

# Risk Factors Associated with Spontaneous Abortion at Al-Najaf City

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**Abstract- Objective:** this study aimed to identify risk factors associated with spontaneous abortion and To find out relationship between abortion and other variables such as Demographic variables, such as ( Age, level of education) and Reproductive variables such as (gravida , parity).

**Methodology:** A descriptive case-control study was adopted in order to achieve the stated objectives. The study began from November 1<sup>st</sup> , 2016 until August, 2<sup>nd</sup>, 2017. A Non-Probability (Purposive Sample) of (100) women suffer from spontaneous abortion as case group who were selected from emergency ward and maternity ward depending on diagnosis of managing doctor , and (100) women without history for abortion as control group, selected from maternity ward . Both case group and control group are involved in the sample of the study. The data are collected through the use of constructed questionnaire, reliability of instrument is determined by the use of cornbach Alpha, and the instrument validity is determined by a panel of experts. Data was analyzed by using descriptive and Inferential data analysis.

**Results:** The results of the study showed that the most (50%) of study group women rang between age ( 20-29) years old while (48%) of control group (30- 39 ) years old. The majority of women with spontaneous abortion (81%) urban residents while the majority of the control group women are from urban area was (91%). Most of study group(28%) primary school graduated while control group(38%) secondary school graduated. Also increase parity number and early age at marriage (16-20) in aborted women compared with non-aborted women. in addition, there is a significant association between the exhibition of abortion and the toxoplasmosis ,urinary tract infection , accidents and injuries , congenital uterine anomalies, cervicitis, vaginitis, cervical incompetence, and There is a significant differences between the study &control groups anxiety levels , anxiety during pregnancy is a risk factor associated with spontaneous abortion.

**Conclusion:** The study concludes that among the risk factors relating to the spontaneous abortion, women with younger age, urban residency, primary school graduated, increase parity number and early age at marriage, Infections like (toxoplasmosis ,urinary tract infection, cervicitis and vaginitis), cervical incompetence, congenital uterine anomalies, accidents and injuries and anxiety during pregnancy is a risk factor associated with spontaneous abortion.

**Recommendation:** The study recommends that a population-based study should be conducted to increase the women awareness about the risk factors of spontaneous abortion especially among young women and those with low education level.

**Index Terms-** Risk factor, Spontaneous abortion.

## I. INTRODUCTION

Abortion is an important cause of morbidity and mortality among mothers in reproductive age, especially in developing countries<sup>(1)</sup>. Abortion is defined as the expulsion of concept products from the uterus when the fetus is not viable, before the 20th week of pregnancy, substitutional define for abortion is expulsion of a fetus with weight less than 500 g, abortion is involves spontaneous or induced, a spontaneous abortion or miscarriage, is the natural death of a fetus in the womb. Spontaneous abortion is the most common complication during early pregnancy in women with a rate of 15-20% among pregnant women nearly 80% of spontaneous abortion occurs in the first trimester<sup>(2)</sup>. There are two types of miscarriage sporadic and recurrent, recurrent miscarriage affects around 1% of couples by contrast, at least 25% and maybe as many as 50% of all women suffer from one or more sporadic miscarriages<sup>(3)</sup>. Abortion is considered not only a major reproductive health matter , but also health risk factor for mothers wellbeing which also threaten mothers lives and comfort<sup>(4)</sup>. A lot of pregnancies are wasted spontaneously before she recognizes that she is a pregnant, and the clinical signs of miscarriage are mistaken for a heavy or late menses<sup>(5)</sup>. The World Health Organization (WHO) estimation that worldwide 210 million women become pregnant every year and that about two-thirds of them, or approximately 130 million, delivery a live infants. The remaining one-third of pregnancies end in spontaneous abortion, stillbirth, or induced abortion<sup>(6)</sup>. The number of women get abortion care increased in thousands from 2013 to 2014, the abortion related complications reduced by half from 1998 to 2009, and the maternal mortality has decreased by more than half from 360 to 170 per 100,000 live births in the past decade in some countries<sup>(7)</sup>. Thirty percent of U.S. women will have a miscarriage before the age of 45<sup>(8)</sup>. The etiology of miscarriage are multiple ranging from genetic, infectious, structural, immunological, metabolic and the environmental factors<sup>(9)</sup>. Spontaneous abortion can diagnosed either when there has been a spontaneous removal of the fetus from the womb, or the fetus has died in the womb but has not been physically expelled<sup>(10)</sup>.

## II. METHODOLOGY

**Design of the Study:** A descriptive case-control study Adopted in order to achieve the stated goals. The study began

from November 1<sup>st</sup>, 2016 until August, 2<sup>nd</sup>, 2017. Non-Probability (Purposive Sample) of (100) women was admitted to hospital suffering from spontaneous abortion a study group who were selected from emergency & maternal ward depending on diagnosis of managing doctor, and (100) healthy women as control group those who have delivery in maternal ward without history of abortion, both abortion and healthy women are involved in the sample of study. The researcher apply the following criteria in selecting the study sample:

- The age of the all participants between (18-45) years old.
- In case group only female factor spontaneous abortion is selected.
- In control group include women who have one or more child without previous history of miscarriage.

