

## Assessment of Associated Risk Factors with the Incidence Rate of Abortion Cases among Women at Maternity and Pediatric Hospital in Al-Diwaniyah City

تقييم عوامل الخطورة المرتبطة بمعدل حدوث حالات الإجهاض بين النساء بمستشفى الولادة والأطفال بمدينة الديوانية

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### المستخلص

**الاهداف:** تهدف الدراسة الى تقييم عوامل الخطورة المرتبطة بمعدل حدوث حالات الإجهاض لدى النساء المقيمت بمستشفيات الولادة والأطفال بمدينة الديوانية وتحديد العلاقة بين حدوث الإجهاض وعوامل الخطورة المساهمة في حدوث حالات الإجهاض.  
**المنهجية:** أجريت دراسة وصفية تم اجرائها لتحديد معدل حدوث الإجهاض وعوامل الخطر المرتبطة به بين النساء الحوامل في مستشفى الولادة والأطفال بمدينة الديوانية في الفترة من 16 سبتمبر 2020 إلى 16 مارس 2021. شملت عينة الدراسة (100) امرأة حامل أجهضت من أصل (3800) امرأة حامل. تم جمع البيانات عن طريق استمارة استبائية من خلال المقابلة الشخصية ، تحدد لجنة الخبراء صحة الاستبيانات ، كما أن مصداقية الاستبيان عالية للغاية من حيث الثبات والاتساق الداخلي. تم جمع البيانات للفترة من 25 نوفمبر 2020 إلى 25 فبراير 2021 ، وتم تحليل البيانات من خلال استخدام الحزمة الإحصائية لنسخة للعلوم الاجتماعية (SPSS). واستخدمت مقاييس احصائية وصفية.

**النتائج:** بينت نتائج الدراسة أن معدل حدوث الإجهاض عند الحوامل في هذه الدراسة كان (0.38%) وان هناك عوامل خطر التي قد تؤدي إلى حدوث الإجهاض وهي (السمنة (70%) التاريخ العائلي للإجهاض (65%) ، قصور عنق الرحم (62%) ، شرب الكافيين (79%) الحمى (86%) عدوى المسالك البولية (90%) ، الحالة العصبية والعاطفية (73%) ، القلق (71%) ، الأرق والحزن (70%). وأظهرت النتائج أن العلاقة ذات دلالة إحصائية بين الإجهاض والعوامل التي تتعلق بحدوث الإجهاض.

**التوصيات:** التركيز على رفع مستوى الوعي بمنع الإجهاض بين النساء في المراكز الصحية من خلال توعية الحوامل حول الإجراءات الوقائية من الإجهاض وتنقيهن بشكل خاص حول عدوى المسالك البولية وأثرها المحتمل على حدوث الإجهاض ، وكذلك تنقيهن حول العوامل النفسية المرتبطة بالإجهاض. حدوث الإجهاض الذي يجب تجنبه أثناء الحمل.  
**الكلمات المفتاحية:** عوامل الخطورة المرتبطة بالإجهاض، الإجهاض، معدل الحدوث

### Abstract

**Objective(s):** To find out the incidence Rate of abortions in pregnant women Admitted Maternal and pediatric Hospitals at Al-Diwaniyah City and to identify the relationship between the incidence rate of abortion and the associated risk factors that led to the occurrence of abortion.

**Methodology:** A descriptive study was conducted to identify the Incidence Rate of Abortions and its Associated Factors among Women at AL-Diwaniyah City's Maternity and pediatric Hospital from 16 September 2020 to 16 March 2021 . The sample study includes (100) pregnant women with abortion out of (3800) pregnant women. The data was collected by means of a questionnaire through a personal interview, the panel of experts determines the validity of the questionnaires, and the reliability of the questionnaire is very high in terms of stability and internal consistency. The information was collected from 25 November 2020 to 25 February 2021 .The data was analyzed through the use of a statistical package for social sciences (SPSS) version. Descriptive statistical measures were used and inferred

**Results:** The results of the study indicate that the incidence rate of abortion in pregnant women in this study was (0.38%).Effect risk factors that may led to abortion, that were (obesity (70%), family history of abortion (65%), incompetence cervix (62%) , drinking caffeine (79%) , fever (86%),. urinary tract infection (90%), nervous and emotional (73%), anxiety (71%) and insomnia and sadness (70%) .The results showed that the relationship was statistically significant between miscarriage and the factors related to the occurrence of miscarriage.

