Association between Multiparity and Unplanned Pregnancy: A Comparative Study in Mosul City

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Abstract

Background & Objective: An unplanned pregnancy is a pregnancy that is either unwanted or the pregnancy is mistimed. Unplanned pregnancy can lead to negative outcomes to maternal and neonatal. This study aimed to find the association between unplanned pregnancy of multiparity with maternal and neonatal outcomes in Mosul city.

Methods: A case-control observational study design was carried out from 1 of November 2022 to the 25th of march 2023. Its included 300 unplanned pregnant woman, 300 planned pregnancy chosen from non-probability sampling were collected from 3 obstetrics and gynecology units of teaching hospitals in mousl city. I used a structured interviewing questionnaire.

Result: In comparison to planned pregnant women, unplanned pregnant women are more likely to suffer from Cesarean (54%), Cord Prolapse (8.3%), Preterm birth (38.7.5), Maternal morbidity (33.3%), neonate from unplanned pregnancy more likely to low birth weight (61.7%), prematurity (29%), INCU (23.3%), respiratory distress syndrome (12%) comparing to planned pregnancy.

Conclusion: this study concluded that pregnant women with unplanned pregnancy had socioeconomic factors (age, low educational level, low income) and found their association between unplanned pregnancy with maternal, neonatal outcomes such (cesarean delivery, preterm birth, low neonate weight and prematurity).

Keywords: *Unplanned pregnancy, Multiparity, Association.*

INTRODUCTION

Pregnancy is a unique and natural physiological process in women's life (1).

An Unplanned pregnancy is a pregnancy when mother doesn't have a plan to become pregnant and give birth. It is the persistent health issue affecting the lives of several women and children across the globe (2).

While Women who are consciously planning a pregnancy can improve their health status during the preconception period. A healthy lifestyle and lifestyle changes prior to conception— including a healthy diet; adequate physical activity and optimal weight; folic acid supplementation; avoidance of tobacco, alcohol and other teratogen exposures; and prevention, treatment and management of (infectious) diseases and medical conditions—can lead to a healthier

pregnancy and a decreased risk of childhood morbidity and mortality (3), (4).

Studies of the causes of unplanned pregnancy have mainly focused on maternal demographic and socioeconomic factors. In low-income settings, unplanned pregnancies are generally associated with low socioeconomic status, younger age, higher parity, low educational status of the mother or father, poverty, lack of social support, shorter birth-intervals and intimate partner violence Gender Based Violence (GBV), physical and sexual violence (5).

The concept of unplanned pregnancy helps in understanding the fertility of populations and the unmet need for contraception. If a pregnancy is not planned before conception, a woman may not be in optimal health for childbearing. In many developing countries, poverty, malnutrition, and lack of sanitation and education contribute to serious health consequences for women and their families (6).

Unplanned pregnancy can lead to high risk factors to maternal including delayed or no referral to health care centers, increased risk of medical complications and surgery (anemia and increased risk of preeclampsia), induced abortions and preterm labor (7).

Multiparity refers to the state of having given birth to more than one child. Unplanned pregnancy multiparous women can lead to increased risks for maternal and neonatal complications, including preterm birth, low birth weight, and maternal morbidity (8).

The relationship between unplanned pregnancy and these outcomes are an important area of research, as it can inform the development of interventions to improve maternal and neonatal health outcomes (9).

The reduction of unplanned pregnancy is a key concept in the Global sustainable development agenda in 2030. The global vision is that every woman will celebrate a wanted, healthy pregnancy, and safe birth of a child who will not just survive but thrive to his or her full potential.)10) (11).

In short, unplanned or unintended pregnancies are substantial public health problem with significant social, health, and economic consequences (12)

METHODOLOGY

Aim of the Study: The purpose of this study is to find out the relationship between unplanned pregnancy of multiparity with maternal and neonatal outcomes.

Design of the study: A quantitative technique was applied in a descriptive, case-control study design.

Setting and Time: The data were collected from the three obstetrics and gynecology units of teaching hospitals in mousl city, the center of Nineveh Governorate (alkhansaa teaching hospital, alsalam teaching hospital, albatool teaching hospital). The data collection was done in the period between the 20th of November 2022 to the 1th of April 2023.

Sample of the Study:

The sample for this study consisted of 600 pregnant women, including 300 cases and 300 controls. The cases were defined as women with a history of unplanned multiparity, while the controls were defined as women with a history of planned multiparity. The sample size was calculated based on the prevalence of unplanned pregnancies in multiparity and the desired level of precision. The exclusion criteria included the primi pregnant, pregnant woman under 15 years and above 45 years.

Data collection and Instrumentation: The data collection tool used in this study was a structured questionnaire form. The questionnaire was designed in Arabic and then translated into English. It consisted of four parts.

Part 1: sociodemographic characteristic includes (age, BMI, level of education, occupation, monthly income).

