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Risk Factors of Primary Infertility in Gaza: Case Control Study

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Risk Factors of Primary Infertility in Gaza: Case Control Study

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Dedication

This thesis is proudly dedicated to

My respectful father, my nurturing mother and

My dearest sisters and brothers.

Thanks for all the love, prayers and your endless faith in me.

If it wasn't for you, it wouldn't have been ……

I would also like to dedicate this work to my inspiring supervisor

Professor Dr. Yehia Abed …. You are and will always be

the light that shines our path…

Declaration

I certify that this thesis submitted to the degree of master is the result of my own research, except where otherwise acknowledged, and that this thesis or any of its parts has not been submitted for higher degree to any other university or institution.

Signature:

Dr. Amal Mohammed Dhair

Date: / /

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Signature:

Dr. Amal Mohammed Dhair

Date: / /

Abstract

Introduction & main objective:

Many couples around the world are struggling the gloomy feeling of childlessness. Besides the lack of parenthood potentials, they may suffer from relative social and societal exclusion. This brings the importance of identifying main risk factors associated with primary infertility in Gaza Strip and ultimately searching for steps that would enhance management plans or even prevent the occurrence of such condition for the sake of improving couples' health and their quality of life.

Methodology:

This study is an observational analytic case control study, comprised 320 total sample population. Cases (160) were selected based on being married, sexually active, non- contracepting women aged (19-49) with no previous pregnancies, while controls (160) were fertile women matched with residency of cases. Data was collected using an interviewed questionnaire through two trained data collectors and it was analyzed using various descriptive and inferential methods; central tendency, crosstabulation and chi square, independent t-test, correlation and binary logistic regression.

Results:

The distribution of study population was 20.6% North Gaza, 34.4% Gaza, 12.5% Middle area, 20% Khan-Younis and 12.5% Rafah. Results showed that females' marital age beyond 29 years held a prominent risk for infertility (OR:8.3,95%CI,2.8-24.3), while 10yrs age difference between couples was 2 times risky ($p=0.02$). Living in extended families after marriage, being refugee and men born as the 7^{th} or more sibling also projected the same risk (OR:1.9,1.6,2.3 respectively). Also, the type of females' work field, pattern of work shifts and stress perception held significant association. Moreover, females and males who used to drink from rooming tankers before marriage ($p<0.001$ for both) and couples using septic porous sewer tanks ($p=0.02$) had the same risk. Other environmental factors were lack of practicing safety measures while using pesticides, the frequency of using them, heavy physical labour in females and exposure to excessive heat, noise, dust, or gases in males (OR:11.9,3.6,3.6,1.6 respectively). Also, infertile husbands who used to live in a partially demolished house or deal with after-war remnants or had their nearby source of drinking water been bombed, were significantly more than their counterparts ($p=0.03,0.006,0.033$ respectively).

Age of menarche below 14 (OR:1.8) and menstrual irregularities (OR:5.7) were among the risk factors detected. Additionally, infertile females suffering from Poly cystic Ovaries (PCOs), Oligomenorrhea, Hyperprolactinemia, Hirsutism or uterine fibroids were at more risk (OR:9.4,9.3,4.6,9.6 respectively). The more the duration of untreated PCOs, the more the likelihood of infertility ($p<0.001$), while using oral combined contraceptives seemed to have protective effect, although continuous use of non-steroidal anti-inflammatory drugs held significant association (OR:0.3,7.9). The main medical exposures among men were the presence of varicocele ($p<0.001$) and the frequency of genitourinary infection more than 5 times in 2 years duration ($p=0.001$). Family history of infertility in both males and females, subfertility and varicocele among males also had positive association.

Lifestyle variables showed that the duration and frequency of tobacco smoking among men and passive smoking among females are risky ($p=0.007$). Fertile couples seemed to consume more vegetables and fruits in terms of servings/day ($p=0.004$ females, $p=0.01$ males) and frequency/week ($p=0.001$ both). Also, having sugar, chips, fries, soda and canned juice regularly and spending longer periods of time sedentarily per day ($t=3.79$, $p<0.001$) had significant association.

Conclusion and recommendations:

This study succeeded to identify part of the risk factors associated with infertility in Gaza Strip including those related to demographic, socio-economic, environmental, medical factors and different lifestyle variables. Accordingly, it is concluded that more efforts are needed to improve water and sanitation quality control, develop occupational health, enhance infertility diagnosis and management and its inclusion in reproductive health care agenda and enhancing various lifestyle practices of population in Gaza Strip.

Table of Contents

List of Tables

List of Figures

List of Annexes

Acronyms and Abbreviations

ART	Assistive Reproductive Technology
BMI	Body Mass Index
CDC	Centers of Disease Control and Prevention
COC	Combined Oral Contraceptives
DHS	Demographic and Health Survey
FSH	Follicular Stimulating Hormone
GDP	Gross Domestic Product
GnRH	Gonadotropin Releasing Hormone
GS	Gaza Strip
ICMART	International Committee for Monitoring Assisted Reproductive Technology
ICPD	International conference on Population and Development
IPAQ	International Physical Activity Questionnaire
IVF	In Vitro Fertilization
LH	Luteinizing Hormone
MBS	Metabolic Syndrome
MCH	Maternal and Child Health
MoH	Ministry of Health
NGOs	Non-Governmental Organizations
NSAID	Non-Steroidal Anti-Inflammatory Drugs
PCBS	Palestinian Central Bureau of Statistics
PCC	Preconception Care
PCOs	Polycystic Ovary Syndrome
PCR	Polymerase Chain Reaction
PID	Pelvic Inflammatory Disease
PHC	Primary Health Care
PSS	Perceived Stress Scale
UNFPA	United Nations Funds for Population Activities
UNRWA	United Nations Relief and Works Agency for Palestine Refugees in the near east
WB	West Bank
WHO	World Health Organization

Chapter One
Introduction

1.1 Background

Reproductive and maternal health is a health issue that has a global priority and is listed in the development agenda of almost all nations (UN, 2016). In 1994, the United Nation conducted an International Conference on Population and Development (ICPD) inviting envoys from 179 countries with variety of perspectives on reproductive health, gender equality and sustainable development (UNFPA, 2014). Since then, a global assent was adopted on putting individual free choice, including one's right to build a family, as one of the main components of nation's development and prosperity, as its wide range benefits had been widely recognized. After 20 years, the United Nations Funds for Population Activities (UNFPA) extended the implementation of key principles of ICPD and published a report that convoys with contemporary demographic, cultural and social transition and transformation (UNFPA, 2014). This finally lead to defining reproductive health as a "state of complete physical, mental and social well-being (not merely the absence of disease and infirmity) in all matters relating to the reproductive system and its functions and processes" (IAWG, 2018).

Conception is considered a complex biological and physiological process that is usually associated with interrelated, and at the same time, multidimensional factors. However, failure to conceive is considered one of the most distressful reproductive health conditions that is common globally, but with higher rates in the developing countries. Despite the fact that both men and women have equal opportunity to be the cause of being infertile, in Eastern Mediterranean countries all the blame and responsibility is commonly encountered on the females (Abushahla, 2013). It is well noted that about one third of the cases are linked to paternal medical causes, while female causes are accounted for the other third of the cases. Around 15-20% of the problem has idiopathic etiologies (Ashour, 2014). On the other hand, the World Health Organization (WHO) recognizes infertility as a public health problem in terms of physical and mental health for both partners although it is not recognized till couples determine to endure a child. It differs than other public health problems. The problem does not float on the surface till deciding to build a family. Accordingly, the WHO defined clinical primary infertility as a condition that refers to