using the formula (upper limit - lower limit) / number of levels, specifically $(5 - 1) / 3 = 1.33$.

4.7 Correlation between variables

4.7.1 Hypothesis:

There is a positive correlation between the level of knowledge, attitudes and practices regarding preconception care among women in the North of the West Bank of Palestine.

To address the hypothesis that there is a positive correlation between the levels of knowledge and attitudes and practices regarding preconception care among women in the North of the West Bank of Palestine, Pearson correlation coefficients were calculated. This analysis aims to assess whether higher levels of knowledge and more positive attitudes are associated with better practices related to preconception care

Correlations Results:

The correlation analysis shows the relationships between knowledge, practice, and attitude regarding preconception care (PCC) among respondents, with all correlations being statistically significant at the level $p < 0.01$.

1. **Knowledge and Attitude:** There is a weak significant correlation between knowledge and attitude ($r_s = 0.198$, $p = .00$), which indicates that higher levels of knowledge are associated with slightly more positive attitudes.
2. **Knowledge and Practice:** There is a significant relationship between knowledge and practice ($r_s = 0.259$, $p = .00$). This suggests that as knowledge increases, practices slightly improve, indicating better practices are associated with greater knowledge.
3. **Attitudes and Practice:** There is a moderate positive relationship between practice and attitude ($r_s = 0.557$, $p = .00$). This means that better practices are moderately associated with more favorable attitudes. Respondents who demonstrate good practices tend to have more favorable attitudes toward PCC (see table 4.9).

Table 4.9

Spearman's rho (r_s) Correlation Between Knowledge, Attitude and Practice

	Knowledge (r_s)	Attitudes (r_s)	Practices (r_s)
Knowledge	1	0.198**	.259**
Attitudes	0.198**	1	.557**
Practices	.259**	.557**	1

Note: **. Correlation is significant at the 0.01 level (2-tailed).

Overall, the findings suggest interrelationships between knowledge, attitudes and practices, where higher knowledge is associated with higher levels of favorable attitudes, while better practices are moderately associated with more positive attitudes.

4.7.2 Correlations result between knowledge and demographic characteristics

The Spearman's rho correlation analysis explored the relationship between knowledge mean and various demographic factors across a sample of 400 individuals. Most variables demonstrated weak and statistically insignificant relationships with knowledge mean. For instance, age ($r_s = 0.043$, $p = 0.386$), marital status ($r_s = 0.020$, $p = 0.684$), relationship with husband ($r_s = -0.094$, $p = 0.060$), place of residency ($r = -0.066$, $p = 0.186$), occupation of women ($r = -0.072$, $p = 0.153$), husband's education ($r = 0.019$, $p = 0.706$), and family monthly income ($r = 0.060$, $p = 0.228$) all showed weak correlations that were not statistically significant. The only significant finding was the relationship between women's education level and knowledge mean ($r = 0.146$, $p = 0.003$), indicating a moderate positive association. This suggests that higher education levels among women are associated with increased knowledge, while other demographic factors examined in this analysis do not appear to have a meaningful influence on knowledge mean. These results partially support the hypothesis, indicating that certain demographic factors may influence attitudes, though the effects appear limited.(see table 4.10)

Table 4.10

The Relationship Between Knowledge and the Demographic Variables

Variables	Correlation Coefficient (r_s)	p-value
Age in Years	.043	.386
Marital Status of women	.020	.684
Relationship with Husband	-.094-	.060
Place of Residency	-.066-	.186
Education level of women	.146**	.003
Occupation of women	-.072-	.153
Husband's Education	.019	.706
Family Monthly Income (NIS)	.060	.228

4..7.3 Correlation between knowledge and gynecological characteristics

The Spearman's rho correlation analysis examined the relationship between knowledge mean and various reproductive and demographic factors. Most variables demonstrated weak and statistically insignificant correlations with knowledge mean. For example, number of deliveries ($r=-0.101$, $p=0.073$) previous abortions ($r=0.053$, $p=0.351$), and the number of children ($r=-0.084$, $p=0.137$) all showed weak relationships that were not statistically significant.

A few variables showed statistically significant correlations. Notably, a negative correlation was found between knowledge mean and whether the participant had ever been pregnant ($r=-0.103$, $p=0.040$) and the total number of pregnancies, including the current one ($r=-0.118$, $p=0.03$). These results suggest that higher levels of knowledge mean are slightly associated with fewer pregnancies or a reduced likelihood of having been pregnant. However, other variables, such as the number of abortions ($r=0.037$, $p=0.702$), did not show any meaningful relationship with knowledge mean. This analysis highlights that while certain reproductive factors may have a small impact on knowledge mean, most examined variables do not show significant relationships, (see table 4.11)

Table 4.11

Spearman's rho: Correlation between knowledge and gynecological characteristics

Variable	Knowledge _mean	
	Correlation Coefficient	Sig. (2-tailed)
knowledge mean		
1. Have you ever been pregnant?	-.103*	.040
2. Including the current pregnancy, how many times have you been pregnant?	-.118*	.036
3. Number of deliveries	-.101-	.073
4.Previous abortions	.053	.351
5.If any, how many abortions did you have?	.037	.702
6. Number of Children	-.084-	.702

4.7.4 Correlation between attitude and sociodemographic characteristics

The Spearman's rho correlation analysis examined the relationship between attitude and various demographic factors. Most variables showed weak and statistically insignificant correlations with Attitude_mean. These include age ($r = -0.019$, $p = 0.700$), marital status ($r = -0.009$, $p = 0.851$), women's education level ($r = -0.013$, $p = 0.802$), occupation of women ($r = -0.016$, $p = 0.755$), husband's education ($r = 0.022$, $p = 0.663$), and family monthly income ($r = 0.055$, $p = 0.271$), (see table 4.12).

Table 4.12

Spearman's rho: Correlation between attitude and sociodemographic characteristics.

Variable	Attitude_mean	
	Correlation Coefficient	Sig. (2-tailed)
Attitude_mean		
Age in Years	-.019-	.700
Marital Status of women	-.009-	.851
Relationship with husband	.131**	.009
Place of Residency	.117*	.019
Education level of women	-.013-	.802
Occupation of women	-.016-	.755
Husband's Education	.663	.663
Family Monthly Income (NIS)	.055	.271

Two variables, however, showed significant positive correlations with attitude. The relationship with the husband ($r = 0.131$, $p = 0.009$) demonstrated a weak but significant association, suggesting that a positive relationship with the husband is linked to more favorable attitudes. Additionally, place of residency ($r = 0.117$, $p = 0.019$) exhibited a weak but significant positive correlation, indicating that residency location may have some influence on attitudes.

4.7.5 Correlation between attitude and gynecological characteristics

The Spearman's rho correlation analysis explored the relationship between attitude and various reproductive and health-related factors. Several significant correlations were found. First, having ever been pregnant was positively correlated with attitude ($r = 0.114$, $p = 0.022$), suggesting that individuals who have experienced pregnancy tend to have more positive attitudes. On the other hand, the number of previous abortions showed a negative correlation with mean of attitude ($r = -0.132$, $p = 0.018$), indicating that those with more abortions may have less favorable attitudes. Other variables, such as the number of deliveries ($r = 0.080$, $p = 0.157$), number of children ($r = 0.054$, $p = 0.333$), stillbirths ($r = -0.071$, $p = 0.206$), and chronic diseases ($r = -0.068$, $p = 0.680$), all showed weak or no significant correlations with attitude.(see table 4.13).

