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The Effect of Psycho-social Factors on Birth Outcomes Among the Refugee Pregnant Women in Gaza Strip

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Dedication

To my country “Palestine”

To my dear parents

To my dear sisters

To all my professors

Bahja Mohammed Al Maqadma

Declaration

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

Signed:

Bahja Mohammed Al-Maqadma

Date: ----------

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Finally, I'll be very pleased and honored to dedicate this study to my parents who were very supportive and encouraging during the three years of the master course.

All the respect

Bahja Maqadma

Abstract

Background: Over the past ten years, infant mortality and neonatal mortality rates in Gaza Strip had an increasing trend despite all the efforts that were done to reduce it. In 2013 a study by the United Nations Relief and Work Agency for the Palestinian refugees (UNRWA) showed that there was an increase in infant mortality rate from 20.2 per 1000 live birth in 2008 to 22.4 per 1000 live birth in 2013. Also, neonatal mortality rate was 12 per 1000 live birth in 2008 and rose up to 20.3 per 1000 live birth in 2013.

In our country, the ongoing Israeli – Palestinian conflict particularly in Gaza Strip, shows high level of violence and insecurity, besides, low socioeconomic levels and a poor quality of life. All these factors make the Palestinian refugee women more susceptible to be exposed to traumatic events than other societies.

Aim and objectives: This study aimed to examine the effects of exposure of Palestinian refugee women to psychosocial stressing factors during the 3rd trimester of pregnancy and consequently their birth outcomes. Its objectives were to determine the association between the effect of the socioeconomic; demographic factors; social support and stressing factors on refugee pregnant women and their birth outcomes in Gaza Strip.

Study methodology: This study was a prospective cohort of 500 pregnant (aged above 18 and less than 39) women in their third trimester attended eight health centers to receive antenatal care using an interview questionnaire. After delivery women were approached to collect information about their birth outcomes.

SPSS (version 20) was used for data entry, cleaning and analysis. Frequencies and chi-square analysis were done to describe the study variables. Univariate analysis was done to examine the association between the study independent variables and the birth outcomes. Significant level was set to be less than 0.05.

Results: It was showed that 21.20% of the babies; their weight were less than 2500 and 16.4% were preterm babies. Also, 1.6% of the woman experienced perinatal deaths. More than half of LBW, PTB, and perinatal deaths were among the women who completed secondary and high school. Also, about 7% of LBW and 8% of PTB were the outcomes of the employed pregnant women.

A 16% of pregnant women were exposed to domestic violence during their pregnancy. Some of those women had adverse birth outcomes, results demonstrated that domestic violence contributes to 18.9% of LBW babies, 17.1% of PTB. Yet there wasn't any perinatal death occurred among the women who were exposed to domestic violence.

A 17.4% of pregnant women perceived that they have received low social support and 43.2% of them had high stress level. Also, 45.6% complained of severe level of fatigue and 16% had high stress level caused by pregnancy.

The results which have been found significant association were between the husband's education and having PTB and the relationship of the women with their husbands and having LBW or PTB.

Conclusion of the study: This is the first study of its kind in Gaza Strip that investigated pregnant women psychosocial health. Within the past ten years, people living in Gaza strip experienced three wars and were in an ongoing political conflict for more than 20 years.

This study revealed important results which should be of concern for decision makers and health care providers although did not show significant results. Although social support; violence; fatigue; having stress due to pregnancy or exposed to any kind of other stress did not show significant roles in determining birth outcomes in this study, but is still considered factors affecting pregnant women's health. Other factors which were not examined in this study might still playing a role in determining birth outcomes in Gaza Strip. For example, pregnant women own health factors; life style factors like diet quality; multiple pregnancies with short intervals or others might have influence on birth outcome.

Violence against women in this study was within the estimated range by the World Health Organization for women aged 15-44 years. However, we suspect that there is an under-reporting of this problem since it is culturally sensitive to women in the Palestinian society. Therefore, the high incidence of adverse birth outcomes among those women who claimed in their answers that they never exposed to domestic violence in their pregnancy might biased this study results.

For that, we recommend for future research to use a qualitative study design and techniques which might help women to be more opened to talk about the real psychological situation they are facing through their pregnancy.

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List of Abbreviations

ANC	Antenatal Care
CDC	Center of Disease and Prevention
CS	Caesarian Section
HC	Health Center
LBW	Low Birth Weight
LGA	Large for Gestational Age
LMP	Last menstrual period
MFIS	Modified Fatigue Impact Scale
MSSS	Modified Social Support Survey
PCBS	Palestinian Center Bureau of Statistics
PCC	Pre Conception Care
PES	Pregnancy Experience Scale
PHC	Primary Health Care
PSS	Perceived Stress Scale
PTB	Preterm Birth

PTSD	Post-traumatic Stress Disorder
SES	Socio-economic Status
SGA	Small for Gestational Age
SPSS	Statistic Package for Social Science
UNICEF	United Nations Children's Emergency Fund
UNRWA	United Nation Relief and Work Agency
USA	Unites States of America
WHO	World Health Organization

Chapter (1) Introduction

1.1 Background

Many improvements in the health are implemented worldwide by various stakeholders from national and regional sectors. Those stakeholder emphasized on the fact that mother and child health are highly affected by a wide range of socio-economic and environmental factors, which could indirectly affect their health in addition to the clinical (physical) causes (WHO, 2015). Therefore, care for child should start even before pregnancy and continue through the course of pregnancy and child birth (WHO, 2016a).

The use of antenatal care (ANC) and traditional approach that focus on clinical services and the prevention of potential complications, the psychosocial aspects of the pregnancy was added as an important component in these guidelines (WHO, 2016a).

Therefore, the new ANC approach requires of what they called "woman-centered antenatal care service" that would include tailored, rather than routine clinical therapeutic practices, relevant and timely information and finally the most important part is the support including social, cultural, emotional and psychological support (WHO, 2016a).

For long time ago, we used to hear talks and debates about the effect of the pregnant woman emotions on fetus development. It was a belief that the fetus may be harmed by these negative emotions of the woman such as, stress; psychological trauma; post -traumatic stress disorder (PTSD), and others. This belief has its root in the culture and the tradition of the different societies around the world. Studies should have several attempts to validate such a belief and examine it to find out to which extent maternal stress may affect the pregnancy outcomes (DiPietro, 2012).

Stress can be a possible host of problems for the babies during pregnancy. The problem is that the stress is a silent disorder, thus pregnant women should be aware how to recognize it when they have stress. This is also applied on the birth outcomes. As, it is not easy to predict with certainty whether the outcome is going to be poor or not. Therefore it is important to follow the possible ways which mitigate the harm that could happen (Van, 2011).

Stress includes a wide range of different exposures to life events like bad relationship, witnessing on acute disasters, poor socioeconomic status (SES) and pregnant specific anxiety

as well. It has been shown to be associated with altered outcomes for the infant (Glover, 2011). The outcomes of these factors might cause morbidities which by themselves lead to adverse birth outcomes such as low birth weight (LBW) and preterm birth (PTB) (Feinberg et al, 2015).

According to the world health organization (WHO) report 2013, about 15 million babies are born preterm each year and that is one every ten babies worldwide. In addition, it is attributed to one million deaths, and even those who survived are suffering lifelong disabilities. Globally, prematurity is the leading cause of death among the children under five years old, and according to the countries with reliable data the number is increasing (WHO, 2014a).

The gap in the infant mortalities between the low and high income countries remains wide. It is about 12 times more in low income countries than in high income countries (WHO, 2014a). This gap and disparities between these countries should be reduced. Thus one of our priorities is saving more children's live (WHO, 2014a).

1.2 Problem Statement

In Palestine, particularly in Gaza Strip, unstable life is the dominant feature. Siege and boycott, high unemployment rate (43.3%), increasing poverty, shortage of power supply, restriction of people movement and internal political dispute between government de-facto and the Ramallah government are leading the life to stressful daily suffering (Shomar, 2011). Also, since 2008 Gaza was passing in three wars (2008/2009, 2012, 2014). This situation added more difficulties and stress on the daily life of Gaza population and imposed impact, in particular on the vulnerable groups and among of them are the pregnant women and their newborns (Shomar, 2011).

The influence of psychosocial stressing factors on birth outcome is still controversial and unclear (looman et al, 2013). The association between these factors and the birth outcomes can be confounded by pathological causes; as pregnancy induced hypertension, Diabetes mellitus, and anemia and so on (looman et al, 2013). LBW and PTB are two of the main leading causes of infant morbidity and mortality, which are still increasing in Palestine especially in Gaza strip (Van den Berg et al, 2015). Therefore, it is important for the health

care providers, the mother and the families as well to have better understanding of the effect of the stressing factors on the psychology of the pregnant women and the newborns.

1.3 Justification of the study

Neonatal period "first 28 days of the life" is the most vulnerable time for the child life. As mentioned before, globally it is estimated that 45% of under five deaths occurred during their first month of life (WHO, 2016a). During the last 20 years, the proportion of child death which occurs during the neonatal period has increased all over the WHO regions (WHO, 2014b).

Furthermore, it is known that prematurity and LBW are the leading cause of neonatal death, also they are the second leading cause of the deaths in children under five (WHO, 2014b).

Studies showed that, maternal stress and anxiety during pregnancy have been associated with higher incidence of PTB and LBW (Schetter et al, 2012).

It is well known that countries where women live in deprived socio-economic conditions are more susceptible to poor outcomes of their offspring (Messer et al, 2006). Besides; lower socioeconomic status (SES) is associated with a number of important social and environmental conditions that contribute to chronic stress and impaired health (Baum et al, 2000).

It is worthy to highlight this problem and to explore other causes. So that appropriate interventions can be applied to improve the mothers resilience and avoid the newborns those harmful factors.

Palestinian Central Bureau of Statistics (PCBS), (2015) conducted a survey and found out that the under-five mortality rate was 21.7 per 1000 live birth in the whole Palestinian territories. In West Bank child under five mortality rate was 20.0 per 1000 live birth, while in Gaza Strip it was 23.7 per 1000 birth. For the Infant Mortality rate reached 18.2 per 1000 live births in the whole Palestinian territories, 17.1 per 1000 live birth in West Bank and 19.6 per 1000 live birth in Gaza Strip.

During the sixty fifth world health assembly in 2012, it was said that the improvement in Infant Mortality rate in the occupied Palestinian territory is unnoticed and has decreased slowly over the last two decades. It declined from 25.5 per 1000 live births in 2000 to 20.6 per 1000 live births in 2010 (WHO, 2012). Additionally, two- third of infant deaths occurs within the neonatal period, for most of them during the first day of the baby's life (WHO, 2012).

Over the past ten years, the Infant Mortality rate in Gaza Strip has an increasing trend despite all the efforts that were done to reduce it .The number of babies who die before they reach their first month (Neonatal Mortality) has also significantly increased. The latest study that was conducted in 2013; the results have shown the increase from 20.2 per 1000 live birth in 2008 to 22.4 per 1000 live birth in 2013. The same for the Neonatal Mortality rate, it was 12 per 1000 live birth in 2008 and has gone up to 20.3 per 1000 live birth in 2013 (UNRWA, 2015a).

In our country, the ongoing Israeli – Palestinian conflict particularly in Gaza Strip shows high level of violence and insecurity, besides; the low socioeconomic level as well as the poor quality of life (siege, restriction of movement m un-employment, electricity cut…) (Van den Berg et al, 2015), however, no studies assessed the impact of all these stressing exposure on the pregnant women who are part from the society and they are in a critical period to all these harmful and stressing factors. As all these factors make the Palestinian refugee women more susceptible to be exposed to traumatic events than other societies and to suffer from stressful reactions with subsequent poor birth outcomes.

1.4 Aim of the study

This study aimed to examine the effects of exposure of Palestinian refugee women to psychosocial stressing factors during the 3rd trimester of the pregnancy and consequently the birth outcomes.

1.5 Objectives of the study

To determine the association between the effect of socioeconomic and demographic factors on refugee pregnant women and their birth outcomes in Gaza Strip- Palestine.

To determine the association between the effect of pregnancy stress related factors on refugee pregnant women and their birth outcomes in Gaza Strip- Palestine.

To assess the effect of social support on buffering the effect of stressful factors on birth outcomes Gaza Strip- Palestine.

To assess the impact of fatigue level on the refugee women during pregnancy and their birth outcomes in Gaza Strip- Palestine.

1.6 Study expected outcomes

There is fairly clear understanding of the medical contributors to the occurrence of PTB and LBW such as, pregnancy induced hypertension, diabetes, infection, and others. Thus, our attention should be paid on the psychosocial associations with PTB and LBW. Results of this study will be used to explore the possibilities of appropriate intervention to mitigate the adverse outcome of these factors.

1.7 Thesis structure

This thesis will be presented in 6 chapters as follows:

Chapter one: contains the background of the study, problem statement and study justification, objectives and study area; chapter two: will include related data (literature review) of a conducted international, regional and in country studies and researches; chapter three: it includes the study conceptual framework; chapter four: includes the study methods, population, sampling, and sample size, ethical consideration will also include data collection,

processing and analyzing; chapter five: it will present the results; and finally in chapter six: will include discussion, conclusion and recommendations.

Chapter (2) Literature Review

2.1 Introduction

In this chapter it was reviewed the studies that examined the association between the various psychosocial factors on the pregnant woman and her birth outcomes. It included the demographical study variables (maternal age, marital age, educational level, occupation, place of residence, the income), also the psychosocial study variables (domestic violence, exposure to war or disasters, social support).

2.2 Socioeconomic status and its effect on pregnancy

SES is an aspect, which is important in community- based study to understand its association with different circumstances of the person life (APA.org, 2016). Knowing of someone SES means categorization of the family in respect of different variables including; education, occupation, economic status, social position, etc.. (APA. Org, 2016).

In pregnancy, disparities in birth outcomes among mothers in different socioeconomic level, racial and age groups are still a critical health concern (Coley et al, 20115). Studies show that there is a strong social gradient in the birth outcomes. It has been demonstrated that, the risk of development of unwanted birth outcomes for instance, small for gestational age, preterm birth was higher across all the indicators of Low socioeconomic status (Start, 2003).

Moreover, women who are categorized as the lowest regarding to the socioeconomic factor, they are four times more likely to have pregnancy related complications (Start, 2003). In addition, infant mortality rate are 1.6 times greater in the lowest income group (Start, 2003).

In a study that has been conducted in Unites States of America (USA) identified that adverse birth outcomes, are based on maternal characteristics including; race (Black or African American), younger maternal age and low SES. They show that the high prevalence of low

birth weight, preterm birth, neonatal mortality are found among mothers in environment of Low SES more than mothers with higher SES (Coley et al, 2015).

Another comparative study of SES, it studied mothers who delivered low birth weight babies with mothers who delivered normal birth weight babies in tertiary rural hospital in India. They compared their demographic profiles and examined the associations. It is found that significant association is between the lower family income and the low birth weight. Additionally, the incidence of low birth weight babies was more in mothers with less educational level (Reddy and Sarma, 2015).

Also, India reviewed the statistics of the LBW, they found that birth weight has been improved in comparison with old statistics. They discovered that some extent, this improvement is due to changing in the socio-demographic profile of the mothers (Idris et al, 2000).

In Pakistan, according to a study in jahang (Akram, 2015), the author observed the demographic characteristics of the mother of low birth weight. The study results revealed that, low SES, mother's age at the time of delivery and low level of education are the main causes of low birth weight among infants.

2.2.1 Parents poverty, level of education and birth outcomes

According to Wilkinson and Marmot (1998), poverty causes family stress and leads to social and emotional problems. Also, poor living conditions lead to poorer health, such as, worries, insecurity of daily life and the lack of supportive environment, which have bad influence on health status of the exposed person.

Regarding to the woman health, poverty is still has adverse effect on prenatal, infant and maternal health. It raised the pregnancy related complications four times in the pregnant women who live in poverty which is greater than the pregnant women with good socioeconomic level (Mustard et al, 2000). Moreover, infant mortality rate is 1.6 times greater than in the lowest income group. Thus, women who live in poverty should be the main population who should get care of their psychological and health status (Braverman et al, 1999).