Part 2: medical condition during pregnancy include: (gestational hypertension, eclampsia, gestational diabetic, anemia, antepartum bleeding, UTI, premature rupture of membrane)

Part 3: focus on maternal outcomes

including: Type of delivery (vaginal, cesarean), Premature Labor, Obstructed Labor, Prolonged Labor, still birth, Bleeding after Childbirth, cord prolapse, gestational age at delivery, any complications during delivery, and maternal morbidity

Part four: focus on neonate outcomes including: Neonate weight, Prematurity, Respiratory distress, intensive neonate care unit, meconium aspiration).

The data was collected from each mother by direct interview after taking her verbal consent, and some information was obtained from women's records.

Statistical Analysis: The data were analyzed using SPSS version 26 to interpret the study's findings.

RESULT

Table 1 show shows that mothers with unplanned pregnancies tend to be slightly older on average than those with planned pregnancies (28.16 vs27.4), and that they also have a lower average BMI (28.9 kg/m² vs 36.2 kg/m²), It also shows that a higher percentage of mothers with unplanned pregnancies live in ruler areas (51%) have lower levels of education (66%) and house wife (60.8%).

Table 2 show Unplanned pregnancies have a higher prevalence of gestational hypertension (42.3%), gestational diabetes (9%) and pre-eclampsia (43%) than planned pregnancies (28.7%), (2.7%), (27.7%).

Also unplanned pregnancies have a higher prevalence of UTIs, anemia, premature rupture of membrane, antepartum bleeding than planned pregnancies (83.7% vs 44%), (86.7% vs 49.7%), (41.7% vs 21.3%), (40.2% vs 18.6%).

Finally, table 3 and 4 show the relationship between maternal outcomes with unplanned pregnancy, neonatal outcomes with unplanned pregnancy.

Table 1: Comparison of Demographic and Socioeconomic Characteristics between Planned and Unplanned Pregnancies

Variables	Planned Pregnancy n. (%)	Unplanned Pregnancy n. (%)
Mother age	**(27.4 ±5.84)**	**(28.16 ±6.87)**
Residence		
Urban	**194 (64.8%)**	**147 (49%)**
rural	**106 (35.2%)**	**153 (51%)**
Educational level		
Low educational level	**114 (37%)**	**179 (64%)**
High educational level	**186 (63%)**	**121 (36%)**

Mothers' occupation **House wife** **employee**	 **121 (41.1%)** **179 (59.9%)**	 **183 (60.8%)** **117 (39.2%)**
Monthly income **Low income** **High income**	 **130 (43.6%)** **170 (57.4 %)**	 **229 (76%)** **71 (24%)**
Total	**N= 300 (100%)**	**N= 300 (100%)**

Table 2: Comparison of Medical Conditions in Planned vs Unplanned of current Pregnancies

Medical Condition	Planned Pregnancy n. (%)	Unplanned Pregnancy n. (%)	OR (95% CI)
Gestational Hypertension	86 (28.7%)	127 (42.3%)	0.54 (0.37, 0.79)
Gestational Diabetes	8 (2.7%)	27 (9%)	0.28 (0.12, 0.63)
Pre-eclampsia	84 (27.7%)	132 (43%)	0.51 (0.35, 0.75)
Urinary Tract Infections	132 (44%)	251 (83.7%)	0.16 (0.11, 0.24)
Anemia	149 (49.7%)	258 (86%)	0.16 (0.11, 0.23)
Premature Rupture of Membrane	64 (21.3%)	125 (41.7%)	0.37 (0.25, 0.53)
Antepartum Bleeding	56 (18.7%)	123 (40.2%)	0.36 (0.24, 0.53)
Hyperemesis Gravidarum	16 (5.3%)	84 (28%)	0.16 (0.09, 0.28)
Total	N= 300 (100%)	N= 300 (100%)	

DISCUSSION

Regarding the association between demographic factors and unplanned pregnancy, our findings suggest that that younger women are more likely to experience unplanned pregnancy compared to older women (42% vs 29.3%), women with lower levels of education (64%) and income (76%) were more likely to experience unplanned pregnancy. This finding is consistent with many studies in America, European and African nations (13, 14, 15).

Furthermore, our study found that higher percentage of women with unplanned pregnancies were unemployed (60.8%) compared to women with planned pregnancies (41.1%). This finding is consistent with a study conducted in Ethiopia that find an unemployed mother at a higher risk to face unplanned pregnancy (41%). (16).

In table 2, comparison of Medical Conditions in Planned vs Unplanned of current Pregnancies. This consists with many studies found association between theses factor and unplanned pregnancy. Unplanned pregnant women had a higher percentage of gestational hypertension (42.3% vs 28.7%), preeclampsia (43% vs 27.2%), anemia (86% vs 49.7%). This consists with some studies found theses conditions are more incidence with unplanned pregnancy (17).

On other hand, this study found urinary tract infection (83.7% vs 44%), antepartum bleeding (40.2% vs 14.7%), premature rupture of membrane (41.7% vs 21.7%) higher in pregnant woman with unplanned pregnancy than planned pregnancy. Many studies in Iran result found women from unplanned pregnancy affected by this condition. (18).