Table 4.13 Spearman's rho:

Correlation between attitude and gynecological characteristics

Variable	Attitude _mean	
	Correlation Coefficient	Sig. (2-tailed)
Attitude_mean		
1. Have you ever been pregnant?	.114*	.022
2. Including the current pregnancy, how many times have you been pregnant?	.080	.157
3. Number of deliveries	-.132-	.018
Previous abortions	.054	.333
4. If any, how many abortions did you have?	-.071-	.206
5. Number of Children	-.068-	.680

4.7.6 Correlation between practice and sociodemographic characteristics

The Spearman's rho correlation analysis assessed the relationship between practice and various demographic factors. Most variables showed weak and statistically insignificant correlations with practice. For example, age ($r=0.034, p=0.493$), marital status ($r=-0.025, p=0.615$), women's education level ($r=0.009, p=0.861$), occupation of women ($r=-0.022, p=0.664$), and husband's education ($r=0.050, p=0.322$) all exhibited no significant relationships.

Several variables, however, were found to have significant relationships with practice. The relationship with the husband had a weak but significant positive correlation ($r=0.121, p=0.016$). Place of residency ($r=0.215, p<0.001$) showed a moderate positive correlation, indicating that where a person resides has a meaningful association with their practices. Family monthly income ($r=0.164, p=0.001$) also had a significant positive correlation, suggesting that higher income levels are linked to better practices.

Most demographic variables had little to no influence on Practice mean, factors like place of residency, family income, and the relationship with the husband demonstrated significant positive associations. (see table 4.14).

Table 4.14

Spearman's rho: Correlation between practice and sociodemographic characteristics

Variable	Practice means	
	Correlation Coefficient	Sig. (2-tailed)
Practice means		1.00
Age in Years	.034	.493
Marital Status of women	-.025-	.615
Relationship with husband	.121*	.016
Place of Residency	.215**	.000
Education level of women	.009	.861
Occupation of women	-.022-	.664
Husband's Education	.050	.322
Family Monthly Income (NIS)	.164**	.001

4.7.7 Correlation between practice and gynecological characteristics

The Spearman's rho correlation analysis evaluated the relationship between practice and various reproductive and health-related factors. Most variables demonstrated weak and statistically insignificant relationships with practice. For instance, whether the individual had ever been pregnant ($r = 0.024$, $p = 0.662$), the number of deliveries ($r = 0.071$, $p = 0.205$), previous abortions ($r = -0.005$, $p = 0.926$), number of children ($r = 0.073$, $p = 0.193$), stillbirths ($r = -0.012$, $p = 0.830$), and chronic diseases ($r = -0.031$, $p = 0.535$) all showed weak and non-significant correlations with practice. However, a significant relationship was observed between having experienced specific diseases during pregnancy and practice ($r = 0.119$, $p = 0.033$). This positive correlation suggests that individuals who experienced certain diseases during pregnancy may have slightly better practices, potentially due to increased awareness or healthcare interactions. Overall, the findings indicate that while most reproductive and health-related variables do not significantly influence practice the experience of diseases during pregnancy shows a weak but statistically significant positive relationship. (see table 4.15).

Table 4.15

Spearman's rho: Correlation between practice and gynecological characteristics

Variable	Practice means	
	Correlation Coefficient	Sig. (2-tailed)
Practice mean		1.00
1. Have you ever been pregnant?	.024	.662
2. Have you ever had any of the following diseases during pregnancy?	-.031-	.535
3. Number of deliveries	.071	.205
4. Previous abortions	-.005-	.926
5. Number of Children	.073	.193
6. Have you ever given birth to a stillbirth?	-.012-	.830
7. Do you have a chronic disease?	-.031-	.535

Chapter Five

Discussion

5.1 Introduction

The current study was conducted with the main aim of investigating the levels of knowledge, attitude, and practice towards preconception care among women attending primary health care in the north of West Bank. The results showed Moderate level of knowledge, positive levels of attitude but and good levels of practice, with some significant differences according to their demographic factors. In this chapter, the researcher provided a comprehensive discussion of the findings, as well as comparing the results with the findings from the previously reviewed literature.

5.2 Knowledge regarding PCC

The findings indicate that a significance proportion of woman 61.75% in the West Bank have a moderate level of knowledge about preconception care, while 25.75% have knowledge and only 12.2% possess good knowledge. This pattern aligns with findings from similar studies in the Gaza Strip (Al-kasseh & Jarard, 2021) and Egypt (Abushady et al., 2021) where moderate knowledge was the prevailing category. This consistency suggests that moderate knowledge about PCC maybe trend in regions where healthcare systems face challenge in delivering comprehensive reproductive health education. However, the 25.75% poor knowledge level in this study is concerning as it surpasses finding from Iraq (Ahmed & Piro, 2017), . Addressing these challenges through community-based educational programs, improved healthcare outreach, and integration of PCC into routine health services could help bridge the knowledge gap and support better reproductive health outcomes.

Furthermore, while 77.25% of participants reported prior awareness of PCC, the level of actionable knowledge appears limited. As pointed out by Khalaf et al. (2017), the term PCC does not imply detailed understanding or proficiency in applying PPC practices. This disconnect suggests that current health initiatives may place greater emphasis on public awareness than on education about the efficacy and benefits of PPC.

Variations in knowledge across different studies and contexts can be attributed to several factors. Sociocultural norms, access to health care services, and focus of educational interventions play important roles in shaping levels of knowledge. Haldane et al (2019) identified barriers such as limited access to healthcare services, inadequate interaction by healthcare providers, and cultural practices, which can hinder women's understanding and participation in preconception care (PCC).The lack of comprehensive information on PCC, its components, and its significance and advantages for both mother and child may be the cause of this divergent opinion. The study's conclusions highlighted the necessity of ongoing

public awareness campaigns that focus on the particulars of health issues, the significance of PCC, and its timing, among other things.

Women's education level was a significant factor in determining how well-informed they were about preconception care; those with a university degree were twice as likely to be knowledgeable. This is to be expected since formal education increases exposure, and educated women are more likely to recognize the advantages of preconception care and choose to seek care at a preconception clinic.

5.3 Source of Information:

the finding of our study revealed that social media formed 8.65% from the source of information about PCC among Palestinian women, while midwives were cited as a source by 5.2%, and the Internet (17.75%). These findings align with broader trends in the literature, which demonstrate the growing yet variable role of social media and midwife in disseminating PCC information. Shibata et al. (2023) reported a significantly higher reliance on the internet in Japan with, 70 % of participants identifying it as a major source of PCC information. Similarly Khalaf et al. (2017) found the doctor were more frequently cited as a source of PCC information than midwives in Palestine, which is consistent with our finding that gynecologist 40.45% where the primary source of PCC information. However our study underscore the relatively limited roles of social media and midwives compared to formal Healthcare providers.

The explanation for these trend lies in the accessibility and trust associated with different sources. Social media platforms are easily accessible and widely used, making them effective tools for spreading awareness. They serve as platform for advertisement and educational campaigns which can reach a large audience with minimal costs. However the relatively low percentage in our study compared to Shibata et al. (2023) study that suggested that cultural and technological differences may influence the degree to which social media is leveraged for health education.

Midwives, on other hand are in direct and frequent contact with women, especially during antenatal and postnatal periods. Their lower representation in our findings, as compared to gynecologist, reflects a potential underutilization of midwives as PCC educator. This is consistent with findings from Olowokere et al. (2015) and Boakye-Yiadom et al. (2020), where healthcare providers, particularly doctors were more prominent sources of information than nurse and midwives. This could be attributed to the perception of gynecologists as more specialized health care providers leading women to seek their guidance more actively.

5.4 Attitudes regarding PCC:

The results of our study show that 83.79% of women in the northern West Bank show a positive attitude toward PCC, confirming the strong recognition of its potential in enhancing maternal and fetal health outcomes. This high percentage reflects encouraging awareness and proactive perception of PCC, which is consistent with similar findings from various similar global studies. For instance Qasim et al. (2016) in Malaysia reported a slightly higher percentage with 98.5% of women expressing positive attitude towards PCC, This similarity highlight that widespread recognition of PCC benefit among women attending healthcare services in both regions emphasizing the pivotal role of healthcare providers in fostering perception. It seems that the common positive perception among these studies, including our current study, is that there is an increasing understanding locally and regionally, especially

in those areas where educational campaigns are launched and where there is easy access to health care service centers.