Pregnant women who experience negative life events and have poor housing, low income and they don't receive any social support are least likely to seek prenatal care (Marquis and Butler, 2001). This will lead the women to face high level of stress and subsequently bad pregnancy outcome (Marquis and Butler, 2001).

It was shown that the risk of development of small for gestational age and spontaneous preterm birth is high among the women with lower SES. Also, higher risk of post-neonatal deaths was demonstrated for several measures of lower socioeconomic positions (Shankardass et al, 2014).

In Amsterdam, study showed that poor neighborhood environment, unemployment and absence of social security, all these factors affect the pregnancy negatively and precipitate to preterm delivery, small for gestational age, miscarriage and perinatal death (Agyemang et al, 2009).

The same has appeared among the African American in comparison with white American community. Because African American community have adverse neighborhood conditions and they are considered as area with high unemployment and low income. This influenced the rate PTB and LBW (Ahern et al, 2003).

Education is found to be a very important factor in determining birth outcomes. Picker (2016) showed that there is a well- known persistent association between education and health and how it has important social impact on health. They showed that the more numbers years of education, the better health and healthier behavior.

Chevaleir and O'Sullivan, (2007) stated that maternal education may affect the infant health through improvement of the inputs that lead to positive outcomes related to pregnancy. Several factors were shown to play this role. The increased use of prenatal care, reduce the smoking during pregnancy, improvement of the nutrition of the pregnant woman were factors that had to improve the positive outcomes of pregnancy.

Maternal education level is a factor that affects the woman health during pregnancy and her baby as well. Chevalier and O'Sullivan, (2007) reported that any additional year of maternal education increases the average birth weight by 75 grams or 2%.

A case control study by Pickett et al (2002) found that maternal education of less than the high school increased the risk of preterm delivery among the African American pregnant women. Similarly, regarding to the prevalence of LBW, Raum et al (2001) analyzed two sets of data in

east and west Germany and revealed that, pregnant women chance for having babies with LBW decrease with increasing the maternal education.

The result of the national survey of the children data in the USA between 1986 and1996 which assessed the impact of educational level of the pregnant women on the development of adverse birth outcomes, found that the magnitude of this effect is smaller among the pregnant women who completed their high school, and was found to be 74% lower than their normal birth weight offspring (Boardman et al, 2005).

Another survey in Canada was done on the children data between 1994 and1995. It was found that maternal education has independent effect –after controlling of other risk factors such as mother age at birth of the child, use of prenatal care, smoking- on the development of small for gestational age (Millar and Chen, 1998).

A retrospective cohort study was applied on Washington state birth certificate data; the author used the data for each single live birth from 1992 to 1996, and race, health service care and other maternal factors were adjusted. The author found that maternal education alone was associated with LBW in both race; white and black (Nicolaidis et al, 2004).

In Jordan launched new standards in the primary health care for antenatal care education, which aims to improve the maternal and neonatal mortality rate through improving the maternal confidence, decreasing anxiety and improving the birth outcomes. On evaluation of the efficacy and the effectiveness of this program, they found that the effect of antenatal education on maternal confidence and anxiety were not significant. However it was observed that findings such as caesarean rate, medication during labor and after birth and postnatal stay were all higher among the women who didn't receive antenatal education than the women who received (Abujilban et al, 2014).

In Palestine (Gaza Strip), a case control study in Gaza Strip was conducted among 550 women

(275 had dead infants and 275 had live birth), it aimed to study the impact of parental education on the occurrence of infant mortality. They found that the families with lower educational level had a much higher risk of infant mortality. Also, a positive statistical association was found between parental education and survival of infants (Abuqamar et al, 2011).

In conclusion, maternal education as independent from other SES variables associates strongly with improved the health of the newborn. Also; maternal education affects the birth outcomes through its effect on other SES determinants including better job opportunities, family income and improvement of the housing conditions (Amnkra et al, 2010).

2.2.2 Maternal occupation and birth outcomes

Von Ehrenstein et al (2014) studied the PTB and its relation with maternal occupational exposure. They examined whether the effect were modified by Hispanic ethnicity and nativity in population based sample. The results showed that PTB was increased generally by the increase of the working hours of the pregnant woman and the physical effort that is required to achieve her work.

In addition; PTB increased among the women in health care and technical occupation. Besides, the occupation of the woman showed more effect among the Hispanics women, especially those who work in building cleaning and maintenance occupations.

The various differences of the occupation conditions of the pregnant woman have various outcomes. A case control study showed that LBW were increased among the women who have worked during the pregnancy in transportation, material moving operations, food preparation and serving occupation, while women who have worked in office occupations were at lower risk of having LBW outcome (Von Ehrenstein et al, 2013).

A study has been conducted to find out the relationship between maternal employment and the development of LBW and PTB, depending on certain employment characteristics, they included the working hours per week, physical activities and the environmental conditions of the work.

Results showed that those who have worked 40 or more hours per week were more likely to have LBW baby and PTB than women who have worked fewer hours. Yet, no physical activity or environmental condition of the work associated with LBW or PTB outcomes (Peoples-Sheps et al, 1991).

In Iran, a cross sectional study has been conducted to investigate the relationship between maternal employment status- whether the woman is employed or housewife- and pregnancy outcome. Frequency of placental abruption was greater among housewives and a significant relationship was found between employment status and lifting heavy object, which was more frequent among housewives. Lifting heavy objects during pregnancy was only significantly related to reduce amniotic fluid and lead to LBW. Frequency of preterm labor was higher among housewives compared to employed women, but not significantly. Type of delivery was significantly related to employment, and employed mothers had more cesarean deliveries (Khojasten et al, 2015).

A prospective cohort study showed the relationship between the work conditions and the birth outcomes among group of Irish pregnant women. It found significant association between the physical work demands and LBW. Moreover, working with temporary contract, working 40 hours or more per week and shifting hours were found to affect the birth outcomes. Temporary contract may be an evidence of poor working conditions, which may generate feelings of stress and anxiety due to feeling of insecure, long hours and the physical demand work cause pressure on the pregnant woman and may have risk on her health and her baby health (Niedhammer et al, 2009).

In Saudi Arabia, they compared the birth outcomes between the employed and non-employed pregnant women and it was found that employed pregnant women, especially those who work in un favorable conditions had poorer pregnancy outcomes than housewives. They had more caesarean sections, PTB and LBW babies (El-Gilany et al, 2009).

In Sir Lanka, a cohort study showed that the pregnant women who were physically active during their pregnancy period, they didn't appear to significantly influence by this effort and didn't have poor birth outcomes, except the mode of delivery. As, the occurrence of emergency caesarean delivery was significantly related to the perinatal physical activity level (Jayakody and Senanayke, 2015).

Another study in Europe compared the outcome of employed and non-employed pregnant women. It considered some circumstances for selected sectors of occupations (nursing, food industry work, subjects holder, cleaning work and others). Those selected sectors where the woman could have potential reproductive hazards. It was found that the employed pregnant women had lower risk of PTB than the non-employed. Furthermore, most of the selected

sectors of occupations that have been studied showed no association with the adverse birth outcomes (Casas et al, 2015).

2.2.3 Place of residence and birth outcomes

In Australia, previous studies compared the outcome of pregnant women between rural and urban areas. They said that the perinatal characteristics of the rural woman were more likely to be teenaged, to have had LBW and PTB and to develop premature rupture of membrane. In contrast, the urban women were more likely to be at age suitable for getting pregnant, have been assisted for conception and had antenatal diagnosis for all expected adverse birth outcomes (Abdl-Latif et al, 2006).

Another study compared the birth outcomes of Latin American Immigrants into two countries; Canada and Spain, where the selective migration is more in Canada than Spain. It revealed that, Latin American immigrant women in Canada had better birth outcomes than Latin American immigrants women in Spain. As, the immigrant women in Canada had fewer LBW and fewer PTB outcomes than the women who had have birth in Spain (Urquia et al, 2015).

A population based cross sectional study examined PTB and small for gestational age (SGA) among the immigrant women. Besides, retrospective assessment has been used for the duration of residence after immigration and it has been compared with the Canadian born population -non-immigrants-. It was showed that the recent immigrants –less than five years- had lower risk of PTB than the non-immigrants. But the increase of duration of immigration increased the risk of PTB; they showed that five years increase in residence after immigration was associated with increased risk of PTB but not SGA (Urquia et al, 2010).

Kent and et al (2013) said that the population dense urban areas have some specific social and environmental conditions that increase the risk of adverse birth outcome, especially in unobserved urban community. Moreover, despite all the interventions that have done to decrease the adverse birth outcomes, the magnitude of inequality was maintained until 2010 in all population dense urban areas and the isolated rural areas compared to other regions.

A cross sectional study has been conducted to compare the proportion of LBW between rural and urban areas in different levels of social deprivation. The results revealed that the disparities

in LBW exist in all rural and urban areas according to the level of deprivation. Additionally, there is substantial disadvantage in living in urban areas compared to rural areas which result from social and environmental conditions, regardless to the level of deprivation (Reading et al, 1993).

Another cross sectional study of all birth between 1989 -1991 was examined and compared the outcomes in rural and urban areas. The inadequate prenatal care, LBW and infant mortality were significantly higher for rural than urban women (Baldwin et al, 2002).

2.2.4 Maternal age and birth outcomes

A retrospective study aimed to assess the maternal and prenatal outcomes between pregnant women with advanced age -aged 35 years and older- and younger pregnant women.

It was found that there is no significant difference between the advanced maternal age group and the women with younger age in developing PTB, leading to caesarian section CS delivery and morbidity and mortality of the pregnant woman (Benli et al, 2015).

Jolly and his colleagues (2000) studied the risks associated with pregnancy in women aged 35 or older. A retrospective design was used and the comparison of the outcomes was based on the age of the woman at the time of delivery. They said that induction of labor was more likely to be in older women and these women were more likely to have CS delivery. In regard to PTB and still birth; they were significantly higher in the older women and the incidence of SGA and large for gestational age (LGA) was higher in the same group of women.

In a population based cohort study, the data of all births between 2004 and 2008 were collected from University College London Hospital, comparing the outcomes between women aged 30-34, 35-39 and more than 40 years old, with women aged 20-29.

It was confirmed that the women aged more than 40 was the highest group of having risk of still birth and PTB babies compared with women aged less than 30 and they are less protected from having SGA than the younger women, while the other groups (30-34) and (35-39) had significantly reduced in SGA, PTB and still birth (Khalil et al, 2013).

In Morogo region, Kilombero and Ulanga districts have conducted analysis using demographic and health data which has been collected from Ifakra surveillance system. The analysis included first and second live births of the pregnant women aged 13-19 years old and the pregnant women aged 20-34 years old. It was found that the neonatal mortality was higher among the neonates of the women aged 13-19 compared with those aged 20-34 years old. Also, it was more among the women without partner co-resident in the household.

They said that the first group of the pregnant women was more likely to face financial and social problems that lead to leases care of the child. In addition, the lack of social experience about how to take after the newborn can lead to more neonatal deaths (Selemani et al, 2014).

Another study examined the effect of young age of the pregnant women (10-15) on the birth outcomes, they used the data from 1983-1986. Factors such as, race, marital status, prenatal care, gravidity, education and residency were all controlled. The study indicated that the youngest mother were at the greatest risk for adverse birth outcomes including, PTB, LBW, SGA and neonatal mortality. They said that, the improvement of all the conditions of the young pregnant woman didn't improve the outcome of the pregnancy (Cooper et al, 1995).

2.3 War, conflicts and disasters and birth outcomes

Every day, thousands of women are forced to leave their homes due to war, conflicts and disasters. They join the 45 million other people worldwide, and they represent half of all those who have been displaced (Devakumar et al, 2014).

Pregnant women are a part from this displacement, those women will be exposed and their babies to risks resulting from lack of access to routine care and lack of emergency care when it is needed, 15% of deliveries will develop life threatening events and complications that need medical intervention (Devakumar et al, 2014).

Women who have experienced conflict and displacement, they have been exposed to trauma from losing one of their family members, being homeless and witnessing violence, as well as, the uncertainty of life; all this exposed them to different stressors (Devakumar et al, 2014).

The political conflicts and the displacement have caused traumatic effect on the woman well-being, as the consequences that results from such events like, gender based violence and sexual violence can cause potential psychosocial consequences (Mckay, 1998).

Mansour (2011), studied the effect of prenatal stress on birth weight. The evidence was from the Al-Aqsa Intifada. He drawn the data from the 2004 Palestinian demographical records, then he measured the conflict intensity caused by the Israeli forces on the birth weight. He found that exposure to fatalities during the first trimester is positively related the probability that the child is LBW.

Currently, the humanitarian crisis in Syria which have begun in 2011, where the Syrian population are suffering ongoing violence, destruction and displacements, they also suffer from lack of mechanical facilities, lack off essential health resources and trained health care providers. In addition the lack of the maternal services which cause harm on the pregnant women and their babies. Moreover, the stress and the anxiety because of the uncertainty of the situation is an additional burden on the women which frequently is seen that it leads to adverse birth outcomes like, PTB (Elian, 2014).

A study in Syria showed that women are more susceptible to psychosocial trauma; they are exposed to stress and anxiety. They said that, those women are at high risk to develop poor pregnancy outcomes such as, LBW and PTB (Masterson et al, 2014).

Another study has been conducted by Torche and Shewed in 2015 in New York University; they used the 2006 Israeli-Hezballah war to examine the unobserved factors that could have a hidden effect on the health of the pregnant woman and her child. They compared the exposed and unexposed births of the same woman. Findings showed that the exposure to war experience in early and mid-pregnancy period lowers the birth weight and increase the susceptibility of LBW. This study suggested that increase the environmental stressors during the war could alter the outcome of the pregnancy.

A prospective cohort study assessed the effect of natural disasters on pregnancy outcomes. They studied women who exposed to hurricane Katrina and interviewed those women about their experience during this event. By interviewing them, they evaluated whether they had symptoms of PSTD and they considered women who were at high hurricane exposure were the highest group who were at risk of having PTSD. This means that having three or more of the eight severe hurricane experience such as, feeling of danger or having a loved one dead. It

showed that the women with high exposure to hurricane increased the frequency of LBW, comparing with the women without high exposure to hurricane. This is the same regarding to PTB, as the frequency of PTB deliveries were more among those women who had high exposure hurricane (Xiong et al, 2008).

In war zone, stress changes babies before they're born, Neely (2016) said. Researchers went to the Eastern Democratic Republic of Congo. It is the worst place in the world, where the women are frequently the target of rape, violence and other war related trauma.

In this study, they examined the stressful life experiences and their effect on the body of the pregnant woman; they analyzed the gene that is responsible for regulation of the body's response to stress in both woman and newborn. For this, they collected sample from umbilical cord, placenta and pregnant woman's blood at birth, they tested the response of the woman and her baby to war trauma and chronic stress by figuring out indicators that showed the effect of stress on the health of the woman and her baby. Finally, they found that, the difference in the level of stress-linked DNA methylation, predicted the possibility of having LBW baby.

2.4 Domestic violence in the Arab countries

Domestic violence has psychological, emotional effects on the women. It is associated with mental health problems like anxiety, depression and development of PTSD (Kumar et al, 2013).

A worldwide estimates published by WHO indicate that about 1 in 3 (35%) women worldwide have experienced either physical or sexual intimate partner violence or non-partner sexual violence in their lifetime. Additionally, most of this violence is intimate partner violence. Worldwide, almost one third (30%) of women who have been in a relationship said that they experienced physical or sexual violence by their intimate partner (WHO, 2016b).

Estimates of the violence against women suggest that almost 2 million women are physically assaulted annually and more than 50 million are assaulted in their lifetime (Jasinski, 2004).

Fikree and Bahatti (1999) mentioned that the magnitude consequence of domestic violence has serious health problems. 72% of physically abused women were anxious and depressed.

Domestic violence is still under reported in Arab countries. As they consider it a private matter and it is usually justified, as it is a response to misbehavior from the wife, they use the Quran to prove that men have the right to punish their wives and when they beat them, they are following the commands of the God (Douki et al, 2003).