**Recommendations:** Focusing on raising awareness of the prevention of abortion among women in the health centers by educate pregnant women about Preventive measures from abortion specially educate them about urinary tract infection and its possible impact on the occurrence of miscarriage, also educate them about the psychological factors associated with abortion occurrence which should be avoid during pregnancy.

**Keywords:** Associated Risk Factors with Abortion, Abortions, Incidence Rate

## Introduction

Abortion is considered the most common pregnancy complication <sup>(1)</sup>.

A significant number of women die globally as a result of birth and pregnancy-related complications <sup>(2)</sup>. Acute complications of abortion include; infection, cervical and uterine trauma and hemorrhage, Long-term post-abortion complications include secondary infertility <sup>(3)</sup>.

Each year, 1.2 million women in the United States have abortions <sup>(4)</sup>. The Ministry of Health and Social Welfare estimates that approximately 16 percent of maternal deaths are the result of abortion complications <sup>(5)</sup>. The abortion rate declined significantly in the developed world from 46 (41–59) per 1000 women aged 15–44 years in 1990–94 to 27 (24–37) in 2010–14. The abortion rate in 2010–14 was higher in the developing world than in the developed world at 37 (34–46), and the decline in the developing world from 39 (37–47) in 1990–94 was not significant <sup>(6)</sup>.

Previous research has identified common risk factors,

In particular, 15% of early miscarriages and 66% of late miscarriages are due to infection <sup>(7)</sup>. Spontaneous early preterm births have been shown to be associated with infection and inflammation <sup>(8)</sup>.

In the second trimester, cervical incompetence (CI) is one of the major causes of premature birth or miscarriage. According to estimates, 8% of second trimester miscarriages and early births are due to CI. If during

the second trimester, the patient has a history of typical painless cervical dilation <sup>(9)</sup>.

Pregnancy loss is associated with anxiety, Psychological problems and distress, especially in women who have RSA, depression in abortion ranges in prevalence from 15% to 33% <sup>(10)</sup>. A previous history of miscarriage has been associated with pregnancy anxiety and pregnancy anxiety is a major psychosocial risk factor that has a stronger correlation to adverse birth outcomes than other stress indicators <sup>(11)</sup>.

Caffeine is readily consumed upon absorption and crosses the placental barrier quickly <sup>(12)</sup>. Pregnant women who drank a lot of caffeinated drinks had abnormalities and spontaneous abortions <sup>(13)</sup>.

Menstrual disorders, infertility and sporadic miscarriages are associated with obesity, the increased incidence of complications affecting both the mother and the fetus is linked to obesity, these complications include gestational diabetes, pre-eclampsia hypertension induced by pregnancy, thromboembolism, and mortality before birth <sup>(14)</sup> Justification of study

Two paragraph:

1. Incidence of problem nationally with reference.
2. Importance of the study paragraph by researcher without references.

## Methodology

The study uses descriptive prospective design to identify abortion cases and its associated risk factors among Women at Al-

Diwanayah City Maternal and Pediatric Hospital.

A purposive “non-probability” sample of (3800) pregnant women who are at reproductive age, primi or multipara and (100) of them have abortion.

**Ethical Considerations:** Scientific Research Ethical Committee at the University of Baghdad, College of Nursing has approved the study to be conducted. All women who have participated in the study have signed consent form for the human subjects' rights.

The incidence rate of abortion is obtained by:

Incidence Rate= (No. of Abortion / No. of Pregnancy) 100

A questionnaire is developed for the purpose of the study throughout the review of literature and background experience and consultation from panel of experts and related studies. It consists of identification about abortion and associated risk factors; this part consists of three sub-parts:

1. Reasons for abortion this scale has (17)

items.

2. Women diseases, this scale has (13) items.

3. Women psychological factors, this scale has (6) items.

Content validity of the questionnaire is determined through panel of experts and internal consistency reliability is obtained through a pilot study.

Data collection process is performed using the study questionnaire started at 25<sup>th</sup> November 2020 to 25<sup>th</sup> February 2021, the duration of the data collection is two months.

Data are analyzed through the use of SPSS (Statistical Package for Social Sciences) version 25.0 application Statistical analysis system and Excel application the following statistical data analysis approaches are used in order to analyze and assess the results of the study.