However the regional differences observed between our study and others, such Al-Khatib et al. (2024) in Jordan, highlight a critical contextual factors in Jordan only 48.1% of women demonstrated positive attitude which is significantly lower than our study findings (83.79%), this disparity could stem for differences in healthcare accesses, cultural habit, or educational initiatives. . Both studies however, underscore the critical role of education, with university graduates in Jordan exhibiting the highest positive attitude. This findings support the notion that educational attainment is a key determined of positive attitude towards PCC, a trend evident in various sitting including the north of West Bank. Musgrave et al. (2023) In Australia found that white woman had high level of education and awareness of PCC physical and psychological benefit their knowledge of its role in preventing adverse child outcomes like still Bears was limited in contrast our study about seven demonstrate comprehensive PCC important and preparing for pregnancy.

In general, our results confirmed that women have positive perceptions of the importance of PCC for maternal and child health. This is a positive indicator for increasing targeted awareness campaigns that enrich women's knowledge about PCC in the Palestinian context.

5.5 Practice regarding PCC:

According to our research, the majority of women (74.5%) in the northern West Bank exhibit positive pre-care practices (PCC), with an average practice score of 1.83 (SD = 0.673). Numerous earlier studies that found lower participation in PCC practices are in conflict with this finding. As an illustration of the strong correlations between PCC practice and social and demographic characteristics like income and education, Martínez et al. (2024) found that women had lower levels of PCC practice, with an average score of 8.13 ± 3.44 . The study was conducted in south-eastern Mexico.

Nonetheless, our study found high levels of positive practice across a variety of demographic groups, suggesting a more widespread improvement of PCC in the area. Similar findings were reported by Mustafa (2023), who assessed the PCC knowledge and practice of primigravida women in Gaza and found that they had good knowledge and high practice scores. Despite the variations in the tools and scoring systems, the findings support ours in emphasizing the value of readily available healthcare services and education in improving PCC practices.

Our study's far higher participation rate suggests that regional healthcare programs in the West Bank may be better able to overcome these challenges. When comparing our findings with those of Nepal and Sabkota (2017), who discovered that half of Nepal's pregnant moms displayed subpar primary care practices, additional discrepancies become apparent. Our results indicate that even simple awareness initiatives in the West Bank have successfully enhanced PCC behaviors, despite significant connections between knowledge and practice in the Nepalese study. Shibata et al. (2023) also highlight different PCC habits in Japan, such as relying on the Internet for PCC information and consuming only 3% of folic acid prior to pregnancy.

Our research, however, shows a wider dedication to PCC practices, which might be a result of a greater dependence on medical practitioners for direction. Lastly, research done in Ethiopia by Abayneh et al. (2022) and Qassem et al. (2016) Women and healthcare providers in India were found to have low PCC engagement rates, with only 34.5% and 27.5%, respectively, demonstrating positive habits. With 74.5% of women exhibiting healthy

practices, our results far surpass these numbers and imply that West Bank public health initiatives could be a template for other areas.

Additionally, this study demonstrated a strong link between women's knowledge and best practices. This was supported by research by Demisse et al. (2019) which showed that women who knew a lot about preconception care were 6.2 times more likely to use it than those who didn't. This could be because of the breadth of knowledge that could improve women's comprehension and awareness of the significance of preconception care.

Our study proposes culturally sensitive educational campaigns to increase awareness of PCC, training healthcare providers to address misconceptions, incorporating PCC into maternal services, and launching policies to address structural barriers such as lack of healthcare financing and workforce training for equitable access to PCC services in order to improve healthcare practice and policy.

5.6 Recommendations

1. Based on the results of our current study, gynecologists were found to be the main source of information about PCC (40.45%), so the role of other health care providers who have greater contact with women in education on the topic of PCC should be strengthened.

2- Making use of the Internet and social media: The results given by the current study identified that up to 17.75% of the participants rely on the Internet to get information about PCC underlining the importance of the Internet as the source of health. Information. Certainly, any forms of communication and information dissemination on the Internet like website, videos, social media accounts of health organizations and clinics must include easy way on how to access such research-based recommendations in order to disseminate it accordingly to the people. These are good platforms to share true and type information regarding PCC and create awareness in a manner suitable for the unmanned public.

3. Introducing PCC into the teaching curricula in schools, as the study showed that only 0.65% of levels source their information from schools. Introducing information regarding PCC into school health education programs will generate correct and useful information for girls to have prior good health and practice healthy practices at an early age.

4. Create and promote public awareness campaigns regarding PCC, which will provide actionable steps for women to improve their PCC health, noting that the results of our study showed that most women 61.75 had a moderate level of knowledge.

4. Targeted Educational Programs for Women of Reproductive Age: It is recommended that education programs and lectures should be designed and delivered for woman of reproductive age especially married women, women with children, and women of marriageable age. These programs should include elaborated information about preconception, thus the components of preconception care, like health risk evaluations, nutrition, lifestyle choices, and family planning. It will enhance positive attitudes toward PCC.
5. In order to further improve women's positive attitudes toward preconception care (PCC), implement focused educational initiatives that highlight the advantages of PCC for both mothers and fetuses. In order to optimize pregnancy outcomes and minimize complications, these programs ought to emphasize the significance of pre-pregnancy

medical consultations and lifestyle changes, like stopping smoking. Effective dissemination of this information to a wider audience can be achieved by enlisting the aid of community health workers and making use of local media.

6. Provide further research to determine the effect of applied interventions and develop other appropriate strategies to control the condition that requires frequent improvement.

5.7 Limitations:

1-Difficulty in moving between cities and governorates due to occupation barriers that hinder easy access to primary health care centers.

2. Lack of funding, which may have allowed for more accurate systematic design such as a possible or nicer design, as well as the ability to give incentives to participants, such as care manuals about PCC

Since this study is a cross-sectional survey, we are aware of certain limitations with regard to social desirability biases and the likelihood of memory. Another potential drawback is that research "didn't include the women's husbands or spouses."

5.8 Implications for Nursing Practice

The findings of the study on preconception care (PCC) among women of reproductive age in the West Bank have significant implications for nursing practice. Nurses play a crucial role in educating women about the importance of PCC, which includes health assessments, lifestyle modifications, and risk factor management prior to conception. By integrating PCC into routine healthcare services, nurses can enhance awareness and encourage women to seek preconception consultations. Additionally, nurses should advocate for the development of community-based programs that provide accessible information and resources on PCC, thereby improving health outcomes for mothers and infants.

5.9 Implications for Nursing Research

The study highlights several gaps in the current understanding of PCC, suggesting a need for further research in this area. Future studies should explore the barriers women face in accessing PCC, the effectiveness of different educational interventions, and the long-term impacts of PCC on maternal and child health outcomes. Research should also focus on diverse populations to understand the cultural and socio-economic factors influencing knowledge and practices related to PCC. This will help in developing tailored interventions that address specific community needs and improve overall health literacy regarding preconception care.

5.10 Implications for Nursing Education

Incorporating PCC into nursing education curricula is essential to prepare future nurses to address this critical aspect of women's health. Educational programs should emphasize the importance of PCC, equipping nursing students with the knowledge and skills necessary to educate patients effectively. Simulation-based learning and community outreach programs can provide practical experience in delivering PCC. Furthermore, continuing education opportunities for practicing nurses should be established to keep them updated on the latest guidelines and best practices in PCC, ensuring they can provide high-quality care to women of reproductive age.