Surveys showed that in Egypt, Palestine and Tunisia, at least one of three women is beaten by their husbands (Douki et al, 2003). In 2014, in Saudi Arabia, the Ministry of Justice said that women were the victims in 45% of domestic violence in the past 15 months (Barberet, 2015).

Arab countries showed that 70% of violence occurs in big cities and 80% of the women are assaulted by their fathers, eldest brothers, or the husbands (Chelala, 2014).

A survey that was done by Thomson Recuter Foundation in 2013 showed that Egypt has the worst woman's right among all the Arab countries, followed by Iraq, Saudi Arabia, Syria and Yemen (Kehoe, 2013).

According to the United Nations Children's Emergency Fund (UNICEF) and the Palestinian Centers Bureau of Statistics (PCBS), Palestinian women are at risk of domestic violence and honor crimes. In 2011, it has been estimated that domestic violence toward the Palestinian women is 51%. Additionally, there were 25 honor killings were registered in the first nine months of 2013 (Kehoe, 2013). Preventing women from work is considered kind of violence toward the woman, this is reflected by the low percentage of the employed women, as only 17% of the total Palestinian work force are women (Kehoe, 2013).

The United Nation (2014) study found that 29.9% of married women in West Bank and 51% in Gaza Strip are exposed to violence within the household. 48.8% of the women in West Bank and 76.4% in Gaza Strip have been psychologically abused; 17.4% in the West bank and 34.8% in Gaza Strip are physically abused; and 10.2% in the West Bank and 14.9% in the Gaza Strip sexually abused.

According to the report that was done by Mohammed Yehia (2013) in regard to the incidence of domestic violence among the married women which is considered to be the 2nd marriage for them in the Palestinian society. It showed that 58.6% and 23.5% of them are exposed to at least one time of emotional violence and at least one time of physical

violence. The incidence of violence irrespective to its type is higher among the women in Gaza Strip than the women in West Bank. Also, it is higher in Urban and refugee camps areas than rural areas. It was found that the size of the family, the income, the poor conditions of the family, the occupation status of the woman and her age are factors affecting the incidence of violence. He said: most of the woman prefer to ignore the violence event and they don't talk about it to anybody or leaving the home to her family or even ask their husbands to stop doing that. Few woman who go asking for help from the organizations that care about the violence against woman.

2.4.1 Domestic violence and birth outcomes

Worldwide, violence is a major cause of death and disability among women in reproductive age. The experience of violence makes women more susceptible to variety of health problems such as, depression, stress and suicide (Chelala, 2014).

Hammoury et al (2009), studied the factors associated with domestic violence among the Palestinian refugee pregnant women in Lebanon. He used a cross sectional design to determine these factors and it was conducted at the UNRWA polyclinics. He found the women who are less educated are exposed to violence the most, also, gestational age, the unintended pregnancy -husband didn't desire the pregnancy- and the fear from the husbands contribute to the frequency of exposure to violence.

A cross sectional analysis has been done to explore the domestic violence among 385 pregnant women, and the association of socio-demographic characteristic of the woman with being violated. Domestic violence has been shown in 36.9% of women during their life and 34.6% during pregnancy. 97% of the pregnant women were exposed to psychological violence, 48.7% were exposed to physical violence and 4.9% were exposed to sexual violence. They mentioned that domestic violence was associated with lack of planning of pregnancy, low family income and bad habits of the husband (Okada et al, 2015).

In Syangja district, Nepal, a cross sectional study has been established to determine the prevalence of gender based violence among the pregnant women. In this study, 202 pregnant women were selected to participate in the study. It showed that 91% of those women have been

exposed to gender based violence. The majority faced economic violence (87%), followed by 53% who faced psychological violence, while 41.3% have been exposed to sexual violence and 4.3% have been exposed to physical violence (Gurung and Acharya, 2016).

LBW

represented 16 A meta-analysis of 50 studies through 17 countries with total sample 5 million pregnant women, they found that 15000 of these women experience some source of violence, whether it is physical, sexual, financial, psychological or emotional from their husbands. They also found that those women are twice at risk to have PTB and LBW babies (willets, 2007). They said: the adverse outcomes were not only as a result of physical or sexual abuse which leads to trauma that could harm the baby. As, domestic violence increased the maternal stress, inadequate nutrition and poor prenatal care (willets, 2007).

Another study assessed pregnant women who were exposed to domestic violence during pregnancy and evaluate the health of their babies. Results revealed that women who were exposed to violence were at greater risk of getting several health problems such as, PTB, LBW, late going for prenatal care and prenatal substance use (Huth-Bocks et al, 2002).

In 1999, Fernandez and Kruegen compared estimated the incidence of domestic violence among the pregnant women and its effect on the birth outcomes. The birth outcomes of the women who were exposed to domestic violence have been compared with the birth outcomes of the women who were not exposed to domestic violence during pregnancy. From the total pregnant women who enrolled in the study (489); 20% were exposed to domestic violence and 22% of premature deliveries were among those women, compared with women who were not exposed to domestic violence, as only 9% had premature deliveries. Similarly, % among women who were exposed to domestic violence, while it was only 6% among the women without domestic violence.

Another study found that domestic violence has significant impact on worsening of the birth outcomes. 132 pregnant women, who experience domestic violence, were selected to be followed after delivery. Result showed that domestic violence was associated with maternal complications including, antenatal depression and post-partum depression. In addition, adverse birth outcomes including, PTB and LBW (Nongrum et al, 2014).

30 studies have been systematically reviewed, to examine the association of poor birth outcomes (LBW, PTB and SGA) with domestic violence. They showed significant increase of PTB and LBW, in relation with women exposure to domestic violence (Shah et al, 2010).

A researcher selected group of pregnant women who experienced domestic violence, whether it was verbal or physical, to be screened for how potent the domestic violence effect on contradicting the outcomes of the pregnancy. He said that the result showed three folds increase in LBW among the women who had physical violence, compared with those who hadn't. Beside, LBW increased in women who were exposed to verbal violence, compared with those who were not exposed. Physical violence increased the risk of neonatal deaths and PTB (Yost et al, 2005).

Sarkar (2008) searched the literature that was made based on the database of women who were pregnant during the years between 2002 and 2008. Unintended pregnancy and multiple abortions were associated with women who experienced domestic violence. Additionally, those women have this experience, had high level of anxiety and depression, as well as, impaired quality of life. As a result, there was increasing in the occurrence of LBW and preterm delivery. Also, cases of neonatal deaths were reported.

In a survey that was done among 2199 Indian women to estimate the prevalence of domestic violence during pregnancy and to examine its effect on the occurrence of perinatal and neonatal mortality. It was found that, 80% of women in the study experienced domestic violence during their pregnancy. Furthermore, the risk of perinatal and neonatal mortality for those women was 2.59 and 2.37 times higher respectively than women who hadn't experienced violence (Ahmed et al, 2006).

In a prospective cohort study, 139 pregnant women were interviewed, these women were at least 18 years old at the time of prenatal interview and they shouldn't exceed the age of 19 years old at the time of conception. It was found that 22% of those women were exposed to abuse during pregnancy and they gave birth to low weight babies. They were compared with the non-abused women, LBW was higher among them. Additionally, social support showed potential influence on infants birth weight (Renker, 1999).

In African –American population from 1997 to 2001, 3149 relatively low risk pregnant women participated in a prospective study; the abuse assessment screen which is validated screen tool was used and filled out to assess the physical and emotional abuse of those women. It was

found that among women, who were screened, 26.6% had emotional abuse and 18.7% had physical abuse. Besides, 10.3% of the women were pregnant when they were abused. In addition, LBW and preterm delivery occurred in 10.9% and 10.2% of pregnant women respectively (Neggers et al, 2004).

Improved knowledge of the risk factors that lead to violence is necessary. It is effective for getting proper interventions, understand why violence against women occurs and to figure out its effect on the women and their babies' health (Gazmararian et al, 2000).

2.5 Social support and birth outcomes

Social support of the pregnant women by emotional participation or even programs intervention have protective effect on those women, As they would buffer the effect of life stressors and enhance the emotional well-being of the pregnant women (Shishehgar et al, 2015).

Study found that the level of perceived social support is inversely related to development of emotional distress and then causing negative birth outcomes. Besides, it is related positively to pregnant women's self-esteem and life satisfaction that will improve the outcome of pregnancy (Flynn, 1999).

A prospective study observed 896 pregnant women when they were in the first trimester of the conception; they aim to see the effect of social support on improving the quality of life of those women and on alleviating the post-partum depressive symptoms. Women were divided into three groups, depending on the level of the perceived social support –low, medium and high-. It was found that women with low social support were younger; less educated and have medical problems. Besides, social support was significantly related to worsening or improving the depressive symptoms of the women. Women with low social support had depressive symptoms, compared with women of medium and high social support. High social support showed significant improvement of the quality of life and the psychosocial condition of the women compared with the women with low social support. Furthermore, High social support showed significant enhancement of the pregnancy complications, but, moderate and low social support had the same effect on contributing to pregnancy complications (Elsenbruch et al, 2006).

There is a review which has been done on the studies that examined the relationship between stress and PTB and the relationship between social support and PTB. They found that stressful events were common during pregnancy. However, this review didn't agree with the other studies that confirmed the relationship of stress with PTB. While, in regard to social support; they found that it improved the birth outcome, even among women who experienced less stressful events during pregnancy (Hoffman & Hatch, 1996).

80 women during post-natal period -42 days after delivery- were interviewed to examine the effect of family support on the outcomes of both woman and the neonatal health. The interview included four area of support – emotional, informational, social and financial- support. Emotional support was found to be more during pregnancy than other kinds of support. Moreover, family support showed positive effect on the pregnancy outcomes, it revealed that high family support leads to high percentage of women got good health outcomes for them and their babies (Haobijam et al, 2010).

Cheng and his colleagues (2016) said in their study, partner support during pregnancy has protective effect on the outcomes. They studied 2641 pregnant women from urban and sub-urban areas and used the turner support scale to assess the degree of partner support. It was found that low partner support was related to increase the level of anxiety and depression. However, the author found that LBW, PTB and fetal growth retardation were not related to the degree of partner support.

In a prospective cohort study, 139 pregnant women were interviewed, these women were at least 18 years old at the time of prenatal interview and they shouldn't exceed the age of 19 years old at the time of conception. It was found that 22% of those women were exposed to abuse during pregnancy and they gave birth to low weight babies. They were compared with the non-abused women, LBW was higher among them. Additionally, social support showed potential influence on infants birth weight (Renker, 1999).

A study evaluated the role of social support, partner and medical staff support and the effect of distressed events during early (14-17 weeks) or later (28-32Weeks) on the pregnancy complications, including, LBW and PTB. It showed that low partner support whether in early or later conception is associated with LBW and PTB, similarly, pregnant women who were exposed to distressed events showed increase in the risk of LBW and PTB and they gave poor Apgar score of the newborn (Kreither et al, 2012).

A descriptive study has been conducted among 210 pregnant women from Shahrgar Social Security Hospital. Questionnaire was filled by the women about the socioeconomic characteristics, the perceived social support and the stress related to the pregnancy. Study showed significant influence of the social support on the maternal stress, especially the partner and family support, while socioeconomic level didn't show significant difference on changing the maternal stress. Thus, the buffered effect of the social support showed positive effect on the pregnancy outcomes (Shishehga et al, 2014).

A prospective study has been established and followed women during pregnancy; 120 Hispanic and 110 white women. They assessed the following factors and their relation with poor birth outcomes; they assessed the personal resources -self-esteem and optimism-, State of stress and anxiety and socio-cultural conditions- income, education and ethnicity. They found that those with higher personal resources had higher birth weight of their babies. As being educated, married and have adequate income is associated with low risk of getting stressed and subsequently having poor birth outcomes (Rini et al, 1999).

Another study assessed the stressful events among women who were 25 to 29 weeks of the pregnancy; they used scale to assess the psychosocial status of the women. Those with low and high psychosocial scores were compared. It was shown, PTB, LBW and fetal growth restriction occurred more among the women with high stress level than women with low stress level (Copper et al, 1996).

A prospective study has been conducted to examine, if maternal stress was a mediator between the social disadvantaged women and poor birth outcomes. For this, 2168 pregnant women were assessed for their psychosocial behaviors and socioeconomic characteristics. Results revealed that women, who were socially disadvantaged, had high stress level and thus they were more associated with poor birth outcomes (Gavin et al, 2012).

In New York, a researcher studied the house instability – two moves or more within the past year- as a source of stress. 632 pregnant women in their second trimester, aged between 14-21 years were obtained from seven hospitals and health centers. Results showed, 28.5% of them didn't have stable house and they revealed that they were at risk of having LBW and PTB (Carrion et al, 2015).

In summary**,** this review included many studies that investigated the effect of the different aspects of the psychosocial and economic status of the pregnant woman and her family.

However, few Arab countries raised this topic before, and we still don't have enriched data talking about the effect of woman's life on her pregnancy. Also, these studies adopted different study designs and mostly were cross-sectional. Yet, few studies followed up women and observe them during the whole course of pregnancy. Moreover, studies of similar objectives of our studies were conducted mainly in countries with stable political situation. Countries under conflict or those having frequent exposure to crises and disasters did not examine this association. Therefore, our study is examining pregnant refugee women living under various psychosocial factors; i.e. the Gazian pregnant women of Palestine.

Chapter (3) Conceptual framework

3.1 Introduction

In this chapter; the operational definitions that were used, the determinates of the study and the conceptual framework will be presented.

3.2 Study variables Operational definitions

- Stress: Results from interactions between persons and their environment that are perceived as straining or exceeding their adaptive capacities and threatening their well-being (Medical dictionary .com)

-Low Birth weight: A child weight at birth is below 2500 grams (5.5 pounds) (CDC, 2014).

-Preterm birth: is the birth of an infant before 36 weeks of pregnancy (CDC, 2014).

-Neonatal mortality: Its two types:

-Early neonatal mortality which refers to a death of a live-born baby within the first seven days of life (CDC, 2014).

-Late neonatal mortality which covers the time after 7 days until before 28 days (CDC, 2014).

-**Infant mortality:** is the death of a baby before his or her first birthday (CDC, 2014).

The *infant mortality rate:* is an estimate of the number of infant deaths for every 1,000 live births (CDC, 2014).

-**Educational level: is categorized into:**

Low educational level which includes any individual who did not enter school, or had been study in primary and preparatory schools.

Medium educational level which includes persons who had been completed secondary school, and study 2-year diploma.

High educational level which includes persons who had been completed a university degree and or college of advanced /or higher education.

-Social support: is any type of communication that helps the individuals feel more certain about a situation and therefore feel as if they have control over the situation (kendallhunt.com, 2011). It is categorized into:

- **Emotional support:** is the empathy, concern, affection, love, trust, acceptance, intimacy, **encouragement, or caring**
- **Informational support:** is the provision of advice, guidance, suggestions, or useful information to someone.
- **Companionship support:** is the type of support that gives someone a sense of social belonging.

-Risk Assessment: According to UNRWA technical Instruction, 2009:

- **Normal pregnancy:** All pregnant women with no identified risk factors, regarding to factors related to past history (group A), and factors related or might develop during the course of the present pregnancy (group B).
- **Alert pregnancy:** Pregnant woman with one risk factor in group (A) or group (B).
- **High risk pregnancy:** Pregnant woman with two risk factors or more regardless of whether they fall in group (A) or group (B) or both.

3.3 Study conceptual framework

Figure (1) shows the determinants of study birth outcomes including, low birth weight, preterm birth and perinatal death.