## Results

**Table (1): Incidence Rate of Abortions in Pregnant Women Admitted Maternal Hospitals**

Incidence Rate of Abortion	Number of Pregnancy	Number of Abortion	Incidence Rate (%)
	3800	100	0.38

This table reveals that the incidence rate of abortion is (0.38) among (3800) pregnancies.

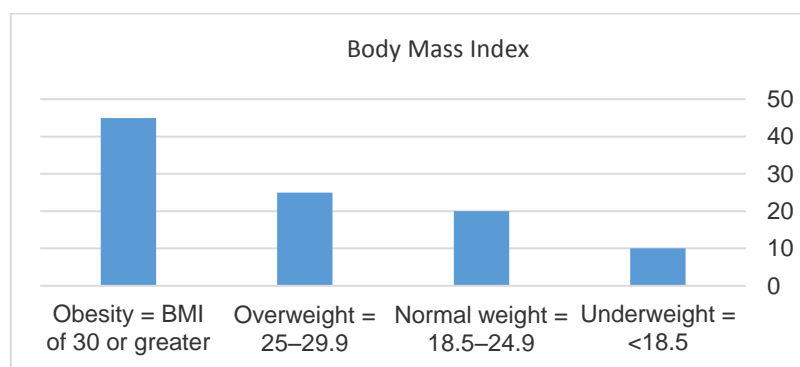
**Table (2): Distributions of Risk Factors Related to the Occurrence of Abortion among The Study Sample**

List	Risk Factors Related to the Occurrence of Abortion	Sample of the Study			
		Yes		NO	
		F	%	F	%
<b>A</b>	<b>Causes associated with abortion</b>				
1	Suffer from an obesity (BMI 30 or greater)	70	70	30	30
2	Suffer from excessive weight loss	11	11	89	89
3	The cause of abortion is a deformed fetus.	11	11	89	89
4	Use medications without consulting your doctor during pregnancy	26	26	74	74
5	Had a slackening cervix	62	62	38	38
6	You've been poisoned	4	4	96	96
7	Had a hard or a heavy load work	24	24	76	76
8	Had a hormone imbalance	14	14	86	86
9	Doing a lot of work and carried heavy stuff	27	27	73	73
10	Had infectious diseases like influenza, for example	49	49	51	51
11	Had got a vesicular mole pregnancy	14	14	86	86
12	Had got an ectopic pregnancy.	9	9	91	91
13	The blood group and blood Rh factor to the un compatible with the husband	29	29	71	71
14	Drinking caffeine (tea or coffee/ 3-4 cups daily, Which equal to 225-300ml)	79	79	21	21

15	You smoke	9	9	91	91
16	Suffer from living in a polluted environment	36	36	64	64
17	Had been exposed to chemicals or radiation	14	14	86	86
<b>B</b>	<b>Women diseases associated with abortion</b>	<b>F</b>	<b>%</b>	<b>F</b>	<b>%</b>
1	Had previous family history of abortion.	65	65	35	35
2	Had a fever	86	86	14	14
3	Had high blood pressure	37	37	63	63
4	Had diabetes	25	25	75	75
5	Had toxoplasmosis (cat's disease)	18	18	82	82
6	You are having problems with thyroid activity	13	13	87	87
7	Had German measles	18	18	82	82
8	Had sexually transmitted diseases such as syphilis and viral hepatitis	4	4	96	96
9	Had urinary tract infections	90	90	10	10
10	Had polycystic ovarian syndrome ( pcos)	28	28	72	72
11	Had skin disease	26	26	74	74
12	Had uterine infections	28	28	72	72
13	Had blood clotting problems	3	3	97	97
<b>C</b>	<b>The psychological factors associated with abortion</b>	<b>F</b>	<b>%</b>	<b>F</b>	<b>%</b>
1	Exposed to a hard hit	15	15	85	85
2	Suffering from psychological anxiety	71	71	29	29
3	Suffer from stress, insomnia and sadness	70	70	30	30
4	You are constantly nervous and emotional	73	73	27	27
5	Suffering from severe depression	14	14	86	86
6	You are physically violence	5	5	95	95

**Freq.=Frequencies, %=Percentages.**

This table shows distributions of factors that led to the occurrence of abortion cases in maternity hospitals. The factors that may led to abortion, that were (urinary tract infection (90%), fever (86%), drinking caffeine (79%), nervous and emotional (73%), anxiety (71%), obesity (70%), insomnia and sadness (70%), family history of abortion (65%), incompetence cervix (62%).