5.11 Conclusion

In conclusion, the study underscores the critical role of preconception care in enhancing maternal and neonatal health among women in the northern West Bank. By improving knowledge, attitudes, and practices regarding PCC, nurses can significantly contribute to better health outcomes for mothers and their children. The implications for nursing practice, research, and education highlight the need for a multifaceted approach to integrate PCC into healthcare systems effectively, ensuring that women receive the support and information necessary for healthy pregnancies.

References

- Abayneh, H., Wakgari, N., Ganfure, G., & Bulto, G. A. (2022). Knowledge, attitude, and practice of preconception care and associated factors among obstetric care providers working in public health facilities of West Shoa Zone, Ethiopia: A cross-sectional study. *PLoS One*, 17(8), e0272316.
- Ahmed, M., & Piro, J. (2017). T., 2017. Knowledge, Practice, and Attitude of Married Women About Preconception Care. *Journal of Client-Centered Nursing Care*, 3(1), 37-44.
- Ajzen, I. (2020). **Attitudes, personality, and behavior** (2nd ed.). Open University Press.
- Al-Akour, N., Sou'Ub, R., Mohammad, K., & Zayed, F. (2015). Awareness of preconception care among women and men: a study from Jordan. *Journal of Obstetrics and Gynaecology*, 35(3), 246-250.
- Al-Kasseh, A., & Jarad, K. (2021). Knowledge, Attitude, and Practice among Palestinian Mothers Attending Governmental Primary Health Care Clinics Regarding Postpartum Care Services. *Int J Womens Health Gynecol*, 3(1), 125.
- Alkhatib, B., Agraib, L. M., Hourani, H. A., & Hasan, H. (2024). Assessing the Provision of Preconception Care Knowledge, Attitudes, and Practice Among Jordanian Women of Reproductive Age. *Sage Open*, 14(2), 21582440241245221.
- Association, O. P. H. (2019). Shift-enhancing the health of Ontarians: a call to action for preconception health promotion and care. Toronto, ON. In.
- Atrash, H., & Jack, B. (2020). Preconception care to improve pregnancy outcomes: the science. *Journal of Human Growth and Development*, 30(3), 355-362.
- Backes, E. P., Scrimshaw, S. C., National Academies of Sciences, E., & Medicine. (2020). Epidemiology of Clinical Risks in Pregnancy and Childbirth. In *Birth Settings in America: Outcomes, Quality, Access, and Choice*. National Academies Press (US).
- Bernstein, M., Afshar, Y., & Han, C. S. (2023). Preconception Care: In the Continuum of Women's Healthcare. In *Handbook of Gynecology* (pp. 39-61). Springer.
- Bhutta, Z. A., Das, J. K., Bahl, R., Lawn, J. E., Salam, R. A., Paul, V. K., Sankar, M. J., Blencowe, H., Rizvi, A., & Chou, V. B. (2014). Can available interventions end preventable deaths in mothers, newborn babies, and stillbirths, and at what cost? *The Lancet*, 384(9940), 347-370.
- Blencowe, H., Cousens, S., Modell, B., & Lawn, J. (2010). Folic acid to reduce neonatal mortality from neural tube disorders. *International journal of epidemiology*, 39(suppl_1), i110-i121.
- Carroll, J. C., Campbell-Scherer, D., Permaul, J. A., Myers, J., Manca, D. P., Meaney, C., Moineddin, R., & Grunfeld, E. (2017). Assessing family history of chronic disease in primary care: prevalence, documentation, and appropriate screening. *Canadian Family Physician*, 63(1), e58-e67.
- Dathe, K., & Schaefer, C. (2019). The use of medication in pregnancy. *Deutsches Ärzteblatt International*, 116(46), 783.
- Dean, S., Rudan, I., Althabe, F., Webb Girard, A., Howson, C., Langer, A., Lawn, J., Reeve, M.-E., Teela, K. C., & Toledano, M. (2013). Setting research priorities for preconception care in low-and middle-income countries: aiming to reduce maternal and child mortality and morbidity. *PLoS medicine*, 10(9), e1001508.
- Delgado, C. E. (2008). Undergraduate student awareness of issues related to preconception health and pregnancy. *Maternal and child health journal*, 12, 774-782.

- Ekawati, F. M., Widyasari, A., Rahmi, H. R. A., Ame, C. G. P., & Tuteja, A. (2024). Core recommendations of effective preconception counselling services in low-and-middle-income countries—A scoping review. *Sexual & Reproductive Healthcare*, 101005.
- Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. *American journal of theoretical and applied statistics*, 5(1), 1-4.
- Farahi, N., & Zolotor, A. (2013). Recommendations for preconception counseling and care. *American family physician*, 88(8), 499-506.
- Fekene, D. B., Woldeyes, B. S., Erena, M. M., & Demisse, G. A. (2020). Knowledge, uptake of preconception care and associated factors among reproductive age group women in West Shewa zone, Ethiopia, 2018. *BMC women's health*, 20, 1-8.
- Fowler, J. R., Jenkins, S. M., & Jack, B. W. (2017). Preconception counseling.
- Frayne, D. J., Verbiest, S., Chelmow, D., Clarke, H., Dunlop, A., Hosmer, J., Menard, M. K., Moos, M.-K., Ramos, D., & Stuebe, A. (2016). Health care system measures to advance preconception wellness: consensus recommendations of the clinical workgroup of the National Preconception Health and Health Care Initiative. *Obstetrics & Gynecology*, 127(5), 863-872.
- Freda, M. C., Moos, M.-K., & Curtis, M. (2006). The history of preconception care: evolving guidelines and standards. *Maternal and child health journal*, 10, 43-52.
- Gaiseanu, F. (2020). Attitude as an expressible info-operational reaction to a perceived/purposed object/objective. *International Journal on Neuropsychology and Behavioural Sciences*, 1(1), 12-16.
- Gautan, P., & Dhakal, R. (2016). Knowledge on preconception care among reproductive age women. *Saudi J Med Pharm Sci*, 2(1), 6.
- Goldenberg, R., & McClure, E. (2018). Importance of prenatal care in reducing stillbirth. *BJOG: An International Journal of Obstetrics & Gynaecology*, 125(2), 148-148.
- Haldane, V., Chuah, F. L., Srivastava, A., Singh, S. R., Koh, G. C., Seng, C. K., & Legido-Quigley, H. (2019). Community participation in health services development, implementation, and evaluation: A systematic review of empowerment, health, community, and process outcomes. *PloS one*, 14(5), e0216112.
- Habte, A., Dessu, S., & Haile, D. (2021). Determinants of practice of preconception care among women of reproductive age group in southern Ethiopia, 2020: content analysis. *Reproductive Health*, 18(1), 100.
- Jakubik, M. (2023). Evolution of Knowledge Management Towards Wisdom
 - Management. *Journal of Information & Knowledge Management*, 2350051
- Jourabchi, Z., Sharif, S., Lye, M. S., Saeed, A., Khor, G. L., & Tajuddin, S. H. S. (2019). Association between preconception care and birth outcomes. *American Journal of Health Promotion*, 33(3), 363-371.