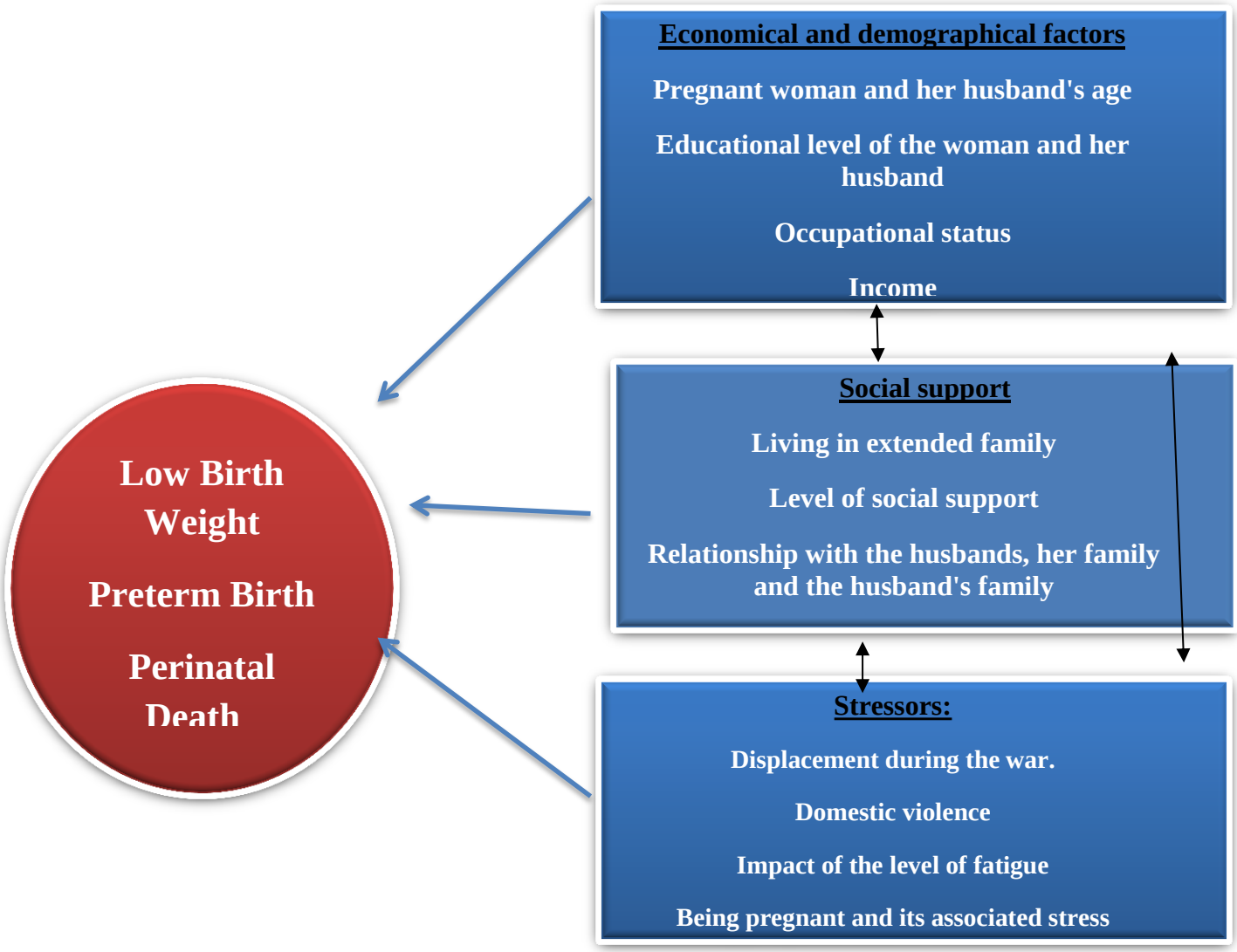

Figure (1) Conceptual Framework of the study

3.3.1 The SES of the pregnant woman

The women in low and middle income countries face maternal distress more than the women in high income countries. Thus, determinant of women's and children's health are complex. Moreover the inequities in determinant of health and the social, cultural and political context of

the women in low and middle income countries negatively influence the mental health of the women. Consequently, this vulnerability may exist not only to risk factor of maternal distress, but also a predictor of pregnancy outcomes (Premeji, 2014).

Employment has been conceptualized as a source of physical demand which is relatively rare in developed countries, but is common in many other part of the world or as a source of psychological stress because of its demand on pregnant women. In contrast, work also is a source and indicator of favorable socioeconomic circumstances; i.e., the ability to have and maintain a job, the benefits that employed women receive and the psychological satisfaction resulting from certain type of job (Behrman & Butler, 2007).

3.3.2 **Stress during pregnancy**

Pregnancy is a time of many changes. The body, the emotions and the life of the family are changing. Those changes might be welcomed, but they can add new stresses to the life.

Feeling stressed is common during pregnancy. But too much stress can make the woman feels uncomfortable. Stress can make the woman have trouble in sleeping, have headaches, and loss of appetite or overeat.

High levels of stress that continue for a long time may cause health problems, like high blood pressure and heart disease. During pregnancy, this type of stress can increase the chances of having a PTB or a LBW babies (Mayoclinic.org, 2014).

Serious types of stress during pregnancy may increase the chances of certain problems, like PTB. Most women who have serious stress during pregnancy can have healthy babies. But if the woman experience serious kinds of stress, like, Negative life events (Divorce, serious illness or death in the family, or losing a job or home), Catastrophic events (earthquakes, hurricanes or terrorist attacks) or long-lasting stress (Wars, conflicts and instability) that can be caused by having financial problems, being abused, having serious health problems or being depressed. Depression is medical condition where strong feelings of sadness last for long periods of time and prevent a person from leading a normal life, as well as, Pregnancy-related stress; some women may feel serious stress about pregnancy, they may be worried

about miscarriage, the health of their baby or about how they will cope with labor and birth or becoming a parent (Marchoftime.org, 2012).

There are no direct neural pathways between the mother and fetus, so scientists have looked for more indirect pathways to understand how a mother's level of stress and anxiety may impact her baby. One possible mechanism is through stress hormones. When we are stressed, a series of chemical changes is set off in our bodies and brains, such as the release of cortisol and adrenaline. Normally, these chemicals help prepare us for danger and are important for our survival; however, if we are chronically stressed and anxious, these stress-related hormones can remain high for too long and affect our bodies. Stress hormones in the mother's body do reach the baby. When a pregnant woman is chronically stressed or experiences extreme stress, the baby may be exposed to unhealthy levels of stress hormones, which can impact the baby's brain development. Chronic or extreme maternal stress may also cause changes in the blood flow to the baby, making it difficult to carry oxygen and other important nutrients to the baby's developing organs. In addition, chronically or severely stressed mothers may feel overwhelmed and fatigued which might impact their diet and sleep habits and consistency of prenatal care. All of these factors may help explain how maternal stress during pregnancy can have long-term effects on the unborn child (Johnson, 2012).

3.3.3 The social support during pregnancy

During pregnancy women not only experience physiologic and hormonal changes, but also they are psychologically surrounded by the concept that they may not be able to handle the upcoming new circumstances. Therefore, they are in great need for social support to be enabled to overcome diffidence (Maharlouei, 2012).

It has been well-documented that women who have benefited from the emotional support of their spouse, family, and even the social networks during pregnancy are less likely to be fettered by the peri-partum complications. For instance, pregnant women who have been well supported by their family would be less frequently affected by psychological problems, such as distress, anxiety disorders and depression, which lead to less negative birth outcomes. Moreover, remarkably few of them would experience post-partum depression.

It could be explained by the premise that less effective social support during pregnancy would end in higher level of cortisol secretion; consequently, biological sensitivity to psychological distress would be increased (Maharlouei, 2012).

Chapter (4) Methodology :

4.1 Introduction

This study has been conducted by using a prospective cohort design. This chapter provides comprehensive details of all aspects of the study methodology. It explains the study design and study setting, the tools of data collection and analysis. In addition, it explains the study population, the sample frame and the sampling.

The eligibility criteria that have been applied for the study sample were clearly defined. The researcher ensured the validity and the reliability of the study instruments that were used for data collection. The ethical issues and the limitation of the study have been considered as well.

4.2 Study Design

This study was designed as a prospective cohort study, it was supposed to include the pregnant women of Palestinian Refugee in both Gaza Strip and West Bank. The West Bank part was not feasible, due to emerging of unexpected danger of the confrontations with the Israeli occupation forces, there would be risk threatening the data collection team in the areas of health centers (HCs) which would be included in the study. Besides; we assumed in this study that West Bank is politically more stable than Gaza Strip where exposure to traumatic events is more prevalent. Now both are exposed to the same level of violence. Thus, the study was continued in Gaza Strip as a prospective cohort study, where the researcher chose the refugee pregnant women who attended the ANC in the selected United Nation Relief and Work Agency (UNRWA) Health Centers (HCs).

The researcher decided the design to be a prospective cohort one, as he selected exposures (stressors, social support) to be examined for possible effect on the outcome (by following the birth outcomes). It is cohort; as, the outcomes that being studied were followed over a period of time to determine the incidence rate, which is related to the factors in the study. The study aimed to find out the effect of psychosocial factors during pregnancy on the birth outcomes.

4.3 Study settings

The Study took place in Gaza Strip at the UNRWA HCs, where the vast majority of Palestinian refugees used to seek health care. The estimated percentage of the registered population accessing UNRWA health services is about 96.9% (UNRWA, 2015).

The UNRWA provides their health services through 21 HCs. The researcher attempted to establish the study in respect to the geographical distribution of the HCs that are accessible to the study population where they are found in scattered locations all over Gaza Strip to ensure the coverage of the study to the targeted population in the different areas of their residency.

Another consideration was the size of the HCs according to the served population, as UNRWA HCs are classified to big, medium and small ones.

The areas of the HCs that are accessible to the targeted population were divided into four zones as follow:

- The northern zone :
  - It includes three HCs, two big HCs (Jabalia and Saftawi), and one medium HC (Beit Hanoun).
  - Two out of those HCs were selected, one big HC (Saftawi) and one medium HC (Beit Hanoun).

- The southern zone :
  - It includes two big HCs, (Rafah and Khan Younis) and two medium HCs (Tal Alsultan and Maan).
  - Again one big HC (Rafah) and one medium HC (Maan) were selected.

- The middle zone:
  - It includes four HCs, one big HC (Nusierat) and three medium HCs (Bureij, Magazi and Deir-Al-balah).
  - The big HC of the middle area was selected (Nusirat) and the middle one was Bureij HC.

- Gaza and surrounding:

- It includes four HCs, one big HC (Remal), and three medium HCs (Gaza town, Sabra and Beach).
- One big HC (Remal) and one medium HC (Gaza town) were selected.

The rest of UNRWA HCs are classified as small HCs or attached to bigger one in order to provide all the activities of the ANC. The served population of those HCs (small or attached) can be included among the adjacent big HCs, so they are represented by the sample that was drawn from the big HCs; to which those HCs belong to.

It should be emphasized that the consistency of the health services all over the UNRWA HCs, and the homogeneous culture of the population in Gaza strip, as well as the same condition of living are helping factors for the researcher to decide the selected HCs. so this is the first stage of multi-stage sample.

As it has been explained above in the selection of the HCs; it is clear that one set of criteria was applied all over the selected HCs. This criteria is composed of geographical distribution and inclusion of the scattered locations of the HCs in the different zones of the Gaza Strip, coverage of the served population and size of the HCs and catchment area and catchment population of the selected HC.

4.4 Study Population

The targeted population was those pregnant women who came to the UNRWA HCs for the ANC during the period of the study, and they met the predefined inclusion criteria.

The annual expected number of women who may get pregnant is about 45282, while the registered number of pregnant women is 39564. At UNRWA HCs, the coverage of the antenatal care for the Palestinian refugee pregnant women is 87%. The services are applied in all the HCs according to explicit technical guidelines (UNRWA ,2015b).

According to the WHO recommendation the pregnant women should have at least four ANC visits throughout the whole course of pregnancy. The percentage of pregnant women attending UNRWA HCs who had four ANC visits and more is 91.7% and the average number of visits for each pregnant mother is 6.4 visits during the whole course of pregnancy (UNRWA, 2015b).

4.5 Eligibility criteria

The researcher applied the eligibility criteria that were available in the literature. The categorization of pregnancy status was considered according to ANC guidelines that are used in UNRWA HCs. By following this approach, the researcher avoided the confounders that could affect the study results such as (physical factors; obstetric history…..etc.; that affect the outcomes of pregnancy as they are beyond the concern of the study).

4.5.1 Inclusion criteria

The pregnant women who have been enrolled in the study are the following:

1. Pregnant women whose ages above 18 or below 39 years old (As beyond those two limits the UNRWA guidelines define them as one of the factors that leads to alert or high risk pregnancy).
2. Pregnant women who were in their 3rd trimester (28th weeks after the LMP until the labor). Several studies suggested that stress during the 3rd trimester is harmful the most, stress hormone such as cortisol and adrenaline, are stimulated when the person perceived a crisis or think a stressful thoughts, these hormones harm the woman when she is pregnant and harm her baby too. Researcher found that the surge increase of the hormone during the 2nd trimester is ineffective, as the binding proteins prevent their work. But, the situation changes in the 3rd trimester, stress hormones run even higher and the binding proteins diminish. Thus stress hormones reach its peak and at the last week of pregnancy, those hormones become two to three times higher than normal (Bodalal et al,2013).
3. Women who had normal pregnancy with no complications in their obstetric history. (The last estimates of the UNRWA annual report 2014 said that, the percentage of normal

pregnancy is 59.9%, while the percentage of Alert and high risk pregnancy is 24.8% and 15.3% respectively).

4.5.2 Exclusion criteria

The following pregnant women were excluded, in order to avoid the confounders and the mediators that could affect the study results.

1. Primigravida.
2. Multiple pregnancy (twins, triple, quadruplet….)
3. Have any medical or obstetric complications in the present conception.
4. Had history of obstetric complications in the previous conceptions.
5. Any woman with normal pregnancy and turned into alert or high risk category during the period of the study was excluded.

4.6 Sample size determination

The sampling method which has been used in this study is multi-stage sampling:

- The first stage is selecting the eight HCs from the total number of UNRWA HCs (21 HCs), this has been based on cleared pre-defined criteria as described under para 4.3 (study setting).

The following table shows the distribution of the sample size among the selected HCs:

Table 4.1: Distribution of the sample unit among the selected HCs

HCs	N	%
Gaza Town	**50**	**10.0**
Nusirate	**69**	**13.8**
Buraij	**38**	**7.6**
Saftawi	**56**	**11.2**
Bait Hanon	**47**	**9.4**
Al-Remal	**70**	**14.0**

Maan	**92**	**18.4**
Rafah	**78**	**15.6**

- The second stage is random selection of 500 pregnant women from the whole pregnant women who attending the HCs for ANC

To calculate sample size, we assumed that the prevalence of women exposed to stress is 10%, the researcher anticipated incidence of stress in Gaza Strip is 10%. Also, it is assumed that pregnant women might have higher stress, so an incidence rate of 15% was estimated.

According to this assumption, a sample size is 316 by considering that the confidence level is 95%, the study power is 80% and alpha is 0.05. Table 4.2 showed the calculations. The researcher increased the sample size to 500, this number was distributed among the HCs proportionately according to the registered number of the targeted group in each HC then the sample was selected randomly by applying the predefined inclusion criteria on the women who came to the ANC.

Table 4.2: Sample Size Calculations

Sample Size	
Group (1)	**316**
Total	**316**
Study Parameters	
Incidence- Population	**10%**
Incidence- Study group	**15%**
Alpha	**0.05**
Beta	**0.2**
Power	**0.8**

Source: CliniCalc.com.

4.7 Study instrument

1-Patient's File

Personal and demographical data (Age, marital age, educational level, employment) as well as data related to the medical and past obstetric history were extracted from the file of the pregnant women who participated in the study.

2-Study Questionnaire

- **During Pregnancy**: Face to face structured Interviewed questionnaire with closed ended questions was developed. It included questions related to each studied factor of the conceptual framework (socioeconomic status (SES) including: marital age, level of education, employment, the income, occupation and stress related to the pregnancy itself) **(Annex 1.).**

Regarding to the source of the questionnaire, the demographical and social factors are based on the major variables that have been used by other studies that assessed the same association, which the researcher is going to assess. In order to study the perceived social support of the pregnant woman, the researcher used the Modified social support survey (MSSS). This survey provides an assessment of several domains of social support including tangible support, emotional support, affective support, and positive support. It is useful for such kind of studies; the studies that test hypotheses concerning these different domains (Ritvo et al, 1997). For the degree of perceived stress among the pregnant women, the researcher used the Perceived stress scale (PSS) which is a psychological instrument for measuring the perception of stress. It is a measure the degree to which situations in one's life is appraised as stressful. Items were designed to tap how unpredictable, uncontrollable, and overloaded respondents find their lives (Cohen et al, 1993). Modified fatigue impact scale (MFIS) which was used to measure the degree of fatigue. It provides assessment of the perceived impact of fatigue on the daily activities of the pregnant woman (Ritvo et al, 1997).