The study instrument is constructed by the researcher to identify the risk factors of spontaneous abortion. The complete instrument of study consists of (4) parts:

**Part 1: Socio demographic Data:**

This part consists of (8) items, which includes age, residency, level of education, type of family, occupational, socioeconomic status, body mass index and smoking.

**Part 2: Reproductive characteristics:**

This part consists of (12) items, which includes Family history of abortion, Type of present abortion, method of abortion termination, parity, gravidity, number of live children, number of still birth, number of abortion, interval between pregnancy, age at marriage, sexual activity and use of family planning method.

**Part 3: medical and surgical History :**

This part consists of (3) items, which includes item for chronic diseases such as (hypertension, kidney diseases, thyroid diseases, Congenital heart defect, Respiratory disease, Anemia, Toxoplasmosis, Rubella, Urinary tract infection, RH

incompatibility, Epilepsy, Cancer, Accident or trauma, Falls, Domestic violence), surgical history and type of surgical operation, item for reproductive health problem such as (endometritis, Congenital uterine anomalies, Cervicitis, vaginitis, and cervical incompetence).

**Part 4: Anxiety :**

This part consist of (15) question about anxiety answered by always get(1), sometimes get(2) and never get (3). To identify does anxiety effect on occurrence of spontaneous abortion.

**Statistical Analysis**

The following statistical data analysis approaches are used in order to analyze and asses the results of the study under application of statistical package (SPSS) version(19).

**Adescriptive data analysis** includes a. Tables (Frequencies, Percentages) [ $\text{Percentages} = \frac{\text{Frequencies}}{\text{sample size}} * 100$ ] b. Mean of scores (M.S) C. Standard Deviation. d. Cornbach Alpha to estimate the internal consistency of study instrument. e. Statistical figure (Bar chart). and **Inferential Data Analysis** includes Chi-square test for testing the difference between study and control group.

**Objective of the study:**

The study aimed to identify risk factors associated with spontaneous abortion and To find out relationship between spontaneous abortion and other variables such as Demographic variables (Age, level of education) and Reproductive variables such as (gravida, parity).

III. RESULTS

**Table (4-1) demographic characteristics of study sample:**

Demographic data	Rating and intervals	Study group		Control group	
		Frequency	Percent	Frequency	Percent
Age / years	10-19	12	12	2	2
	20- 29	50	50	34	34
	30- 39	33	33	48	48
	40- 49	5	5	16	16
Residency	Rural	19	19	9	9
	Urban	81	81	91	91
Levels of education	Illiterate	18	18	11	11
	Able to Read and Write	14	14	6	6
	Primary School Graduated	28	28	23	23
	Secondary School Graduated	23	23	38	38
	Institute And More	17	17	22	22
Type of Family	Nuclear	42	42	53	53
	Extended	58	58	47	47
Occupation	Housewife	91	91	94	94
	Employee	9	9	6	6

<b>Economic status</b>	<b>Adequate</b>	<b>65</b>	<b>65</b>	<b>70</b>	<b>70</b>
	<b>Adequate To Some Extent</b>	<b>29</b>	<b>29</b>	<b>26</b>	<b>26</b>
	<b>Inadequate</b>	<b>6</b>	<b>6</b>	<b>4</b>	<b>4</b>
<b>Body Mass Index</b>	<b>Underweight</b>	<b>1</b>	<b>1</b>	<b>34</b>	<b>34</b>
	<b>Normal</b>	<b>37</b>	<b>37</b>	<b>36</b>	<b>36</b>
	<b>Overweight</b>	<b>41</b>	<b>41</b>	<b>30</b>	<b>30</b>
	<b>Obese</b>	<b>21</b>	<b>21</b>	<b>34</b>	<b>34</b>
<b>Smoking</b>	<b>No</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

Table (4-1) shows that the majority of the study group participants are 20-29 years old( 50%), urban residents(81%), primary school graduated(28%), living in an extended families(58%) , housewives(91%), have an adequate economic status(65%) , overweight(41%) , and non-smokers(100%). While for the control group participants , the study results indicate that the majority of the participants are 30- 39 years old(48%) , urban residents(91%) , secondary school graduated(38%) , living in a nuclear families(53%), housewives(94%) , have an adequate economic status(70%) , normal weight(36%) , and non-smokers(100%).