- Kandel, P., Lim, S., Dever, M., Lamichhane, P., Skouteris, H., Currie, S., & Hill, B. (2023). Enablers and Barriers Related to Preconception Physical Activity: Insights from Women of Reproductive Age Using Mixed Methods. *Nutrients*, 15(23), 4939.
- Kasim, R., Draman, N., Kadir, A. A., & Muhamad, R. (2016). Knowledge, attitudes and practice of preconception care among women attending maternal health clinic in Kelantan. *Education in Medicine Journal*, 8(4).
- Kedzior, S., Ryan, L., & Lassi, Z. (2024). Preconception Care in Low-and Middle-Income Countries. *Epidemiol Public Health*, 2(3), 1049.
- Khalaf, S., Shtewi, R., & Al Qaisi, S. (2017). Women's Knowledge And Associated Factor Regarding Pre-conception Care In Nablus and Tulkarm At Maternal And Child Health Care (MCH) Clinics.
- Khan, S., Shaheen, M. (2023). Od eksploracji danych do eksploracji mądrości. *Journal of Information Science*, 49(4), 952-975.
- Khekade, H., Potdukhe, A., Taksande, A. B., Wanjari, M. B., & Yelne, S. (2023). Preconception care: a strategic intervention for the prevention of neonatal and birth disorders. *Cureus*, 15(6).
- Langley-Evans, S. C., Pearce, J., & Ellis, S. (2022). Overweight, obesity and excessive weight gain in pregnancy as risk factors for adverse pregnancy outcomes: A narrative review. *Journal of Human Nutrition and Dietetics*, 35(2), 250-264.
- Lassi, Z. S., Dean, S. V., Mallick, D., & Bhutta, Z. A. (2014). Preconception care: delivery strategies and packages for care. *Reproductive Health*, 11, 1-17.
- Lemma, T., Silesh, M., & Taye, B. T. (2022). Knowledge of preconception care among reproductive-age women in Debre Berhan Town, Ethiopia: a community-based, cross-sectional study. *BMJ open*, 12(5), e053855.
- M Nabil Aboushady, R., Hegazy, A. E.-k., & M Ebrahim Abd Elnabi, M. (2021). Knowledge, Believes and Behaviors toward Preconception Care among Women at Childbearing period: Suggested Plan of Action. *Egyptian Journal of Health Care*, 12(1), 1463-1474.
- Martínez, N. H., Chablé, A. P. P., Villarreal, V. M. C., Chávez, N. E. C., & Flores, J. M. S. (2024). Knowledge and practice of preconception care among women in southeastern Mexico. *Revista Cuidarte*, 15(2), 2.
- Mason, E., Chandra-Mouli, V., Baltag, V., Christiansen, C., Lassi, Z. S., & Bhutta, Z. A. (2014). Preconception care: advancing from 'important to do and can be done' to 'is being done and is making a difference'. *Reproductive health*, 11, 1-9.
- Ministry of Health. (2020). Content Books http://site.moh.ps/Content/Books/mv2fIO4XVF1TbERz9cwytaKoWKAsRfslLobNuOmjOPSAJOW2FvOCI_DQYaIXdf2i8gCmPHbCsav29dIHqW26gZu9qJDjW2QsifZt6FrdS4H2.pdf (Accessed: 15 June 2024).
- Palestinian Ministry of Health (2020). National maternal mortality report 2020. https://palestine.unfpa.org/sites/default/files/pubpdf/national_maternal_mortality_report_2020_0.pdf

- Munthali, M., Chiumia, I. K., Mandiwa, C., & Mwale, S. (2021). Knowledge and perceptions of preconception care among health workers and women of reproductive age in Mzuzu City, Malawi: a cross-sectional study. *Reproductive Health*, 18, 1-10.
- Musgrave, L., Homer, C., & Gordon, A. Knowledge, attitudes and behaviours surrounding preconception and pregnancy health: An Australian cross-sectional survey. *BMJ Open*. 2023; 13 (1): e065055. In.
- Mustafa, N. S. M. A. (2023). Knowledge and Practice of Primigravida Women about Preconception Care in the Gaza Strip, Palestine [جامعة القدس].
- Muthiyan, N. C., & Musale, R. Attitude and Knowledge towards Preconception Health among Reproductive-Age Women in Pune City. *Age*, 18, 35.
- Nepali, G., & Sapkota, S. D. (2017). Knowledge and practice regarding preconception care among antenatal mothers. *International Journal of Perceptions in Public Health*, 1(4), 224-227.
- Poix, S., & Elmusharaf, K. (2024). The cost of inaction on preconception health in Nigeria: An economic impact analysis. *Global Public Health*, 19(1), 2361782.
- Quist-Nelson, J. (2022). Preconception care. In *Obstetric Evidence Based Guidelines* (pp. 1-14). CRC Press.
- Raosoft I. Sample Size Calculator by Raosoft Inc. [Online] [(accessed on 16 November 2024)]. Available online: <http://www.raosoft.com/samplesize.html>
- Sabr, Y., Al-Zahrani, N. F., Labani, R. M., & Alrasheed, R. A. (2021). Knowledge, attitudes and practice of preconception care among women attending a university tertiary hospital in Riyadh: cross sectional study. *Medical Science*, 25(109), 508-519.
- Samuel, O., Zewotir, T., & North, D. (2021). Decomposing the urban–rural inequalities in the utilisation of maternal health care services: evidence from 27 selected countries in Sub-Saharan Africa. *Reproductive Health*, 18, 1-12.
- Sedgwick, P. (2014). Case-control studies: advantages and disadvantages. *Bmj*, 348.
- Setegn Alie, M., Alemu, T., Alemayehu, D., Negesse, Y., & Gebremariam, A. (2022). Preconception care utilization and associated factors among reproductive age women in Mizan-Aman town, Bench Sheko zone, Southwest Ethiopia, 2020. A content analysis. *PLoS One*, 17(8), e0273297.
- Shawe, J., Delbaere, I., Ekstrand, M., Hegaard, H. K., Larsson, M., Mastroiacovo, P., Stern, J., Steegers, E., Stephenson, J., & Tydén, T. (2015). Preconception care policy, guidelines, recommendations and services across six European countries: Belgium (Flanders), Denmark, Italy, the Netherlands, Sweden and the United Kingdom. *The European Journal of Contraception & Reproductive Health Care*, 20(2), 77-87.
- Shibata, Y., Abe, M., Narumoto, K., Kaneko, M., Tanahashi, N., Feters, M. D., & Inoue, M. (2023). Knowledge and practices of preconception care among rural Japanese women: findings from a mixed methods investigation. *BMC pregnancy and childbirth*, 23(1), 667.
- Sori, S. A., Teji Roba, K., Yadeta, T. A., Jiru, H. D., Metebo, K. N., Weldekidan, H. A., & Regassa, L. D. (2021). Knowledge of preconception care and associated factors among maternal health care providers working in urban public health institutions of Eastern Ethiopia. *Women's Health*, 17, 17455065211046139.

- Tydén, T., Verbiest, S., Van Achterberg, T., Larsson, M., & Stern, J. (2016). Using the reproductive life plan in contraceptive counselling. *Upsala journal of medical sciences*, 121(4), 299-303.
- Ukoha, W. C., & Mtshali, N. G. (2021). Perceptions and practice of preconception care by healthcare workers and high-risk women in South Africa: A qualitative study. *Healthcare*,
- Umar, A. G., Nasir, S., Tunau, K., Singh, S., Ibrahim, U. A., & Hassan, M. (2019). Awareness and perception of preconception care among women in usmanu danfodiyo university teaching hospital sokoto, north-western Nigeria. *Journal of family medicine and primary care*, 8(5), 1696-1700.
- United Nations Population Fund. (n.d.). *Sexual and reproductive health*. <https://palestine.unfpa.org/en/sexual-reproductive-health>
- Verbiest, S. (2020). Preconception Health: An Overview. *Preconception Health and Care: A Life Course Approach*, 5-20.
- Viswanath, L. (2019). Awareness Regarding Preconception Care among Women in Reproductive Age Group. *Indian Journal of Public Health Research & Development*, 10(9).
- Witt, K., & Huntington, M. K. (2016). Preconception counseling. *SD Med*, 69(3), 103-107.
- World Health Organization. (2013). Preconception care: Maximizing the gains for maternal and child health. Policy brief, 1-8.
- World Health Organization. (2013). Global action plan for the prevention and control of noncommunicable diseases 2013-2020. World Health Organization.
- World Health Organization. (2020). Maternal Health <https://www.afro.who.int/health-topics/maternal-health>.
- World Health Organization.(2023). Preconception Care
- http://www.who.int/maternal_child_adolescent/documents/concensus_preconception_care/en/ [(accessed on 20 October 2024)]
- Here's the reference in APA format:
- World Health Organization. (2022). *Maternal mortality*. <https://www.who.int/news-room/fact-sheets/detail/maternal-mortality>
- Xu, J., Li, X., & Zhou, Q. (2022). Nationwide-free preconception care strategy: experience from China. *Frontiers in Public Health*, 10, 934983.
- Zaçe, D., Orfino, A., Mariaviteritti, A., Versace, V., Ricciardi, W., & DI PIETRO, M. L. (2022). A comprehensive assessment of preconception health needs and interventions regarding women of childbearing age: a systematic review. *Journal of Preventive Medicine and Hygiene*, 63(1), E174.