Regarding to the stress related to pregnancy, Pregnancy experience scale (PES) that has been designed by Dipietro (2008) and his colleagues, in addition to the questions that have been obtained from the study that was done by Ghanem (2011). These questions were used to evaluate the maternal appraisal of positive and negative stressors during pregnancy.

The questionnaire has been translated into Arabic by the researcher herself and it is re-evaluated by experts in public health and psychology.

- **After delivery:** Each woman was interviewed while she was pregnant, she has been approached again after her delivery to ask about her health and if any unexpected event happened during the delivery, also to find out the outcome of her pregnancy (PTB, LBW, Perinatal death, etc…). This was done through telephone call. If any woman of the group would have been missed after her delivery, the pre delivery interview would be ruled out from the analysis.

4.8 Validity and Reliability

Validity and reliability were done to assess to which degree the used instruments measure what it supposed to measure and if they give consistent and stable results.

A. Validity

Experts in public health and epidemiology evaluated the components and the context of the instruments, in order to ensure that it is highly valid and reliable.

B. Reliability

In order to check the reliability of the study questionnaire a Cronbach's Alpha Coefficient test was done for the different sections of the questionnaire. The results were as follows:

Cronbach's Alpha for questions that are related to stress section: 87.4%. It included the questions from number 60 to number 117 **(Annex 1).**

Cronbach's Alpha for questions related to social support section: 98.5%. It included the questions from number 42 to number 59 (**Annex 1).**

4.9 Pilot Study

Pilot study is used for pre-testing or trying out the validity of the questionnaire. It may give warning about where the research might fail or can't be completed because of unexpected obstacles, and to examine if the instrument is appropriate or not (Van Teijlingen, 2001).

Twenty participants were included in the piloting stage of the study and they were taken from one HC, which is one of the HCs that were selected in the study setting. SPSS version 20 was used for data entry and analysis. Also; notes were taken from those women on the clarity and understanding ease of the questions. Accordingly, the researcher modified, edited and re-evaluated few questions in the study tool. The researcher didn't include the pilot sample in the study.

4.10 Data collection

Five health workers were trained, in addition to study researcher, to collect the data from the 8 centers. Those field workers had detailed training which composed of explaining the study and its objectives, the methodology, as well as discussing the interview questionnaire. They did the study pilot as an exercise. The steps for interviewing each pregnant woman were explained for the health workers and they were emphasized to get the consent of each participating woman **(Annex 2)**

The researcher conducted training on spot sessions and inspection for some interviews to ensure the accuracy of the data collection by the field workers and re-interviewed some women to confirm the results.

Each interview lasted for 20 to 30 minutes to fill the questionnaire.

The second part in the data collection was completed through three to five minutes telephone calls with the participating women after delivery. They were asked about the baby health- the birth weight, the date of delivery (was it preterm or full term) and if there is unexpected event happened-, also they were asked about their personal health and if any complication happened during or after delivery (prolonged delivery, CS delivery, instrumental delivery, post- partum Hemorrhage and transfusion of blood).

4.11 Statistical analysis

SPSS version 20 was used for data entry, cleaning and analysis. Descriptive analysis was done for all the demographic and socio-economic variables of the study. Continuous variables like,

age, educational level, stress scale, social support scale; all were converted into categorical variables. Chi-square was used to find out the association between all the independent categorical variables and the outcomes. Significant level was set to be less than 0.05.

Scoring of the scales

Scale 1: Perceived stress scale (PSS) was used to measure the perception of the stressors and the degree to which situations in pregnant woman's life are appraised as stressful (Cohen et al, 1993).

The questions are designed to show how the pregnant women find their lives by asking them about their feelings and thoughts.

They are 10 items, four of them are positive, each item is rated on a 5-point scale ranging from never (0) to almost always (4).

Scoring was done by reversing the responses of the four positive items -as we measure negative status, so without reversing of the positive answers, they will take the higher score and reflect false result- (0 = 4, 1 = 3, 2 = 2, 3 = 1 & 4 = 0), it , then summing across all the scale items. Higher scores indicate more perceived stress.

Scores less than 13 were considered mild stress, scores range from 13 to 19 were considered moderate stress while scores of 20 or higher were considered high stress (Cohen et al, 1983).

Scale 2: Modified social support survey (MSSS) was used to assess the perceived social support of the pregnant woman during pregnancy. It provides several domains of social support including tangible support, emotional support, effective support and positive support (Ritvo et al, 1997).

The survey consists of 18 items which have been filled by the pregnant women. The score of the survey ranges from 1 to 100 and according to the results, it is classified into three categories; Low (-25 to 25), moderate (26-50) and High (51-75).

Scale 3: Modified fatigue impact scale (MFIS) was used to measure the degree of fatigue. It provides assessment of the perceived impact of fatigue on the daily activities of the pregnant woman (Ritvo et al, 1997).

MFIS consists of 21 items divided into three sub-scales (physical, cognitive and psychosocial). Each item is rated on a 5-point scale ranging from never (0) to almost always (4).

Scoring is done by summation as the following:

Physical sub-scale which ranges from 0-36 and includes the following items

(4+6+7+10+13+14+17+20+21).

Cognitive sub-scale ranges from (0-40) and includes the following items (1+2+3+5+11+12+15+16+18+19).

Psychosocial sub-scale ranges from (0-8) and include the items (8+9).

The total scoring is done by summation of physical, cognitive and psychosocial sub-scales. It ranges from (0-84), and are classified into three categories:

- Mild (less than 28)
- Moderate (28-46)
- Severe (more than 46).

Scale 4: Pregnancy Experience Scale (PES). It is designed to evaluate maternal appraisal of positive and negative stressors during pregnancy. (DiPietro et al, 2008)

It consists of 23 items, each item is rated on a 5-point scale ranging from never (0) to all the time (4).

Five of the items are positive. Thus they have been reversed as the following:

- (0 = 4)
- (1 = 3)
- (2 = 2)
- (3 = 1)
- (4 = 0)

Scoring is done by summation all the scale items. The higher scores indicate the more perceived stress because of the pregnancy.

The total score ranges from 0-74 and classified into:

- Mild (less than 24)
- Moderate (24-48)
- High (more than 48)

4.12 Ethical consideration

In order to launch this study, an ethical approval was obtained from Helsinki Committee **(Annex**. 3). The researcher submitted the study proposal to Al Quds University, School of public health research committee, and to Al Quds University graduate studies committee for discussion and approval.

Permission to conduct the study in the UNRWA HCs was obtained from the UNRWA Health Department and Ethics Office after approving the study protocol (**Annex. 4).**

Before data collection, all participants were informed about the study aim and objectives and were asked to sign a consent form before interviewing them. With enrollment into this study we didn't anticipate any risks to the pregnant women, also data were entered anonymously. The interview with pregnant woman was conducted during the waiting time for receiving the service. So, there wasn't any delay or keeping the pregnant woman late in the HC. Participation in the study was voluntary and women who chose not to participate received the usual care and were not prevented from any activity of the ANC **(Annex 2).**

4.13 Study Limitations

The study was conducted only on the Palestinian refugee pregnant women, and the researcher assessed the stress level among the pregnant women during their 3rd trimester, not through the whole course of pregnancy. So that, study results might not be generalized among the population all over Gaza Strip.

The researcher expected that the response rate of the pregnant women might be a barrier in completing the study easily. However, no problem was faced in interviewing the women during pregnancy, nor tracing them after delivery, the response rate was 100%.

There was some difficulty in getting cases among targeted group that matched the eligibility criteria of the study. Additionally, there was burden of the time consumed for each interview; 20 to 30 minutes were needed for each questionnaire to be filled.

The researcher had to wait for two to three month in order to complete the questionnaire part related to the outcomes of the pregnancy.

Also, there was financial burden, related to the transportation to the HCs and to the payment for the Health workers who helped in data collection.

Chapter (5) Study Results

5.1 Introduction

In this chapter, study results will be presented. Study population characteristics will be shown in a descriptive analysis. Univariate analysis will also be presented in this chapter.

5.2 Demographic characteristics

Table (5.1) shows that 64% of women are in the age group 18-27 years and 53% live in the city. Of the women, 40.6% of them got married before the age of 18 years (23.8% were at the age of 17 and 12% were at the age of 16) , and 22.4% had their first child when they were under the age of 18 years. 58.4% of the participated women had 7-12 years of education and 40% were graduates or post graduates. However, only 6% of them were working. Husbands of these women had similar level of education, and 65% were employed. About 60% had moderate income.

Table 5.1: Demographic characteristics of the pregnant women

Variables		**N**	**%**
Age	**18-27**	**320**	**64.0%**
	28-38	**180**	**36.0%**
Marital age	**< 18**	**203**	**40.6%**
	18or more	**297**	**59.4**
Age at 1st child	**< 18**	**112**	**22.4%**
	18ormore	**388**	**77.6%**
Pregnant woman Education	**0-6**	**5**	**1.0%**
	7-12	**292**	**58.4%**
	13-26	**203**	**40%**
Pregnant woman Employment	**Yes**	**30**	**6.0%**
	No	**467**	**93.4%**
Husband Age	**19-27**	**151**	**30.2%**
	28-32	**180**	**36.0%**
	33-64	**169**	**33.8%**

Table 5.1 (A): Demographic characteristics of the pregnant woman

Husband Education	**0-6**	**40**	**8.0%**
	7-12	**269**	**53.4%**
	13-26	**203**	**40.6%**
Husband Employment	**Yes**	**326**	**65.2%**
	No	**172**	**34.4%**
Income	**High**	**7**	**1.4%**
	Medium	**286**	**57.2%**
	Low	**205**	**41.0%**
Place of residence	**Refugee camp**	**107**	**21.4%**
	City	**265**	**53.0%**
	Rural area	**127**	**25.4%**

5.3 Social characteristics

When we asked the pregnant women about the relationship with their husbands; 84.2% of them answered that it is very good. There are 33.6% of the pregnant women live in extended family. 23.3% of them are in very good relationship with the husband's family (table 5.2).

The same regarding to the relationship of the pregnant woman with her family, the majority of them are in very good relationship and they represent 92.4% (Table 5.2)

Table 5.2: Social characteristics of the pregnant woman

	Variables	**N**	**%**
Relationship with the husband	**Very good**	**421**	**84.2%**
	Good	**65**	**13.0%**
	Bad	**14**	**2.8%**
Relationship of the pregnant woman with the husband's family	**Very good**	**116**	**23.2%**
	Good	**40**	**8.0%**
	Bad	**11**	**2.2%**
	Don't live with any of the family	**332**	**66.4%**
Relationship of the pregnant woman with her family	**Very good**	**462**	**92.4%**
	Good	**25**	**5.0%**
	Bad	**13**	**2.6%**

Table (5.3) shows the results of the scoring of the various study exposures. About 50% of women reported high social support, high exposure to stressors, high fatigue, but about 60% reported moderate stress related to pregnancy.

Table (5.3): The perceived score of the exposure factors of the pregnant woman

Exposures	High		Moderate		Low	
	N	%	N	%	N	%
Social support of the pregnant woman	**246**	**49.2**	**167**	**33.4**	**87**	**17.4**
Degree of exposure to the general stressors	**216**	**43.2**	**148**	**29.6**	**136**	**27.2**
Fatigue among the pregnant woman	**228**	**45.6**	**213**	**42.6**	**59**	**11.8**
Stress related to the pregnancy itself	**76**	**15.2**	**306**	**61.2**	**116**	**23.3**

5.4 Exposure of the pregnant woman to domestic violence

Table (5.4) shows that there is 16% of the women have been exposed to the violence (Physical, verbal, or both) while they are pregnant. From those women who have been exposed to the violence, 5.6% have been exposed to both physical and verbal (To be assaulted by spoken words) violence. When they were asked about the frequency of exposure to the violence during the pregnancy period, 4.2% answered once per month, 3.4% said more than one time per month and there is 1.6% of them have been exposed to violence every day (Table 5.4).

Table 5.4: Exposure of the pregnant woman to domestic violence

Variables		N	%
Exposure to domestic Violence	**Yes**	**80**	**16.0**
	NO	**419**	**83.3**
Type of the violence (if the answer was yes)	**Physical**	**5**	**1.0**
	Verbal	**47**	**9.4**
	Physical & verbal	**28**	**5.6**
The frequency of exposure to the violence	**Once/ 9 Mo**	**16**	**3.2**
	Once/ Mo	**21**	**4.2**
	More than one time / Mo	**17**	**3.4**
	Once/ week	**6**	**1.2**
	More than one time/ week	**13**	**2.6**
	Every day	**8**	**1.6**

5.5 Univariate analysis

5.5.1 Demographic characteristics and birth outcomes

As shown in table (5.5) there is no significant difference in the socio demographic characteristics between the pregnant woman who had baby with normal birth weight and the woman who had baby with LBW.

The same regarding the association between demographic characteristics and Preterm delivery; table (5.6) shows that there is no significant difference between the term delivery and the preterm delivery, except the husband education. As the husbands with high level of education, their women have significantly less chance to have preterm baby ($P < 0.05$) than the women whose husbands are with moderate educational level.

Demographic characteristics of the pregnant women didn't show significant effect on the occurrence of perinatal death (Table 5.7).

Table (5.5): The effect of the demographic characteristics on the LBW

Variables		Low Birth Weight (LBW)				Chi-square P-value
		Yes<2500 gm		No>2500 gm		
		N	%	N	%	
Age	18-27	75	70.8%	245	62.2%	.103
	28-38	31	29.2%	149	37.8%	
Marital age	less than 18	48	45.3%	155	39.3%	.269
	18 or more	58	54.7%	239	60.7%	
Age at first child	less than 18	24	22.6%	88	22.3%	.946
	18 or more	82	77.4%	306	77.7%	
Pregnant woman Education (in years)	0-6	1	0.9%	4	1.0%	.677
	7-12	58	54.7%	234	59.4%	
	13-26	47	44.3%	156	39.6%	
Pregnant woman Employment	Yes	7	6.6%	23	5.9%	.734
	No	99	93.4%	368	93.6%	
Age of the husband	19-27	38	35.8%	113	28.7%	.269
	28-32	38	35.8%	142	36.0%	
	33-64	30	28.3%	139	35.3%	
Husband Education (in years)	0-6	8	7.5%	32	8.1%	.461
	7-12	52	49.1%	217	55.1%	
	13-26	46	43.4%	145	36.8%	
Husband Employment	Yes	68	64.2%	258	65.6%	.830
	No	38	35.8	134	34.1	
The income	High	0	0.0%	7	1.8%	.467
	Medium	63	59.4%	223	56.6%	
	Low	43	40.6%	162	41.1%	
Place of residence	Refugee camp	23	21.7%	84	21.3%	.914
	City	58	54.7%	207	52.5%	
	Rural area	25	23.6%	102	25.9%	
Live in extended family	Yes	35	33.0%	133	33.8%	.887
	No	71	67.0%	261	66.2%	
Displacement during the last war (2014)	Yes	63	60.0%	216	56.7%	.544
	No	42	40.0%	165	43.3%	

Table (5.6): The effect of the demographic characteristics on the gestational age