Furthermore, Unplanned pregnancy has been associated with adverse maternal and neonatal outcomes, including preterm birth, low birth weight, and maternal morbidity. For type of delivery, the odds of having a cesarean delivery were 0.3 times lower in women with planned pregnancy compared to those with unplanned pregnancy. Additionally, the odds of obstructed labor, prolonged labor, stillbirth,

bleeding after childbirth, and cord prolapse were significantly.

Table 3: Association between Planned vs Unplanned Pregnancy and Delivery Outcomes

Outcome Variables	Planned Pregnancy n. (%)	Unplanned Pregnancy n. (%)	Odds Ratio (95% CI)
Type of Delivery			
Vaginal	**159 (53%)**	**138 (46%)**	**Referent**
Cesarean	**141 (47%)**	**162 (54%)**	**0.3 (0.19, 0.50)**
Obstructed Labor	**10 (3.3%)**	**22 (17%)**	**0.17 (0.08, 0.35)**
Prolonged Labor	**20 (6.7%)**	**70 (23.3%)**	**0.24 (0.13, 0.44)**
Still Birth	**5 (1.7%)**	**25 (8.3%)**	**0.19 (0.07, 0.50)**
Bleeding after Childbirth	**23 (6.7%)**	**97 (32.7%)**	**0.2 (0.1, 0.38)**
Cord Prolapse	**5 (1.7%)**	**26 (8.3%)**	**0.19 (0.07, 0.50)**
Gestational age at delivery			
Preterm (< 37 weeks)	**44 (14.7%)**	**86 (28.7%)**	**0.23 (0.15, 0.34)**
Full term (37-40 weeks)	**219(69.7%)**	**157 (41.7%)**	**Referent**
Post term (> 40 weeks)	**17 (15.6%)**	**27 (8.3%)**	**2.3 (1.3, 4.3)**
Maternal morbidity	**30 (10%)**	**100 (33.3%)**	**0.22 (0.13, 0.37)**
Total	**N=300(%)**	**N=300 (%)**	

lower in women with planned pregnancy compared to those with unplanned pregnancy. Our study found that unplanned pregnancy for Gestational age at delivery, the odds of preterm delivery were 0.23 times lower in women with planned pregnancy compared to those with unplanned pregnancy. Conversely, the odds of post-term delivery were 2.3 times higher in women with planned pregnancy compared to those with unplanned pregnancy was associated. These findings are consistent with previous research on the association between unplanned pregnancy and adverse birth outcomes (19), (20).

Finally, Unplanned pregnancies can have a range of potential impacts on neonatal outcomes. Our study found that unplanned pregnancy was associated with a (61.7%) higher risk low birth weight, (12%) RDS, (29%) prematurity. A similar study found the impact of unplanned pregnancy on neonatal outcomes, such as (10.7%) low birth weight, (5.3%) RDS, (10.7%) prematurity (21,22). Some study found neonates

Table 4: Association between Planned vs. Unplanned Pregnancy and Neonatal Outcomes

Item	Planned Pregnancy n. (%)	Unplanned Pregnancy n. (%)	OR (95% CI)
Neonate weight			
Less than 2.5 kg	**97 (32%)**	**187 (61.7%)**	**0.24 (0.16, 0.37)**
More than 2.5 kg	**203 (68%)**	**113 (39.3%)**	**Referent**
INCU	**21 (8.3%)**	**37 (23.3%)**	**0.27 (0.15, 0.48)**
Prematurity	**29 (9.7%)**	**87 (29%)**	**0.28 (0.17, 0.47)**
Respiratory distress	**10 (3.3%)**	**37 (12%)**	**0.24 (0.12, 0.47)**
Meconium aspiration	**13(4.2%)**	**27 (9%)**	**0.44 (0.21, 0.9)**
total	**N=300(100%)**	**N=300(100%)**	

*Note: INCU (Intensive Neonate Care Unit).

CONCLUSION

Our results suggest that certain demographic and socioeconomic factors, such as age, education, income, and occupation, are higher in unplanned pregnancy compared to planned pregnancy. Many medical conditions and complications are increase with unplanned pregnancy, these are gestational hypertension, anemia, UTI, antepartum bleeding Lastly, this study shows a positive relationship between unplanned pregnancy with maternal and neonatal outcomes (cesarean delivery, gestational age at delivery, and maternal morbidity, low birth weight, neonate had RDS, INCU and prematurity) more than planned pregnancy.

Author Contributions: Study concept; Writing the original draft; Data collection; Data analysis and reviewing the final edition by the author.

Acknowledgments: The study's approval by the Ethical Research Committee on Mosul

Directorate of Health is gratefully acknowledged by the authors.

Ethical consideration: Prior to data collection, Ministry of Education/Nineveh Directorate formal consent was received on October 25, 2022.

Before data collection began, participants' verbal consent was also requested.

Conflicts of interest: Nil

Source funding: Self

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