Annexes

Annex 1: Questionnaire -English Version

Section One: Personal Bio - Data:

1. Age in Years	☐ 18-22 years	☐ 23-27 years	☐ 28-32 years	☐ 33-36 Years	☐ 37 & above
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2. Marital Status	☐ Single	☐ Married	☐ Widow	☐ Divorce
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3. Relationship with Husband	☐ No relationship	☐ First cousin	☐ Second cousin	☐ Other (State)
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4. Place of Residency	☐ City	☐ Camp	☐ Town	☐ Village
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5. Education	☐ None	☐ Primary	☐ Secondary	☐ University
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6. Your Occupation / profession	
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7. Husband's Education	☐ None	☐ Primary	☐ Secondary	☐ University
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8. Family Monthly Income (NIS)	☐ Less 2000	☐ 2000-3000	☐ 3001-4000	☐ 4001-5000	☐ More 5000
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Section Two: Gynecological Data

1. Have you ever been pregnant?

- ☐ Yes, if yes move to the next question.
- ☐ No, if no, move to question number (8)

2. Are you currently pregnant?

- ☐ Yes ☐ No.

3. Including the current pregnancy, how many times have you been pregnant?

- ☐ 1-2 times ☐ 3 -5 times ☐ 6 times and more

4. How many deliveries have you had?

- ☐ None ☐ One ☐ 2 -4 times ☐ 5 times and more

5. Have you ever had abortions?

- ☐ Yes. If any, how many abortions did you have? _____ ☐ No.

6. How many live births did you have?

- ☐ None ☐ 1 ☐ 2 ☐ >2

7. Have you ever had a still birth?

- ☐ Yes. If yes, do you know the reason for having a still birth? State. _____
- ☐ No.

8. Have you ever had any of the following diseases during pregnancy?

- ☐ No ☐ Gestational diabetes ☐ Hypertension
- ☐ Anemia ☐ Others. What is it? _____

9. Do you have any chronic diseases?

- ☐ Yes. If yes, what is it? _____
- ☐ No

Section Three: Knowledge regarding preconception care

1. Do you know about preconception care?

- ☐ Yes. If yes move to the next question. ☐ No. if no move to question number (3)

2. If Yes, what was the source of your information about preconception care? (You may choose more than one answer.)

- ☐ Social Media ☐ The Internet ☐ The gynecologist ☐ The midwife
- ☐ Friends and family ☐ School ☐ Books

3. In your opinion, preconception care is needed for:

- ☐ women, only ☐ men, only ☐ men and women ☐ I don't know.

4. In your opinion, preconception care is important for:

- ☐ baby, only ☐ mother, only ☐ baby and mother ☐ I don't know.

5. What factors make a pregnancy more likely to be high-risk?

- ☐ a. Age below 18 years ☐ b. Small body size
- ☐ c. First pregnancy at age 35 years and above ☐ d. Twin pregnancy.

6. What is the recommended time between pregnancies (spacing) for better health outcomes?

- ☐ a. One year ☐ b. Between 2 to 4 years ☐ c. More than 5 years

7. What are the potential risks associated with having poor birth spacing?

- ☐ a. Anemia ☐ b. Congenital malformation
- ☐ c. Premature labor ☐ d. Postpartum hemorrhage.

Please mark the appropriate response for each item / statement according to your knowledge.

Knowledge Regarding Preconception Care	Yes	No	I Don't Know.
8. It is essential for the mother to eat balanced meals (meals that contain a variety of nutrients) before pregnancy.			
9. It is essential for pregnant women to take supplements of iron.			
10. It is essential for pregnant women to take folic acid supplements.			
11. Consumption of folic acid before pregnancy decreases the risk of fetal anomalies.			
12. Pregnancy is risky if the mother is obese.			
13. Pregnancy is risky if the mother's weight is low.			
14. Pregnancy is risky if the mother's age is less than 18 years old.			
15.. Decreasing the distance between pregnancies may lead to Postpartum hemorrhage			
16. Pregnancy is risky in case of twin pregnancy.			
17. Decreasing the distance between pregnancies may lead to congenital anomalies.			

Section Four: Attitudes regarding preconception care

Please fill in the appropriate response (Agree, strongly agree, Neutral, Disagree, or Strongly disagree) for each statement.

Statement	Agree	Strongly agree	Neutral	Disagree	Strongly disagree
1. I believe that consultation with the preconception clinic is helpful to prepare myself for pregnancy physically.					
2. I believe that consultation with the preconception clinic is helpful to prepare myself for pregnancy psychologically.					
3. I believe that preconception healthcare has positive effects on pregnancy.					
4. I believe that preconception healthcare has positive effects on delivery.					
5. I believe that consultation with the preconception clinic decreases the chance of complications during pregnancy.					
6. I believe that it is necessary to check blood pressure before pregnancy.					
7. I believe that it is necessary to check glucose level before pregnancy.					
8. I believe that it is necessary to check blood group before pregnancy.					
9. I believe that it is necessary to check hemoglobin level before pregnancy.					

10. I believe that it is necessary to visit a dentist to examine teeth before planning a pregnancy.					
11. I believe it is necessary to focus on nutrition before planning a pregnancy.					
12. I believe it is necessary to maintain a suitable weight before planning a pregnancy.					
13. I believe it is necessary to quit smoking before planning a pregnancy.					

Section Five: Practice regarding preconception care

Please fill in the appropriate response (Agree, strongly agree, Neutral, Disagree, or Strongly disagree) for each practice regarding preconception care.

Practice Regarding Preconception Care	Agree	Strongly agree	Neutral	Disagree	Strongly disagree
1. I avoid exposure to active smoking.					
2. I avoid exposure to passive smoking.					
3. I take balanced meals regularly before getting pregnant.					
4. I take folic acid tablets regularly before getting pregnant.					
5. I visit the preconception clinic before getting pregnant.					
6. I engage in exercise/sport activities before getting pregnant.					
7. I check my blood group before getting pregnant.					
8. I will check my hemoglobin level before getting pregnant.					
9. I check my blood pressure before getting pregnant.					
10. I check my blood glucose level before getting pregnant.					
11. I will undergo heart investigations before getting pregnant.					
12. I maintain a healthy weight before getting pregnant.					
13. I discuss any family history of genetic disorders with my healthcare provider before getting pregnant.					
14. I ensure my vaccinations are up to date before getting pregnant.					