Variables		Preterm delivery				Chi-square P-value
		Yes< 36 weeks		No>36 weeks		
		N	%	N	%	
Age	18-27	57	69.5%	263	62.9%	.255
	28-38	25	30.5%	155	37.1%	
Marital age	less than 18	37	45.1%	166	39.7%	.362
	18 or more	45	54.9%	252	60.3%	
Age at first child	less than 18	20	24.4%	92	22.0%	.636
	18 or more	62	75.6%	326	78.0%	
	7-12	43	52.4%	249	59.6%	
	13-26	39	47.6%	164	39.2%	
Pregnant woman Employment	Yes	7	8.5%	23	5.5%	.477
	No	75	91.5%	392	94.0%	
Age of the husband	19-27	30	36.6%	121	28.9%	.317
	28-32	29	35.4%	151	36.1%	
	33-64	23	28.0%	146	34.9%	
Husband Education (in years)	0-6	4	4.9%	36	8.6%	.046
	7-12	37	45.1%	232	55.5%	
	13-26	41	50.0%	150	35.9%	
Husband Employment	Yes	52	63.4%	274	65.7%	.827
	No	30	36.6%	142	34.1%	
	Medium	47	57.3	239	57.2	
	Low	35	42.7	170	40.7	
Place of residence	Refugee camp	21	25.6%	86	20.6%	.750
	City	41	50.0%	224	53.6%	
	Rural area	20	24.4%	107	25.6%	
Live in extended family	Yes	25	30.5%	143	34.2%	.514
	No	57	69.5%	275	65.8%	
Displacement during the last war (2014)	Yes	45	55.6%	234	57.8%	.712
	No	36	44.4%	171	42.2%	

Table (5.7): The effect of the demographic characteristics on perinatal death

Variables		Perinatal death				Chi-square P-value
		Yes		No		
		N	%	N	%	
Age	18-27	5	62.5%	315	64.0%	.929
	28-38	3	37.5%	177	36.0%	
Marital age	less than 18	3	37.5%	200	40.7%	.857
	18 or more	5	62.5%	292	59.3%	
Age at first child	less than 18	1	12.5%	111	22.6%	.498
	18 or more	7	87.5%	381	77.4%	
	7-12	4	50.0%	288	58.5%	
	13-26	4	50.0%	199	40.4%	
	No	8	100.0%	459	93.5%	
Age of the husband	19-27	2	25.0%	149	30.3%	.946
	28-32	3	37.5%	177	36.0%	
	33-64	3	37.5%	166	33.7%	
Husband Education (in years)	0-6	1	12.5%	39	7.9%	.318
	7-12	6	75.0%	263	53.5%	
	13-26	1	12.5%	190	38.6%	
Husband Employment	Yes	6	75.0%	320	65.2%	.842
	No	2	25.0%	170	34.6%	
	Medium	6	75.0%	280	56.9%	
	Low	2	25.0%	203	41.3%	
Place of residence	Refugee camp	2	25.0%	105	21.3%	.865
	City	5	62.5%	260	52.8%	
	Rural area	1	12.5%	126	25.6%	
Displacement during the last war (2014)	Yes	6	75.0%	273	57.1%	.310
	No	2	25.0%	205	42.9%	

5.5.2 Social characteristics and birth outcomes

Table (5.8) shows that there is significant association (P <0.05) between the relationship of the woman with her husband and having baby with LBW, while there is no significant association between the relationship of the woman with her family, as well as the relationship of the woman with her husband's family and having baby with LBW.

Table (5.8): The effect of family members' relationship on the birth weight of the baby

Variables		Low Birth Weight (LBW)				Chi-Square
		Yes		No		
		N	%	N	%	P-value
Relationship with your husband	Very good	98	92.5%	323	82 %	0.029
	Good	6	5.7%	59	15%	
	Bad	2	1.9%	12	3%	
Relationship with your family	Very good	98	92.5%	364	92.4%	.827
	Good	6	5.7%	19	4.8%	
	Bad	2	1.9%	11	2.8%	
Relationship with the husband's family	Very good	24	22.6%	92	23.4%	.383
	Good	10	9.4%	30	7.6%	
	Bad	2	1.9%	9	2.3%	
	don't live with any of the family	69	65.1%	263	66.8%	

Table (5.9) shows that there is no significant difference between the woman who has been exposed to domestic violence during the pregnancy and the woman who hasn't been exposed to violence on having baby with LBW.

Table (5.9): The effect of exposure to domestic violence on the birth weight of the baby

Variables		Low Birth Weight (LBW)				Chi-Square
		Yes		No		P-value
		N	%	N	%	
Exposure to domestic violence	Yes	20	18.9%	60	15.2%	.584
	No	86	81.1%	333	84.5%	

Table (5.10) shows that there is significant association (P <0.05) between the relationship of the woman with her husband and having preterm baby, while there is no significant association between the relationship of the woman with her family, as well as the relationship of the woman with her husband's family and having preterm baby.

Table (5.10): The effect of family members' relationship on the gestational age

Variables		Preterm delivery				Chi-Square
		Yes		No		P-value
		N	%	N	%	
Relationship with your husband	Very good	77	93.9%	344	82.3%	.031
	Good	4	4.9%	61	14.6%	
	Bad	1	1.2%	13	3.1%	
Relationship with your family	Very good	76	92.7%	386	92.3%	.993
	Good	4	4.9%	21	5.0%	
	Bad	2	2.4%	11	2.6%	
Relationship with the husband's family	Very good	18	22.0%	98	23.4%	.103
	Good	8	9.8%	32	7.7%	
	don't live with any of the family	55	67.1%	277	66.3%	

Table (5.11) shows that there is no significant difference between the woman who has been exposed to domestic violence during the pregnancy and the woman who hasn't been exposed to domestic violence on having preterm baby.

Table (5.11): The effect of exposure to domestic violence on the gestational age

Variables		Preterm delivery				Chi-Square
		Yes		No		P-value
		N	%	N	%	
Exposure to domestic violence	Yes	14	17.1%	66	15.8%	.871
	No	68	82.9%	351	84.0%	

Table (5.12) shows that there is no significant association between the relationship of the woman with her husband and experiencing event of perinatal death. Similarly, among the relationship of the woman with her family and with her husband's family, there is no significant difference.

Table (5.12): The effect of family members' relationship on causing perinatal death

Variables		Perinatal Death				Chi-Square
		Yes		No		P-value
		N	%	N	%	
Relationship with your husband	Very good	7	87.5%	414	84.1%	.887
	Good	1	12.5%	64	13.0%	
Relationship with your family	Very good	7	87.5%	455	92.5%	.564
	Good	1	12.5%	24	4.9%	

Table (5.13) shows that there is no significant difference between the woman who has been exposed to domestic violence during the pregnancy and the woman who hasn't been exposed to violence on having perinatal death.

Table (5.13): The effect of exposure to domestic violence on the causing perinatal death

Variables		Perinatal Death				Chi-Square
		Yes		No		P-value
		N	%	N	%	
Exposure to domestic violence	Yes	0	0.0%	80	16.3%	.456
	No	8	100.0%	411	83.5%	

5.5.3 Psychosocial status of pregnant woman and birth outcomes

Regarding to the perceived social support of the woman during pregnancy, table (5.14) shows that there is no significant effect of the social support on improving the outcome of the birth weight. Additionally, it revealed that, the general stressors, the degree of fatigue and the stress related to the pregnancy don't have significant effect on the incidence of LBW.

Table (5.14): The effect of psychosocial status of the pregnant woman on the birth weight of the baby

Variables		Low Birth Weight (LBW)				Chi-Square
		Yes		No		P-value
		N	%	N	%	
The perceived social support	High	55	51.9%	191	48.5%	.599
	Moderate	36	34.0%	131	33.2%	
	Low	15	14.2%	72	18.3%	
The perceived stress during Pregnancy	High	48	45.3%	168	42.6%	.833
	Moderate	29	27.4%	119	30.2%	
	Mild	29	27.4%	107	27.2%	
The degree of fatigue among the pregnant woman	Severe	52	49.1%	176	44.7%	.700
	Moderate	43	40.6%	170	43.1%	
	Mild	11	10.4%	48	12.2%	
The stress related to the pregnancy itself	High	16	15.1%	60	15.3%	.979
	Moderate	66	62.3%	240	61.2%	
	Mild	24	22.6%	92	23.5%	

Table (5.15) shows that there is no significant effect of the social support on mitigation of the occurrence of preterm delivery. Additionally, it revealed that, general stressors, the degree of fatigue and the stress related to the pregnancy don't have significant effect on the incidence of preterm delivery.

Table (5.15): The effect of psychosocial status of the pregnant woman on the gestational age

Variables		Preterm delivery				Chi-Square
		Yes		No		P-value
		N	%	N	%	
The perceived social support	High	43	52.4%	203	48.6%	.397
	Moderate	29	35.4%	138	33.0%	
	Low	10	12.2%	77	18.4%	
The perceived stress during pregnancy	High	37	45.1%	179	42.8%	.919
	Moderate	23	28.0%	125	29.9%	
	Mild	22	26.8%	114	27.3%	
The degree of fatigue among the pregnant woman	Severe	38	46.3%	190	45.5%	.966
	Moderate	35	42.7%	178	42.6%	
	Mild	9	11.0%	50	12.0%	
The stress related to the pregnancy itself	High	10	12.2%	66	15.9%	.681
	Moderate	53	64.6%	253	60.8%	
	Mild	19	23.2%	97	23.3%	

Table (5.16) shows that the perceived social support has no significant effect on the occurrence of perinatal death. Those who have degree of stress during pregnancy didn't show significant results on causing perinatal death.

Also; there is no significant association between the degree of fatigue and the occurrence of perinatal death. The same was found among the stress related to the pregnancy, results didn't show significant association between the degree of stress and the occurrence of perinatal death.

Table (5.16): The effect of psychosocial status of the pregnant woman on causing perinatal death

Variables		Perinatal Death				Chi-Square P-value
		Yes		P-value		
		N		N	%	
The perceived social support	High	5	62.5%	241	49.0%	.750
	Moderate	2	25.0%	165	33.5%	
	Low	1	12.5%	86	17.5%	
The perceived stress during pregnancy	High	2	25.0%	214	43.5%	.410
	Moderate	4	50.0%	144	29.3%	
	Mild	2	25.0%	134	27.2%	
The degree of fatigue among the pregnant woman	Severe	3	37.5%	225	45.7%	.400
	Moderate	5	62.5%	208	42.3%	
The stress related to the pregnancy itself	High	1	12.5%	75	15.3%	.974
	Moderate	5	62.5%	301	61.4%	
	Mild	2	25.0%	114	23.3%	

Chapter (6) Discussion, Conclusion and Recommendation

6.1 Introduction

The main purpose of this study is to assess the effect of exposure of Palestinian refugee women to psychosocial stressing factors during their pregnancy period and how these factors affect the birth outcomes. In this chapter study results are summarized, the important findings of the study are discussed and will be compared with the results of other studies, then we will end with study conclusion and recommendations for health interventions and further researches.

The univariate analysis of the study data showed nothing significant in relationship between the demographical, social support and psychological status of the pregnant women and their birth outcomes. The only significant results are shown between husband education and having PTB, and between women relationship with their husbands and having LBW baby or PTB.

6.2 Birth outcomes and demographic indicators

In the univariate analysis; we found that 70.8% of LBW was among the younger group of pregnant women (18-27). Approximately, the same percentage for PTB 69.7% was among the same age group of the pregnant women and 62.5% of perinatal deaths occurred among this group. These results were not significant, which is consistent with the study that has been done by Jolly and colleagues (2000) in which they found that PTB and still birth were significantly higher in the older women -35 years or older- and the incidence of LBW was higher in the same group of women. However, The high incidence of LBW and PTB among the young women should be of concern, as it could be contributed to the lack of awareness and negligence due to the hardship of their lives; they are less educated, could not be supported from their surroundings, don't go for antenatal follow up regularly and don't care about their nutrition.

Studies said that LBW and PTB are more among the older women, this could be explained; as the older women are more susceptible to develop ante-partum complication such as, gestational hypertension, pre-eclampsia and eclampsia which precipitate to LBW and PTB.

The level of education of the pregnant woman showed that it could contribute to the birth outcomes. More than half of LBW and PTB were among the women who have only completed secondary and high school. Besides, 50% of perinatal deaths occurred among the same group of women. Furthermore, husband's education showed that it could affect indirectly the birth outcomes of their wives. As, 45.2% of LBW, 45.1% of PTB (Significant association) and 75% of perinatal deaths occurred among the women whose husbands completed the high school. Educational level improves the quality of life of the pregnant women by having access for knowledge and better chances for jobs and having good financial resources, which enable her to get better care for her health and her baby's health.

However, it was found that the percentage of negative birth outcomes is also high among the parents with high educational level (after the school education). Results showed that 44.3% of LBW, 47.6% of PTB and 50% of perinatal deaths occurred among the women with high educational level. Similarly, the pregnant women whose husbands have high educational level; they showed high percentage of negative birth outcomes (43.4% of LBW and 50% of PTB).

The above results have no association between the educational level (Secondary, high school, after school education) and the birth outcomes. It is an evidence that the formal educational level (number of years of education) doesn't necessarily reflect the level of health awareness. Husbands may lack trivial knowledge about the pregnancy of their wives, they may not be aware of the physiological, psychological, and emotional changes that the wives may go through, this could be dominating among the majority of the husbands regardless their educational level. For the pregnant women, accessibility to information related to the pregnancy is important regardless their level of education.

In Jordan launched a new standards in the primary health care for antenatal care education that aims to improve the maternal and neonatal mortality rate through improving the maternal confidence, decreasing anxiety and improving the birth outcomes. On evaluation the efficacy and the effectiveness of this program, they found that the effect of antenatal education on maternal confidence and anxiety were not significant. However it was observed that findings such as caesarean rate, medication during labor and after birth and postnatal stay were all higher among the women who didn't receive antenatal education than the women who received (Abujilban et al, 2014).

The results showed that 7% of LBW was among the employed women, the same regarding to the PTB which is 8%. All the perinatal deaths in this study were related to the non-employed women. Most of

the reviewed literature revealed that the employed pregnant women are at risk in development negative birth outcomes, yet, it depends on the nature of the work and the working hours. Women who have worked 40 or more hours per week were more likely to have LBW baby and PTB than women who have worked fewer hours (Peoples-Sheps et al, 1991). Additionally, a case control study showed that LBW were increased among the women who have worked during the pregnancy in transportation, material moving operations, food preparation and serving occupation, while women who have worked in office occupations were at lower risk of having LBW outcome (Von Ehrenstein et al, 2013).

On the other hand, there were studies that are consistent of our results. In Iran, a study showed that frequency of PTB and LBW were higher among housewives compared to employed women, as, they found significant association between the employment status of the pregnant woman and lifting heavy object, which is more frequent among the housewives and subsequently more pregnancy complications (Khojasten et al, 2015).

As the vast majority of the target group of the study is unemployed, it is normal to have those negative results of the outcomes among them compared to the very few of the employed pregnant women.

LBW and PTB were showed in 35.8% and 36.6% of the babies whose fathers are un-employed respectively. Besides, one quarter of perinatal deaths occurred among this group. The husband is the householder; therefore, the employment status of the husbands has the potential effect on improvement of the socioeconomic status of the family. A study has been demonstrated that, the risk of development of unwanted birth outcomes for instance, small for gestational age, PTB birth was higher across all the indicators of Low socioeconomic status (Start, 2003).

It was found that (40.6%) and (59.4%) of the LBW are among the families with low and medium income respectively. Besides, the incidence of the preterm delivery is greater among the families with low income (42.7%) and the families with medium income (57.3%).

One quarter of the perinatal deaths occurred in the family with low income and the rest which equals (75%) occurred in the family with medium income. This is consistent with the comparative study that showed the lower family income is associated with LBW and PTB (Reddy and Sarma, 2015). Similarly was said by Ahern and et al (2002), African American community have adverse conditions and they are considered as area with high unemployment and low income. This influence the rate PTB and LBW.

48% of LBW, 41% of PTB and 37.5% of perinatal deaths occurred among the women who live in refugee camps and rural areas. In Australia, previous studies compared the outcome of pregnant women between rural and urban areas. They said that the perinatal characteristics of

the rural women were more likely to have had LBW and PTB (Abdl-Latif et al, 2006). This could be justified by the fact that living in the city doesn't mean that pregnant women will be protected from having pregnancy problems and getting babies with negative health outcomes, as they are also exposing to the stressful events of the life such as (financial problems, work stress, the violence, etc…..). Results showed that the incidence of LBW, preterm delivery and perinatal deaths among the women in the city are 54.7%, 50%, and 62.5% respectively. Kent and et al (2013) said that the population dense; urban areas have some specific social and environmental conditions that increase the risk of adverse birth outcome.