**Figure (1): Distribution of Body Mass Index among the Study Sample**

**Table (3): Statistical Associations between the Risk Factors Related to the Occurrence of Abortion and Abortion**

List	The Risk Factors	Statistics				
		Mean±	F	Df	P-value	Sig
1	Reasons Related to Occurrence of Abortion	1.27± 0.1	9.987	99	0.001	S
2	Women diseases associated with abortion	1.33 ±0.1	12.764	99	0.001	S
3	The psychological factors associated with abortion	1.41 ± 0.1	1.456	99	0.019	S

$\bar{x} \mp S.D.$  = Arithmetic Mean ( $\bar{x}$ ) and Std. Dev. (S.D.), F = Fisher test, df= degree of freedom, P = probability value, NS: Non Significant at  $P \geq 0.05$ , S: Significant at  $P < 0.05$ .

This table shows statistically significance differences between factors related with the incident of abortions among pregnant women.

## Discussion

### Part I: The Incidence Rate of Abortions

The study reveals that the incidence rate of abortion was (0.38) among 3800 pregnancies (Table 1). Related to the result of Ministry of Health and Social Welfare, it estimates that approximately (16) percent of maternal deaths are the result of abortion complications<sup>(5)</sup>, as well as the study finding is consistent with that who believe that the number and rate of abortions could be in part

dependent on the accessibility of abortion services<sup>(15)</sup>.

### Part II: Distributions of Factors Related to Occurrence of Abortion among the Study Sample

The findings of (Table 2) reveals that (70%) of the study sample suffering from obesity (Figure 1)

This result is consistent with that finding in couples with RM, maternal

obesity is an independent risk factor for miscarriage<sup>(16)</sup>.

The result of the present study is consistent with a study that finds in women who had frequent miscarriage, obese women had a higher miscarriage rate than non-obese women (46 percent versus 43 percent; OR: 1.71; 95 percent CI, 1.05). Obesity is linked to a higher rate of miscarriage in women who conceive spontaneously<sup>(17)</sup>.

This result is consistent with that of a study that finds prior to pregnancy, women who are obese, overweight, or underweight were about 2.01 (95 percent Ci = 1.1–3.68), 1.71 (95 percent Ci = 1.04–2.81), and 2.05 (95 percent CI = 1.3–3.23) times more likely to miscarry than women who were average weight, according to his findings<sup>(18)</sup>.

The findings reveal that (62%) of study sample suffering from cervical incompetence (cervical relaxation), the result of present study is consistent with a study that shows cervicitis, vaginitis, and cervical incompetence have all been related to the show of abortion<sup>(19)</sup>.

The result of the study show that the risk factor (drinking of caffeine) that accounted (79 %) of the study sample is supported by the result by a study that finds that a high level of coffee consumption during pregnancy has been linked to an increased risk of fetal death after 20 weeks of pregnancy<sup>(20)</sup>

The drink caffeine concluded that some women in the south are used to drinking tea after every meal and this

is one of their habits and they do not have enough culture awareness about the risk may cause by caffeine consumption of coffee and tea and that may increase risk of abortion between them.

The findings for abortion reveal that (65%) in study sample suffering from a previous family history of abortion, This result is consistent with a study that finds that family history of miscarriage is associated with a higher risk of RSA (adjusted OR, 2.12; 95 percent CI, 1.28–3.49)<sup>(21)</sup>.

This result is consistent with a study that finds some kind of alteration in 40% of cases. According to the family reproductive history data, SA was two to three times more common among the couples' I, II, and III generation relatives than in the general population (55.5, 47.6 and 32.6 percent for female relatives, and 45.8, 44.1 and 15.1 percent for male relatives), the causal factor for RSA may be a positive reproductive family history of SA<sup>(22)</sup>.

This result is consistent with a study that finds women with a family history of abortion (RR = 1.96, 95 percent CI= 1.22–3.14) had a significantly higher calculated risk ratio for miscarriage prior to pregnancy than women without a family history of abortion (RR = 1.96, 95 percent CI= 1.22–3.14)<sup>(18)</sup>.

The findings indicate that (86%) in study sample suffering from (Fever), of this result agrees with the result is consistent with a study that finds during pregnancy hyperthermia is not uncommon. The effects are determined by the severity of the

temperature rise, its length, and the stage of development at the time it occurs. Are often the result of mild pre implantation exposures and more serious exposures during embryonic and fetal development and prenatal death and abortion<sup>(23)</sup>.