Annex2: Questionnaire – Arabic Version

القسم الأول: – البيانات الذاتية:

1. العمر بالسنوات	22-18 ☐ سنة	27-23 ☐ سنة	32-28 ☐ سنة	36-33 ☐ سنة	37 فما فوق ☐ سنة
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2. الحالة الاجتماعية	☐ عزباء	☐ متزوجة	☐ أرملة	☐ مطلقة
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3. درجة القربان مع الزوج	☐ لا توجد قربان	☐ ابن عم	☐ ابن عم الأب أو الأم	☐ أخرى
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4. مكان الإقامة	☐ مدينة	☐ مخيم	☐ بلدة	☐ قرية
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5. الدرجة العلمية	☐ لا يوجد	☐ ابتدائي	☐ ثانوي	☐ جامعي
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6. المهنة	
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7. الدرجة العلمية للزوج	☐ لا يوجد	☐ ابتدائي	☐ ثانوي	☐ جامعي
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8. دخل الأسرة الشهري (شيكل)	☐ أقل من 2000	☐ -2000 3000	☐ -3001 4000	☐ -4001 5000	☐ أكثر من 5000
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القسم الثاني: البيانات النسائية

1. هل سبق لك الحمل؟

- ☐ نعم، إذا كانت الإجابة بنعم انتقل إلى السؤال التالي.
☐ لا، إذا كانت الإجابة لا انتقل إلى السؤال رقم (9)

2. هل أنت حامل حالياً؟

- ☐ نعم ☐ لا

3. بما في ذلك الحمل الحالي، كم مرة حملت؟

- ☐ 1-2 مرات ☐ 3-5 مرات ☐ 6 مرات وأكثر

4. كم عدد الولادات التي قمت بها؟

- ☐ لا شيء ☐ مرة واحدة ☐ 2-4 مرات ☐ 5 مرات وأكثر

5. هل سبق لك أن تعرضت للإجهاض؟

- ☐ نعم. وإن وجدت، كم عدد حالات الإجهاض التي تعرضت لها؟ ☐ لا

6. كم عدد الولادات الحية لديك؟

- ☐ لا شيء ☐ 1 ☐ 2 ☐ أكثر من 2

7. هل سبق لك أن ولدت ميتاً؟

- ☐ نعم. إذا كانت الإجابة بنعم، هل تعرفين سبب ولادة جنين ميت؟ ☐ لا

8. هل سبق أن أصبت بأي من الأمراض التالية أثناء الحمل؟

- ☐ لا يوجد ☐ سكري الحمل ☐ ارتفاع ضغط الدم ☐ فقر الدم ☐ أخرى

9. هل لديك أمراض مزمنة؟

- ☐ نعم. إذا كانت الإجابة بنعم، ما هي؟ ☐ لا

القسم الثالث: المعرفة المتعلقة برعاية ما قبل الحمل

1. هل تعلمين عن رعاية ما قبل الحمل؟

- ☐ نعم. إذا كانت الإجابة بنعم انتقلي إلى السؤال التالي.
☐ لا. إذا كانت الإجابة لا انتقلي إلى السؤال رقم (3)

2. إذا كانت الإجابة نعم، ما هو مصدر معلوماتك حول رعاية ما قبل الحمل؟ (يمكنك اختيار أكثر من إجابة واحدة).

- ☐ وسائل التواصل الاجتماعي ☐ الإنترنت ☐ طبيب النساء ☐ القابلة
☐ الأصدقاء والعائلة ☐ المدرسة ☐ الكتب

3. في رأيك، رعاية ما قبل الحمل يحتاجها:

- ☐ النساء فقط ☐ الرجال فقط ☐ الرجال والنساء ☐ لا أعرف

4. في رأيك، رعاية ما قبل الحمل مهمة من أجل:

□ الطفل، فقط □ الأم، فقط □ الطفل والأم □ لا أعرف

5. ما هي العوامل التي تجعل الحمل أكثر عرضة للخطر؟

- العمر أقل من 18 سنة □ حجم الجسم الصغير
□ الحمل الأول في سن 35 سنة فما فوق □ الحمل بتوأم

6. ما هو الوقت الموصى به بين حالات الحمل (المباعدة) للحصول على نتائج صحية أفضل؟

- سنة واحدة □ بين 2 إلى 4 سنوات □ أكثر من 5 سنوات

7. ما هي المخاطر المحتملة المرتبطة بالمباعدة بين الولادات؟

- فقر الدم □ تشوه خلقي □ الولادة المبكرة □ نزيف ما بعد الولادة

يرجى وضع علامة على الإجابة المناسبة لكل بند / عبارة حسب معرفتك:

المعرفة فيما يتعلق برعاية ما قبل الحمل	نعم	لا	لا أعرف
8. من الضروري أن تتناول الأم وجبات متوازنة (وجبات تحتوي على مجموعة متنوعة من العناصر الغذائية) قبل الحمل.			
9. من الضروري بالنسبة للنساء الحوامل تناول مكملات الحديد.			
10. من الضروري بالنسبة للنساء الحوامل تناول مكملات حمض الفوليك.			
11. استهلاك حمض الفوليك قبل الحمل يقلل من خطر تشوهات الجنين.			
12. يكون الحمل محفوفاً بالمخاطر إذا كانت الأم تعاني من السمنة.			
13. يكون الحمل محفوفاً بالمخاطر إذا كان وزن الأم منخفضاً.			
14. يكون الحمل محفوفاً بالمخاطر إذا كان عمر الأم أقل من 18 عاماً.			
15. إن تقليل المسافة بين حالات الحمل قد يؤدي إلى زيادة خطر الإصابة بنزيف ما بعد الولادة.			
16. يكون الحمل محفوفاً بالمخاطر في حالة الحمل بتوأم.			
17. إن تقليل المسافة بين حالات الحمل قد يؤدي إلى تشوهات خلقية.			

القسم الرابع: المواقف تجاه رعاية ما قبل الحمل
يرجى اختيار الإجابة المناسبة (أوافق، أوافق بشدة، محايد، معارض، معارض بشدة) لكل عبارة:

البيان	أوافق	أوافق بشدة	محايد	معارض	معارض بشدة
1. أعتقد أن استشارة عيادة ما قبل الحمل مفيدة لتحضير الحمل جسدياً.					
2. أعتقد أن استشارة عيادة ما قبل الحمل تساعد في إعدادي للحمل نفسياً.					
3. أعتقد أن الرعاية الصحية قبل الحمل لها آثار إيجابية على الحمل.					
4. أعتقد أن الرعاية الصحية قبل الحمل لها آثار إيجابية على الولادة.					
5. أعتقد أن استشارة عيادة ما قبل الحمل تقلل من فرصة حدوث مضاعفات أثناء الحمل.					
6. أعتقد أنه من الضروري فحص ضغط الدم قبل الحمل.					
7. أعتقد أنه من الضروري فحص مستوى الجلوكوز قبل الحمل.					
8. أعتقد أنه من الضروري فحص فصيلة الدم قبل الحمل.					
9. أعتقد أنه من الضروري فحص مستوى الهيموجلوبين قبل الحمل.					
10. أعتقد أنه من الضروري زيارة طبيب الأسنان لفحص الأسنان قبل التخطيط للحمل.					
11. أعتقد أنه من الضروري التركيز على التغذية قبل التخطيط للحمل.					

					12. أعتقد أنه من الضروري الحفاظ على الوزن المناسب قبل التخطيط للحمل.
					13. أعتقد أنه من الضروري الإقلاع عن التدخين قبل التخطيط للحمل.

القسم الخامس: الممارسة المتعلقة برعاية ما قبل الحمل

يرجى ملء الإجابة المناسبة (أوافق، أو أوافق بشدة، محايد، معارض، معارض بشدة) لكل ممارسة تتعلق بالرعاية السابقة للحمل.

الممارسة فيما يتعلق برعاية ما قبل الحمل	أوافق	أوافق بشدة	محايد	معارض	معارض بشدة
1. أتجنب التعرض للتدخين الايجابي (التوقف عن التدخين).					
2. أتجنب التعرض للتدخين السلبي.					
3. أتناول وجبات متوازنة بانتظام قبل الحمل.					
4. أتناول أقراص حمض الفوليك بانتظام قبل الحمل.					
5. أقوم بزيارة عيادة ما قبل الحمل قبل الحمل.					
6. أمارس التمارين الرياضية/الأنشطة الرياضية قبل الحمل.					
7. أفحص فصيلة دمي قبل الحمل.					
8. أتحقق من مستوى الهيموجلوبين لدي قبل الحمل.					
9. أفحص ضغط الدم قبل الحمل.					
10. أتحقق من مستوى السكر في الدم قبل الحمل.					