Results showed that the majority of negative birth outcomes were greater among the women who don't live in extended family. 67% of LBW, 69.5% of preterm delivery and all the perinatal deaths occurred among the women who don't live in extended family. Being the pregnant woman part of extended family could have positive side, because it may promote the well-being of the woman and reduce the impact of stressful life events through supporting her socially and emotionally, helping her in the home works and caring of her and of the baby health.

Study showed that adverse birth outcomes are greater among those who left their homes during the war than those who didn't. 60% of LBW, 55.6% of preterm delivery and six out of eight perinatal deaths occurred among families who left their homes during the war. Situation in Gaza Strip which is considered a country in conflict and of which 75% are refugees are major factors that might be directly affecting health outcomes. Also leaving the home is not the only stressing factor during the war. Taking the decision to stay at the home and expose to danger is an additional stressing. Thus results show that the incidence of adverse birth outcomes among those who didn't leave their homes is still high. There is (40%) of LBW and (44.4%) of preterm delivery occurred among this group. Additionally, one every four pregnancies ended with perinatal deaths among the families who stayed at their home during the war. A number of studies have shown consistent impact of war on the pregnancy outcomes of the refugee women. For example, it shows that women in Syria are more susceptible to psychosocial trauma, they are exposed to stress and anxiety. They said that, those women are at high risk to develop poor pregnancy outcomes such as, LBW and PTB (Masterson et al, 2014).

6.3 Birth outcomes and social indicators

The study showed that 16% of the women were exposed to domestic violence during their pregnancy. Some of those women had adverse birth outcomes, results demonstrated that domestic violence contributes to 18.9% of LBW babies, 17.1% of PTB. Yet there wasn't any perinatal death occurred among the women who were exposed to domestic violence. This is consistent with a study that revealed domestic violence is associated with adverse birth outcomes including LBW and PTB (Nongram et al, 2014).

Pregnant woman who suffered domestic violence could be more liable to experience negative sequences of their pregnancy than other pregnant women. Exposure to violence elevates the stress level among the pregnant woman; she will be emotionally and mentally unsafe. This could influence the maternal health care behaviors of the pregnant woman as she may neglect herself and the care of the baby health. However, this percentage could be under reporting, as asking the woman if she experienced violence is sensitive and could be embarrassing for her to give the accurate answer and talk about such condition. The high incidence of adverse birth outcomes were among those women who claimed in their answers that they were not exposed to violence during their pregnancy. This could be explained by the fact that those women are trying to conceal the internal condition of their families and this is consistent with the cultural perception of loyalty to keep the integrity of the family by being patient with the husband in the hard times. Thus, part of those women might have given inaccurate answer. This can be supported by the report that was launched in 2014 by the United Nation. As they showed high incidence of violence among the women, they mentioned that 29.9% of married women in West Bank and 51% in Gaza Strip are exposed to violence within the household. 48.8% of the women in West Bank and 76.4% in Gaza Strip have been psychologically abused; 17.4% in the West bank and 34.8% in Gaza Strip are physically abused; and 10.2% in the West Bank and 14.9% in the Gaza Strip sexually abused.

The study results showed that percentage of the women who had normal birth weight of their babies is the highest among those with high social support 48.5%. Similarly, preterm delivery didn't occur in 48.6% of women who received high social support. 49% of the pregnant women who didn't experience perinatal death received high social support during pregnancy. Elsenbruch and et al (2006) said; High social support showed that it is important to improve the

pregnancy outcomes. The same was said by Haobijam and colleagues (2010); they said that the level of family support showed effect on the pregnancy outcomes, it revealed that high family support leads to high percentage of women had positive birth outcomes.

Pregnancy is a time when the life of pregnant woman change, requiring adjustment of the psychological status of the woman to enable her to face the stressing times associated with this event. Social and emotional support could be protective through buffering the impact of stress on the psychological well-being of the pregnant woman.

By studying the effect of exposure to stressor on the development of adverse outcomes; it has been found that the pregnant women who exposed to high stress level are more liable to have adverse birth outcomes. LBW is more among the women who expose to high stress level with percentage 45.3%. The same among the preterm delivery, as (45.1%) of these deliveries occurred among the women with the highest level of stress. These results are in agreement with a study which showed that PTB, LBW and fetal growth restriction occurred more among the women with high stress level than women with low stress level (Copper et al, 1996). Another study revealed that women who were socially disadvantaged and had high stress level, they were more associated with poor birth outcomes (Gvin et al, 2012).

On the other hand, results showed that despite high social support, 51.9% of LBW, 52.4% of PTB and 62.5% of perinatal deaths were among this group of women. This could mean that these women might not give us the correct answers. Therefore, other methods of getting clear information could be helpful such as, interviews or focus group discussion or close day to day observation of the life of the pregnant women (which is very difficult).

The same regarding exposure to stress, results showed that despite high perceiving of stress, 42.6% didn’t have LBW babies, 42.8% didn’t have PTB and 43.5% didn’t experience deaths in their outcomes. This could be explained by the fact that the women in Gaza Strip after 10 years of hardship are coping with the hard situation and they have developed protective mechanisms and avoid the blaming of the surrounding conditions.

6.4 Conclusion

This is the first study of its kind in Gaza Strip that investigated pregnant women psychosocial health. Within the past ten years, people living in Gaza strip experienced three wars and were in an ongoing political conflict for more than 20 years, in addition to the blockade and the humanitarian crisis. Woman in Gaza Strip face many challenges and difficulties; many having lost husbands, children and relatives, as well as , their home and livelihoods. This would leave visible scars of these woman. Highlights on this kind of studies is important, so we can find out to which extent all the hard conditions of life could affect the woman mental and physical health.

This study revealed important results which should be of concern for decision makers and health care providers although did not show significant results. Social support; violence; fatigue; having stress due to pregnancy or exposed to any kind of other stress did not show significant roles in determining birth outcomes in this study, but is still considered factors affecting pregnant women's health.

Violence against women in this study was within the estimated range by the World Health Organization for women aged 15-44 years. However, we suspect that there is an under-reporting of this problem since it is culturally sensitive to women in the Palestinian society. Therefore, the high incidence of adverse birth outcomes among those women who claimed in their answers that they never exposed to domestic violence in their pregnancy might biased this study results.

Generally, we can say that many other factors, which were not examined in this study, might play a role in determining birth outcomes in Gaza Strip. For example, pregnant women own health factors; life style factors like diet quality; multiple pregnancies with short intervals or others might have influence on birth outcome.

Prospective study design is considered a strong study method. However, several biases might still present in this study, since we depended on information reported by pregnant women who are possibly feeling embarrassed in telling, sometimes, the correct answers about their own lives. Therefore, information bias, non-differential bias, could affect this study results too.

Another cause, is the lifelong stress that the people in Gaza are suffering from all the dramatic changes in their society such as the conflict with Israel, the un-employment and the low salaries, the homeless situation, etc…; lead them to cope with and to manage their life and is

increasing the level of their resilience. They learnt how to be satisfied and to stop the complaining of the surrounding conditions, or maybe they feel shame to admit that they are stressed to any personal factors particularly for a stranger. Therefore, reporting bias could be a major factor affected our study results.

6.5 Recommendations

6.5.1 Recommendations to improve the birth outcomes of the women with poor conditions

Despite the results of this study didn't come out with significant association between most of the studied variables and the birth outcomes; still important information has been generated from this study and definitely it is of concern for the health providers. We suggest interventions to improve the quality of services provided to pregnant women at risk, community and health professionals need to be aware of the importance of the psychosocial factors in maternal well-being and the birth outcomes.

1. Integration of the mental health program with the preconception care (PCC) and ANC.
2. Improving of the knowledge, attitude and consequently the health behavior of both woman and her husband toward the pregnancy.
3. Focusing on the PCC (including the family planning) to assure the social and health status of the women is appropriate for pregnancy, so that they will enter pregnancy with optimal health.
4. Addressing home visits and telephone contact with the pregnant woman as a kind of social support and to give her empathy.
5. Conduction of sessions that join the couples together for raising awareness supports on subjects related to pregnancy, parenting, the importance of social and emotional support. In addition, understanding the life style of the couples and the relationship between them to improve the outcome of the pregnant woman (Family counseling).
6. Reduce the risks that were identified in the previous pregnancy to prevent or to minimize their effect on the current pregnancy.
7. Health care providers should understand how to respond to domestic violence once they have been identified. Policies and protocols on domestic violence must be established for effective assessment, intervention, documentation and referral.

6.5.2 : Recommendations for furthers researches :

1. Case control studies to compare the outcomes of pregnant women who live in stable well-being society with the women who live in societies that are disadvantaged and insecure (Gaza setting).
2. Conducting studies aiming to get in-depth information by trying to get through the daily life of the pregnant woman.
3. Studies using self- administrative questionnaire could be more useful to get accurate answers, as the women could feel more comfortable to express themselves.
4. Qualitative assessment of the psychological and the SES of the pregnant women by focus groups could encourage the woman to talk and be more informative.
5. Studies with Elaborated framework that include the behavioral aspect of the pregnant woman.
6. Qualitative Studies that show the incidence of post -traumatic stress disorders (PTSDs) among the women during their pregnancy should be done.
7. Studying of other kinds of violence such as emotional violence could show significant effect on the pregnancy and its outcomes

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Annexes

Annex (1): Study Questionnaire (Arabic Version)

استمارة تأثير العوامل النفسية والاجتماعية على نتائج الولادة بين اللاجئات الفلسطينيات الحوامل في قطاع غزة

<u>أثناء فترة الحمل</u>

1	رقم الحالة		
2	الاقليم	2. |___| الضفة الغربية	1. قطاع غزة
3	اسم العيادة		
4	التاريخ عند جمع البيانات		
5	الاسم الأول		
6	رقم كرت الأمومة		
7	رقم الهاتف/الموبايل		
8	تاريخ اخر دورة شهرية		
9	التاريخ المتوقع للولادة		
10	عدد أسابيع الحمل عند جمع البيانات		
11	الوزن	|___| كجم	
12	الطول	|___| سم	
13	الكتلة الوزنية	|___|	
الملف الشخصي			
14	العمر	|_____| بالسنوات	
15	سن الزواج	|_____| بالسنوات	
16	الحالة الاجتماعية	1. |___| متزوجة	2. |___| مطلقة 3. |___| أرملة
17	عمر الأم عند انجابها المولود الأول	|_____|	
18	عدد الأبناء	|_____|	
19	عدد سنوات دراسة الأم	|_____|	

20	عمر الزوج	|_____| بالسنوات		
21	عدد سنوات دراسة الأب	|_____|		
22	مكان السكن	1. |___| مخيم	2. |___| مدينة	3. |___| منطقة ريفية/ قرية
23	هل تسكنين مع عائلة زوجك؟	1. |___| نعم	0. |___| لا	

تاريخ الحمل والولادة			
36	عدد الولادات	|___|	
37	عدد مرات الولادات الطبيعية	|___|	
38	عدد مرات الولادات القيصرية	|___|	
39	عدد مرات الاجهاض	|___|	
40	اذا كان هناك حادثة ولادة طفل ميت (بعد الاسبوع ال 24 من الحمل)	1. |___| نعم	0. |___| لا
41	اذا كان هناك حادثة ولادة طفل ميت أثناء أو قبل او بعد الولادة	1. |___| نعم	0. |___| لا

الحالة الاجتماعية والاقتصادية						
24	هل يعمل زوجك؟	1.	___	نعم	0.	___	لا	
25	اذا كانت الاجابة نعم، ما هو عمله؟					
26	هل تعملين؟	1.	___	نعم	0.	___	لا	
27	اذا كانت الاجابة نعم، ما هو عملك؟					
28	كيف تصفين دخل اسرتك؟	1. |___| عالي	2. |___|متوسط	3. |___| منخفض
29	كيف هي علاقتك مع زوجك؟	1. |___|جيدة جدا	2. |___| جيدة	3. |___| سيئة	4. |___| سيئة جدا
30	كيف هي علاقتك مع عائلتك؟	1. |___| جيدة جدا	2. |___| جيدة	3. |___| سيئة	4. |___| سيئة جدا
31	كيف هي علاقتك مع عائلة زوجك (حماك ، حماتك، إلخ ...	1. |___|جيدة	2. |___| جيدة	3. |___| سيئة	4. |___| سيئة جدا	5. |___| لا أعيش مع أي من
32	خلال التسعة أشهر الماضية، هل تعرضت لأي عنف أسري (بدني أو لفظي) في المنزل من زوجك او من أحد أفراد العائلة؟	1. |___| نعم	0. |___| لا		
33	اذا كانت الاجابة نعم/ ما نوع العنف الذي تعرضت له؟	1. |___| جسدي	2. |___| لفظي	3. |___| جسدي ولفظي	
34	كم مرة تتعرضين للعنف الأسري	1. |__| مرة واحدة على مدة التسع شهور	2. |__| مرة واحدة في الشهر	3. |___| أكثر من مرة في الشهر	4. |___| مرة واحدة في الأسبوع	5. |___| أكثر من مرة في الأسبوع	6. |___| كل يوم
35	خلال الحرب هل كانت عائلتك مجبرة على تغيير مكان إقامتها	1. |___| نعم	0. |___| لا		

الرجاء الإجابة على الأسئلة التالية حول الى أي مدى تتلقى المرأة الحامل على الدعم المعنوي ضعي إشارة (x) في الخانة المناسبة لإجابتك:

	كم من الوقت يكون شخص متاح ل..	لا يكون	يكون لقليل من الوقت	يكون لبعض من الوقت	يكون معظم الوقت	يكون في كل الأوقات
42	اذا كنتي مريضة أو مرهقة هل يساعدك					
43	للاستماع لك عندما تكون بحاجة الى الكلام؟					
44	لإعطائك نصيحة جيدة حول مشكلة او ازمة؟					
45	ليأخذك الى الطبيب اذا كنت بحاجة الى الذهاب؟					
46	ليظهر لك الحب والمودة؟					
47	ليقضي وقتا جيدا معك؟					
48	لإعطائك معلومات لمساعدتك على فهم الوضع؟					
49	للتحدث عن نفسك او مشكلتك؟					
50	لعناقك؟					
51	لقضاء وقت في الاسترخاء؟					
52	لتحضير الطعام لك اذا كنت غير قادرة على اعداده؟					
53	اذا كنتي تريدين نصيحته خاصة					
54	لمساعدتك في الأعمال اليومية اذا كنت					

	مريضة؟					
56	إلى اللجوء إليه للحصول على اقتراحات حول كيفية التعامل مع مشكلة شخصية؟					
57	لعمل شيء ممتع معه؟					
58	لفهم مشاكلك؟					
59	ليحبك ويشعرك برغبته بك؟					

	خلال الأربعة أسابيع الماضية	دائما	غالبا	أحيانا	نادرا	مطلقا
60	هل شعرت بالاستياء لأي حدث مفاجئ وغير متوقع؟					
61	هل شعرت أنك أصبحت غير قادرة على التحكم في أمور حياتك					
62	هل شعرت بالضغط النفسي والاستياء؟					
63	هل شعرت بالثقة بأنك قادرة على التحكم بالأمور واحتواء مشاكلك الشخصية					
64	هل شعرت بأن الامور تسير حسب رغبتك					
65	هل شعرت انك غير قادرة على التأقلم مع الأمور التي عليك أن تؤديها					
66	هل شعرت انك قادرة على التحكم بالأشياء التي تثير المشاكل في حياتك					
67	هل شعرت أنك على رأس الأمور					
68	هل غضبت وتعاملت بعصبية بسبب حدث أو أمر أصابك					
69	هل شعرت أن المشاكل تتزايد ولا تتحمليها					

	بسبب الاجهاد خلال الأربعة أسابيع الماضية:	دائما	غالبا	أحيانا	نادرا	مطلقا
70	لقد أصبحت أقل نشاطا					
71	أصبحت أواجه صعوبة في التركيز والانتباه لفترة طويلة					
72	أصبحت غير قادرة على التفكير بوضوح					
73	أصبحت أقل اهتماما ونظاما					
74	أصبحت سريعة النسيان					
75	أصبحت أجبر نفسي على نشاطاتي وأعمالي اليومية					
76	أصبحت أقل حماسا للقيام بالأعمال التي تتطلب مجهودا بدنيا					
77	أصبحت أقل حماسا للقيام بواجباتي ونشاطاتي الاجتماعية					
78	أصبحت قدرتي مقتصرة على عمل الأشياء في البيت فقط					
79	اشعر بأن علاقاتي الاجتماعية قد تقلصت					
80	أحتاج الى الراحة خلال القيام في أعمال وأمور البيت					
81	لا أستطيع اتخاذ قرارتي بنفسي					
82	أصبحت أقل حافزيه وحماسا للقيام بالأمور التي تطلب التفكير					
83	أسعى لإقامة علاقات اجتماعية مع الناس					
84	أشعر بالضعف في عضلاتي					
85	أشعر بعدم الارتياح جسديا					
86	أواجه صعوبات في انهاء المهمات التي تتطلب التركيز والتفكير					
87	أواجه صعوبة في ترتيب أفكاري خلال القيام بأعمال البيت أو أمور العمل					

88	أصبحت أقل قدرة على اكمال المهمات التي تتطلب مجهودا جسديا					
89	اشعر أنني أصبحت بطيئة التفكير والادراك					
90	أتجنب اداء كثير من الواجبات الاجتماعية خلال هذه الفترة					
91	أصبحت اواجه مشكلة في التركيز					
92	أصبح مجهودي الجسدي محدودا					
93	أصبحت أحتاج الى الراحة لمدة أطول من السابق					

الرجاء الإجابة على الأسئلة التالية حول الضغوطات خلال فترة الحمل وما تشعرين به الآن حول هذه المرحلة:

ضعي إشارة (x) في الخانة المناسبة لإجابتك

الرقم	الفقرة	دائما	غالبا	أحيانا	نادرا	مطلقا
94	أعاني من صداع خلال فترة الحمل					
95	حينما أتحدث إلى الآخرين يكون ذهني مشغولاً بالحمل					
96	أشعر بقوة الترابط والتماسك مع زوجي خلال فترة الحمل					
97	أشعر بزيادة الأعباء المالية على الأسرة بسبب الحمل.					
98	يتملكني شعور بأن شيئاً غير سار سيقع لي أو لجنيني					
99	أحاول إخفاء حملي عن الناس .					