Fever statistics concluded that the majority of the sample suffered from a bacterial infection with urinary tract infection, which is the most important cause of fever which may cause defect to neural tube and possibly miscarriage.

An examination of the risk factors results for the purpose of abortion depicts that (86%) in the study sample suffering from (Urinary Tract Infection). The result of present study is consistent with a study that finds that the urinary tract and the display of abortion have a substantial relationship<sup>(24)</sup>.

The result of the present study is consistent with a study that finds in the second trimester, there is a statistically important connection between BV and miscarriage<sup>(24)</sup>.

The results of urinary tract infection statistics concluded that the majority of the sample suffers from a lack of awareness and education about personal hygiene and frequent sexual practices.

The result of the study reveal that the psychological factors were accounted anxiety (70%), stress, sadness (70%), nervous and emotional (73%) respectively. The psychological status may be the effect of the general women health and in incidence of abortion direct or indirect. This result is consistent with a study that finds that there are affiliation between

psychological quality of life domain and Socio demographic status, as well as reproductive parameters<sup>(25)</sup>.

This result is consistent with the findings of a study of that psychological problems are greater after RSA<sup>(10)</sup>.

The result of the present study is consistent with the results of prospective cohort study that indicates that maternal, psychological, and obstetric factors can all play a role in a woman's miscarriage<sup>(26)</sup>.

### **Part III: Discussion the Associations**

#### **between the Factors Related**

#### **to Occurrence of Abortion**

#### **and Abortion:**

Table (3) shows a statistically significant relationship between the causes of abortion and increased abortion rate, P-value (0.001) of significant at  $P < 0.05$ . The result of the study reveals that the risk factor is obesity.

The result of the present study is consistent with a study that finds that women with a BMI of less than (25)  $\text{kg/m}^2$  had a greater chance of miscarriage than women with a BMI of more than (25)  $\text{kg/m}^2$ , and that the prevalence of all uterine malformations is (15.4%) among RM women<sup>(27)</sup>.

The result of the study indicate that the risk factor dilatation cervix, The result of present study is consistent with a study that finds that there is a significant association between the exhibition of



abortion and cervicitis, vaginitis, cervical incompetence<sup>(19)</sup>.

The result of the study reveals that the risk factor drinking of caffeinated drinks, this result is consistent with that of a study that finds that caffeine consumption is related to a higher risk of miscarriage. According to a dose–response According to the report, every increase in caffeine intake of (150) mg/day increased the risk of miscarriage by (19%), and every increase in coffee intake of two cups a day increased the risk of miscarriage by (8%). According to the findings of his study consumption of caffeine and coffee during breastfeeding raises the risk of miscarriage<sup>(13)</sup>.

This result is consistent with a study that finds that coffee intake of four servings or more a day prior to childbirth has been related to an elevated risk of SAB, particularly during (8–19) week<sup>(28)</sup>.

The statistic shows a relationship between the women diseases and increased abortion rate, P-value (0.001) of Significant at  $P < 0.05$ . The result of the study reveals that the hazard factor a previous Abortion in the family history, this result is consistent with a study that finds that the causal factor for RSA may be a positive reproductive family history of SA. The study's results showed that the risk factor urinary tract infection<sup>(22)</sup>.

The result of the present study is consistent with a study that shows that the majority of miscarriages happened in the initial trimester in pregnancy 45 (60%). The infectious agent's role in miscarriage was also looked into. In women afflicted with *Megasphaera*, *Atopobiumvaginae*, *G. vaginalis*, and *Leptotrichia*, the results show that there

is a statistically important disparity between multiple and single miscarriage<sup>(29)</sup>.

The data analysis shows that there is a relationship between the psychological factors and increased abortion rate, P. value (0.019) of Significant at  $P < 0.05$ . This result is consistent with that of a study that finds one of every four women in their first trimester experiences antenatal depressive and anxiety symptoms, with a greater incidence in women who are at risk of miscarriage<sup>(30)</sup>.

The result of present study is consistent with a study that finds that the discovery that previous psychological trauma is dangerous to pregnant women<sup>(31)</sup>.

## Recommendations

Focusing on raising awareness of the prevention of abortion among women in the health centers by educate pregnant women about Preventive measures from abortion specially educate them about urinary tract infection and its possible impact on the occurrence of miscarriage, also educate them about the psychological factors associated with abortion occurrence which should be avoid during pregnancy.

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