					11. أخضع لفحوصات القلب قبل الحمل.
					12. أحافظ على وزن صحي قبل الحمل.
					13. أناقش أي تاريخ عائلي للاضطرابات الوراثية مع مقدم الرعاية الصحية الخاص بي قبل الحمل.
					14. أتأكد من تحديث تطعيماتي قبل الحمل.

نهاية الاستبيان

Annex3: Consent form

شمال الضفة الغربية المعرفة والمواقف والممارسة فيما يتعلق برعاية ما قبل الحمل بين النساء في سن الإنجاب في

عزبتي المشاركة، أئشرف بدعوتك للمشاركة في دراسة بحثية أجرتها نور فرسخ، الطالبة في جامعة القدس. تهدف هذه الدراسة إلى استكشاف معرفتك ومواقفك وممارساتك فيما يتعلق برعاية ما قبل الحمل كامرأة في سن الإنجاب في فلسطين، تعتبر ردودكم ضرورية لمساعدتنا على فهم وجهات النظر والاحتياجات الفريدة للنساء في هذه المنطقة بشكل أفضل. ردودكم سرية، ومشاركاتكم طوعية. ستساهم أفكارك القيمة في تطوير المعرفة وممارسات الرعاية الصحية في فلسطين. نشكرك على الوقت الذي أمضيته للمشاركة في هذه الدراسة البحثية. لمزيد من المعلومات لا تترددوا في التواصل مع الباحثة على الرقم: 00972599554256. ملاحظة: يتكون هذا الاستبيان من 6 صفحات

Annex 4: Ethical committee approval



**Research Ethics Subcommittee of Faculty of Health Professions
Letter of approval**

April 19, 2024
Ref. No.: RESC/2024-34

Dear Applicants, **(Dr. Maysa Al Usta, Ms. Nour Farsakh)**

Program: MSc Nursing Department

The Research Ethics subcommittee of Faculty of Health Professions has recently reviewed your proposal entitled **(Knowledge, Attitudes, and Practices regarding Preconception Care among Reproductive Age women in West Bank)** submitted by **(Dr. Maysa Al Usta)**. Your proposal is deemed to meet the requirements of research ethics at Al-Quds University, but further assessment is required by the Central Research Ethics Committee of Al-Quds University. We wish you all best for the conduct of the project.

Hussein ALMasri, PhD
Associate Professor of Medical Imaging
Research Ethics Subcommittee Chair
Faculty of Health Professions

Hussein ALMasri

CC: File
CC: Committee members

Annex 5: Approval letters

State of Palestine
Ministry of Health
Education in Health and Scientific
Research Unit



دولة فلسطين
وزارة الصحة
وحدة التعليم الصحي
والبحث العلمي

Ref.:
Date:.....

الرقم: ٢٠٢٠/١٤٤٠
التاريخ: ٢٠٢٠/١٤٤٠

عطوفة الوكيل المساعد لشؤون الصحة العامة وصحة الاسرة المحترم،،،
تحية واحترام،،،

الموضوع: تسهيل مهمة بحث

يرجى تسهيل مهمة الطالبة: نور جمال محمد فرسخ- ماجستير تمريض صحة امومة
وطفولة/ جامعة القدس، وبإشراف د. اسعد رملوي، في عمل بحث بعنوان:

Knowledge and Perceptions Regarding Preconception Care among Reproductive Age Women in the Northern West Bank

من خلال السماح للطالب بجمع المعلومات عن طريق تعبئة استبانة من قبل النساء المراجعات،
وذلك في:

- صحة قلقيلية - صحة طولكرم - صحة جنين
- صحة نابلس - صحة طوباس - صحة سلفيت

على ان يتم الالتزام باساليب واخلاقيات البحث العلمي، والحفاظ على سرية المعلومات.
على ان يتم تزويد الوزارة بنسخة PDF من نتائج البحث، التعهد بعدم النشر لحين الحصول على موافقة
الوزارة على نتائج البحث.

مع الاحترام،،،

د. عبد الله القواسمي
رئيس وحدة التعليم الصحي والبحث العلمي

نسخة: منسق برنامج الدراسات العليا- دائرة التمريض المحترم/ جامعة القدس

المعرفة والمواقف والممارسات تجاه رعاية ما قبل الحمل بين النساء في سن الإنجاب في الضفة الغربية

اسم الطالب . نور جمال فرسخ
المشرف : د. ميساء الأسطة
الملخص

الخلفية: تُعدُّ رعاية ما قبل الحمل (PCC) أمرًا بالغ الأهمية لتحسين صحة الأم والوليد من خلال معالجة عوامل الخطر القابلة للتعديل وتعزيز الحمل الصحي.

الهدف: هدفت هذه الدراسة إلى تقييم المعرفة والمواقف والممارسات (KAP) لدى النساء الفلسطينيات في سن الإنجاب تجاه رعاية ما قبل الحمل في شمال الضفة الغربية.

المنهجية: أُجريت دراسة مقطعية في الفترة بين شهري حزيران وأيلول 2024 في عيادات الرعاية الصحية الأولية التابعة لوزارة الصحة في ست محافظات شمال الضفة الغربية. تم توزيع استبيان على 400 امرأة تتراوح أعمارهن بين 18 و45 عامًا، شمل خصائص ديموغرافية ومعلومات تتعلق بأمراض النساء حول المعرفة والمواقف والممارسات المتعلقة برعاية ما قبل الحمل.

النتائج: من بين 400 امرأة شملها الاستطلاع، كانت أكبر فئة عمرية هي 23 إلى 27 سنة (25.5%). غالبية المشاركين كانوا متزوجين (82.3%). وفيما يتعلق بصلة القرابة مع الزوج، أبلغت 77.5% من النساء المتزوجات عن عدم وجود صلة قرابة مع أزواجهن. معظم أفراد العينة (59%) حاصلون على تعليم جامعي. ومن حيث دخل الأسرة، 34.3% لديهم دخل متوسط بين 2000-3000 شيكل شهرياً. وكانت غالبية النساء ربات بيوت (63%)، يليهن موظفات (29.5%)، مع نسبة صغيرة فقط من الطالبات (2.3%) أو المهن الأخرى (2.3%). أفاد معظم المشاركين (77.25%) أن لديهم معرفة حول رعاية ما قبل الحمل (PCC)، مصدرها في المقام الأول أطباء أمراض النساء (40.45%)، يليهم الإنترنت (17.75%) والأصدقاء والعائلة (16.85%). وكانت مستويات المعرفة متوسطة بالنسبة للأغلبية (61.75%)، بمتوسط درجة 0.602، في حين أن 25.75% لديهم معرفة ضعيفة و12.5% لديهم معرفة جيدة. وقد لوحظت مواقف إيجابية لدى 83.79% من المشاركين، وأظهر 74.5% ممارسات جيدة بمتوسط درجة ممارسة قدرها 1.83 (SD = 0.673). كان مستوى التعليم مرتبطاً بشكل معتدل بالمعرفة ($p = 0.003$, $r = 0.146$)، في حين أظهرت المتغيرات الديموغرافية وأمراض النساء الأخرى ارتباطات ضعيفة أو غير مهمة.

الاستنتاج: تُظهر النساء الفلسطينيات في شمال الضفة الغربية معرفة مقبولة، مواقف إيجابية، وممارسات جيدة تجاه رعاية ما قبل الحمل. يُوصى بتكثيف الجهود لتقديم التعليم حول رعاية ما قبل الحمل، بدءاً من المدارس وتمديدتها عبر المرافق الصحية لتعزيز المعرفة وتحسين النتائج الصحية.

الكلمات المفتاحية: رعاية ما قبل الحمل، المعرفة، المواقف، الممارسات، سن الإنجاب.