100	أخصص ميزانية للترفيه خلال فترة الحمل					
101	أشعر بالكآبة عندما أتذكر أنني قد أبقى شكلاً ووزناً كما أنا بعد الولادة					
102	أشعر بالانزعاج عن كثرة الاستفسارات حول جنس المولود.					
103	أعاني من مشاكل في النوم خلال فترة الحمل					
104	أستطيع مناقشة مشاعري وهمومي الشخصية مع زوجي .					
105	تراودني فكرة الانفصال عن زوجي خلال فترة الحمل					
106	أشعر بكثير من الغضب والاستياء على زوجي خلال فترة الحمل					
107	أشعر بتأزم العلاقة مع زوجي منذ بداية الحمل					
108	أشعر بالذنب لأنني لم أجري فحوصات الحمل اللازمة لسلامة الجنين ولصحتي					
109	أشعر بالخجل من نظرة الآخرين لتغيرات الحمل الجسمانية					
110	أشعر بالإجهاد النفسي من المتابعة المتكررة لفحوصات الحمل					
111	أشعر بإهمال الآخرين لي وأنا حامل					
112	لا أهتم بأي حدث مهما كانت درجة تأثيره علي أو على جنيني وزوجي.					
113	لد ي احساس بثقل يدي وقدمي خلال فترة					

	الحمل					
114	أعاني من صعوبة بالتنفس خلال فترة الحمل					
115	أشعر بالخوف بشكل مفاجئ وبدون سبب واضح					
116	أعاني من اضطراب في ضربات القلب					
117	أشعر بالثقة بالنفس					

الجزء الثاني: بعد الولادة

119	نتائج الولادة على الطفل	1.|___| طبيعي	2. |___| الوزن أقل من 2500 جم	3. |___| موت الطفل أثناء أو بعد الولادة	4. |___| ولادة مبكرة	5. |___| أخرى

Annex (2): Study participation consent form

تأثير العوامل النفسية والاجتماعية على نتائج الولادة بين اللاجئات الفلسطينيات الحوامل في قطاع غزة

حضرة السيدة المحترمة:

أنا الطالبة بهجة محمد المقادمة، طالبة في برنامج ماجستير الصحة العامة في جامعة القدس أبوديس.

أقوم بإجراء دراسة عن أثر العوامل الاقتصادية والنفسية على المرأة خلال فترة الحمل وما ينتج عنها من اثار سلبية على المولود، لذلك أطلب من حضرتك المشاركة في تعبئة هذا الاستبيان، علما بأن المعلومات الواردة هنا في موضع ثقة ولأغراض علمية بحتة، وذكر الاسم هنا فقط بغرض متابعتك بعد الولادة والتواصل معك.

مع خالص الشكر والاحترام،،،،

الاسم: ..... التوقيع:

.....

أهداف الدراسة:

1. دراسة العلاقة ما بين العوامل الاجتماعية والاقتصادية والديموغرافية ونتائج الولادة
2. دراسة مدى تأثير الدعم النفسي والاجتماعي في تخفيف تأثير عوامل الضغط النفسي على نتائج الولادة
3. دراسة تأثير الضغط النفسي الناتج من الحمل على نتائج الولادة.

Annex (3) Ethical approval for conducting the study from Palestinian Health Research Council

Annex (4): Ethical approval for conducting the study from the UNRWA

المجلس الفلسطيني للبحث الصحي

Palestinian Health Research Council

تعزيز النظام الصحي الفلسطيني من خلال مأسسة استخدام المعلومات البحثية في صنع القرار

Developing the Palestinian health system through institutionalizing the use of information in decision making

Helsinki Committee

For Ethical Approval

Date: 03\08\2015 **Number:** PHRC/HC/53 /15

Name: الاسم: بهجة محمد المقادمة

We would like to inform you that the committee had discussed the proposal of your study about:

نفيدكم علماً بأن اللجنة قد ناقشت مقترح دراستكم حول:-

The Effect of Psycho-social Factors on Birth Outcomes among Refugee Pregnant women in the West Bank and Gaza Governorates

The committee has decided to approve the above mentioned research. Approval number PHRC/HC/53 /15 in its meeting on 03/08/2015

و قد قررت الموافقة على البحث المذكور عاليه بالرقم والتاريخ المذكوران عاليه

Signature

Member **Chairman** **Member**

Genral Conditions:-

٤٣. Valid for 2 years from the date of approval.

٤٤. It is necessary to notify the committee of any change in the approved study protocol.

٤٥. The committee appreciates receiving a copy of your final research when completed.

Specific Conditions:-

The subject was approved following the World Medical Association Declaration of Helsinki-Ethical principles for medical research involving human subjects, adopted by the 18th World Medical Association General Assembly, Helsinki, Finland, June 1964 and amended by the 59th WMA General Assembly, Seoul, Korea, October 2008.

E-Mail:pal.phrc@gmail.com

Gaza - Palestine غزة - فلسطين

شارع النصر - مفترق العيون

Al-Quds University
Jerusalem
School of Public Health

جامعة القدس
القدس
كلية الصحة العامة

التاريخ: 2015/10/7
الرقم/: ك ص ع –غ/103/ 2015

Approved.
SMOS
F/A
Saftawi HC
Khayyat HC
Rabah HC
GT

حضرة الدكتورة/ غادة أبو نحلة المحترمة
مديرة برامج الصحة/وكالة الغوث

تحية طيبة وبعد،،،

الموضوع: تسهيل مهمة للطالبة بهجة المقادمة

تقوم الطالبة المذكورة أعلاه بإجراء بحث بعنوان:

The Effect of Psycho-Social Factors on Birth Outcomes among Refugee Pregnant Women in the West Bank and Gaza Governorates

كمتطلب للحصول على درجة الماجستير في الصحة العامة–مسار علم الأوبئة وعليه نرجو التكرم بالموافقة والايعاز لمن يلزم بتسهيل مهمة الطالبة بجمع البيانات الخاصة ببحثها حيث أن العينة المستهدفة هي النساء الحوامل في الثلث الأخير والمترددات على المراكز الصحية التابعة للإدارتكم الموقرة.

علماً بأن المعلومات ستكون متوفرة لدى الباحثة والجامعة فقط وسنطلعكم على النتائج في حينها .

و اقبلوا فائق التحية و الاحترام،،،

د. بسام أبو حمد
منسق عام برامج الصحة العامة
فرع غزة

نسخة:
- الملف

Jerusalem Branch/Telefax 02-2799234
Gaza Branch/Telefax 08-2644220 -2644210
P.O. box 51000 Jerusalem

فرع القدس / تلفاكس 02-2799234
فرع غزة / تلفاكس 08-2644220-2644210
ص.ب. 51000 القدس

Annex (5)

الملخص:

خلفية الدراسة:

على مدار العشر سنوات الأخيرة شهد قطاع غزة تزايدا ملحوظا في معدلات وفيات الأطفال الرضع وحديثي الولادة على الرغم من كل الجهود التي بذلت للحد منه. فقد أظهرت نتائج دراسة أجرتها وكالة الأمم المتحدة لإغاثة وتشغيل اللاجئين الفلسطينيين (الأونروا) في عام 2013، أن هناك زيادة في معدل وفيات الرضع من 20.2 لكل ألف ولادة حية عام 2008 إلى 22.4 لكل ألف ولادة حية في عام 2013.

في بلدنا، هناك تصاعدا مستمرا في معدلات العنف وانعدام الأمان خاصة في قطاع غزة نتيجة الصراع الفلسطيني–الإسرائيلي، بالإضافة إلى تدني المستوى الاقتصادي والاجتماعي والتراجع الملحوظ في جودة الحياة ونوعيتها. كل هذه العوامل وغيرها تجعل النساء الفلسطينيات اللاجئات أكثر عرضة لهذه التأثيرات المأساوية مقارنة بالمجتمعات الأخرى.

أهداف الدراسة:

تتمثل أهداف الدراسة العامة في تحديد تأثير تعرض اللاجئات الفلسطينيات إلى عوامل التوتر النفسي والاجتماعي خلال الثلث الأخير من الحمل وتأثير هذه العوامل على الولادة والمولود. أما الأهداف الخاصة فتتلخص بتحديد العوامل الاجتماعية و الاقتصادية والديمغرافية والدعم الاجتماعي وعوامل

التوتر على اللاجئات الفلسطينيات الحوامل والتي بدورها تؤثر على نتائج عملية الولادة والمولود في قطاع غزة.

منهجية الدراسة:

تم اجراء دراسة تتابعية على عينة عشوائية مكونة من ٥٠٠ امرأة حامل (تتراوح أعمارهم من 18 وأكثر حتى أقل من 39) وهم في الثلث الأخير من فترة الحمل، اللواتي ترددن على ثمانية مراكز صحية لتلقي الرعاية الصحية في فترة ما قبل الولادة. وقد تمت متابعتهن في هذه المراكز. تم جمع بيانات الدراسة الأولية باستخدام استبيان أعد خصيصا لأهداف الدراسة عن طريق اجراء مقابلات مع النساء الحوامل. وتمت متابعة الأمهات بعد الولادة للحصول على معلومات حول نتائج الولادة.

تم استخدام برنامج الحزمة الإحصائية للعلوم الاجتماعية (SPSS-20) لإدخال وتحليل بيانات الدراسة، وقد تم تحليل البيانات الوصفية بحساب التكرار النسبي لعوامل الدراسة، وكذلك تم حساب مربع كاي (Chi-Square) في ربط العلاقة بين المتغيرات المستقلة في الدراسة ونتائج عملية الولادة عند قيمة (P value . < 0.05).

النتائج:

أظهرت نتائج الدراسة بأن 21.20% من المواليد كان وزنهم أقل من2500 غم، وأن 16.4٪ منهم هم أطفالا خدج ، وكانت نسبة وفيات الاطفال حول الولادة 1.6٪.

أكثر من نصف حالات المواليد الذين هم دون الوزن الطبيعي بالإضافة الى حالات الولادة المبكرة وحالات الموت حول و أثناء الولادة كانت بين النساء اللواتي أكملن دراستهن الثانوية والعليا كما وأن 7% من المواليد ذوي الوزن القليل و8% من الأطفال الخدج كانت لدى الأمهات العاملات.

في هذه الدراسة 16% من النساء الحوامل اللواتي تعرضن للعنف الأسري خلال فترة الحمل، بعضهن حصلن على نتائج سلبية للولادة، حيث بينت النتائج أن العنف الأسري ساهم في ١٨,٩٪ من حالات المواليد ذوي الوزن المنخفض، و ١٧,١٪ من الولادات المبكرة، ومع ذلك لم يكن هناك أي حالة وفاة أثناء الولادة بين النساء اللاتي تعرضن للعنف الأسري.

وقد بدى أن 17.4% من النساء الحوامل تلقين دعم اجتماعي منخفض و43.2% منهن كان لديهن مستوى عالي من الضغط. كذلك، شكى 45.6 % من مستوى شديد من الاجهاد و16% لديهن مستوى ضغط مرتفع بسبب الحمل.

النتائج التي وجدت ذات علاقة ملموسة كانت بين المستوى التعليمي للزوج والولادة المبكرة لزوجاتهم وكذلك بين علاقة النساء مع أزواجهن و حالات الأطفال ذوي الأوزان المنخفضة أو الولادة المبكرة.

خلاصة الدراسة:

تعد هذه الدراسة الأولى من نوعها في قطاع غزة التي بحثت موضوع الصحة النفسية والاجتماعية للنساء الحوامل. خلال السنوات العشر الماضية شهد سكان قطاع غزة ثلاثة حروب في سياق النزاع السياسي الممتد لأكثر من عشرين عاما.

كشفت هذه الدراسة عن نتائج مهمة يجب أن تؤخذ بعين الاعتبار لدى صانعي القرار ومقدمي الرعاية الصحية بالرغم من أنها لم تكشف عن علاقات ملموسة بين جميع المتغيرات.

على الرغم من أن الدعم الاجتماعي والعنف والتعب والمعاناة من التوتر الناتج عن الحمل أو أي مسبب آخر للتوتر لم تظهر أي علاقة ملموسة فيما يتعلق بنتائج الولادة وفقاً لهذه الدراسة للحوامل ، لكن ما زالت تلك العوامل تعتبر مؤثرة على صحة المرأة الحامل.

عوامل أخرى لم يتم دراستها في هذه الدراسة ممكن أن تلعب دور في تحديد نتاج الحمل في قطاع غزة، على سبيل المثال، العوامل الصحية المتعلقة بالنساء الحوامل ، بالإضافة الى نمط الحياة مثل النظام الغذائي لهن، الحمل المتكرر مع فترات زمنية قصيرة بين كل حمل واخر أو عوامل أخرى قد تؤثر على نتائج الحمل.

ولقد تبين أن العنف ضد المرأة في هذه الدراسة كان ضمن الحدود المقدرة لدى منظمة الصحة العالمية بالنسبة للنساء ضمن الفئة العمرية من١٥-٤٤ عام، ومع ذلك فإننا نعتقد أن هناك نسبة غير موثقة ضمن هذه الدراسة بسبب الحساسية الثقافية لدى النساء في المجتمع الفلسطيني والتي تمنعهن من التصريح بمعاناتهن، وبالتالي فإن ارتفاع نسبة نتائج الولادة السلبية للولادة هي بين أولئك اللواتي ادعين أنهن لا يتعرضن للعنف الأسري في الحمل مما قد يكون سبباً في نوع من التحيز في نتائج الدراسة.

ولذلك فإننا نوصي الأبحاث المستقبلية باستخدام تصميم وتقنيات الدراسة النوعية لدراسة هذا الموضوع والتي يمكن أن تساعد النساء على انفتاحهن للتحدث حول الوضع النفسي الحقيقي الذي يوجهنه أثناء فترة الحمل.