**Table (4-2) reproductive characteristics of study sample:**

<b>Items</b>	<b>Rating and intervals</b>	<b>Study</b>		<b>Control</b>	
		<b>Frequency</b>	<b>Percent</b>	<b>Frequency</b>	<b>Percent</b>
<b>Gravidity</b>	<b>&lt;= 3</b>	<b>62</b>	<b>62</b>	<b>72</b>	<b>72</b>
	<b>4 - 6</b>	<b>32</b>	<b>32</b>	<b>25</b>	<b>25</b>
	<b>7+</b>	<b>6</b>	<b>6</b>	<b>3</b>	<b>3</b>
<b>Parity</b>	<b>&lt;= 3</b>	<b>33</b>	<b>33</b>	<b>72</b>	<b>72</b>
	<b>4 - 6</b>	<b>52</b>	<b>52</b>	<b>25</b>	<b>25</b>
	<b>7+</b>	<b>15</b>	<b>15</b>	<b>3</b>	<b>3</b>
<b>Number of still birth</b>	<b>No still birth</b>	<b>93</b>	<b>93</b>	<b>92</b>	<b>92</b>
	<b>1</b>	<b>6</b>	<b>6</b>	<b>7</b>	<b>7</b>
	<b>2</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>
<b>Number of lived children</b>	<b>No lived children</b>	<b>34</b>	<b>17.0</b>	<b>1</b>	<b>1</b>
	<b>1 - 3</b>	<b>26</b>	<b>63.0</b>	<b>73</b>	<b>73</b>
	<b>4 - 6</b>	<b>36</b>	<b>18.0</b>	<b>23</b>	<b>23</b>
	<b>7+</b>	<b>4</b>	<b>2.0</b>	<b>3</b>	<b>3</b>
<b>Family History of Abortion</b>	<b>Yes</b>	<b>29</b>	<b>29</b>	<b>33</b>	<b>33</b>
	<b>No</b>	<b>71</b>	<b>71</b>	<b>67</b>	<b>67</b>
<b>Number of abortion</b>	<b>1</b>	<b>59</b>	<b>59.0</b>	<b>0</b>	<b>0</b>
	<b>2</b>	<b>33</b>	<b>33.0</b>	<b>0</b>	<b>0</b>
	<b>3</b>	<b>7</b>	<b>7.0</b>	<b>0</b>	<b>0</b>
	<b>4</b>	<b>1</b>	<b>1.0</b>	<b>0</b>	<b>0</b>
<b>Type of abortion</b>	<b>Complete</b>	<b>20</b>	<b>20.0</b>	<b>0</b>	<b>0</b>
	<b>Incomplete</b>	<b>12</b>	<b>12.0</b>	<b>0</b>	<b>0</b>
	<b>Missed</b>	<b>58</b>	<b>58.0</b>	<b>0</b>	<b>0</b>
	<b>Threatened</b>	<b>10</b>	<b>10.0</b>	<b>0</b>	<b>0</b>
<b>Methods of termination of pregnancy</b>	<b>No</b>	<b>18</b>	<b>18</b>	<b>100</b>	<b>100</b>
	<b>Medical</b>	<b>3</b>	<b>3</b>	<b>0</b>	<b>0</b>
	<b>Surgical</b>	<b>79</b>	<b>79</b>	<b>0</b>	<b>0</b>
<b>Interval between pregnancy / years</b>	<b>Less than 2</b>	<b>58</b>	<b>58</b>	<b>47</b>	<b>47</b>
	<b>2 and more</b>	<b>42</b>	<b>42</b>	<b>53</b>	<b>53</b>
<b>Sexual activity / week</b>	<b>1-2</b>	<b>48</b>	<b>48</b>	<b>45</b>	<b>45</b>
	<b>3 and more</b>	<b>52</b>	<b>52</b>	<b>55</b>	<b>55</b>
<b>Age at marriage</b>	<b>11-15</b>	<b>7</b>	<b>7</b>	<b>1</b>	<b>1</b>
	<b>16 - 20</b>	<b>56</b>	<b>56</b>	<b>46</b>	<b>46</b>
	<b>21 - 25</b>	<b>34</b>	<b>34</b>	<b>41</b>	<b>41</b>

	<b>26+</b>	<b>3</b>	<b>3</b>	<b>12</b>	<b>12</b>
<b>Use of Family planning</b>	<b>Yes</b>	<b>36</b>	<b>36</b>	<b>49</b>	<b>49</b>
	<b>No</b>	<b>64</b>	<b>64</b>	<b>51</b>	<b>51</b>

Table (4-2) shows that the majority of the study and control group , participants are have 3 and less than 3 gravidity(62%), 4-6 parity(52%) , have no still birth (93%) , have no family history of abortion(71%) , regarding number of present abortion the majority of study sample (59%) have one previous abortion, missed abortion (58%), regarding methods of pregnancy termination , the study results indicate that (79%)of study groups participants use surgical methods , while no one of the control group use the methods of pregnancy termination .In addition , (58%) of the study group are use of interval between pregnancyfor less than 2 years, while (53%) of the control group use 2 year & more . Also the majority of the control group and study groups participants are do 3 & more sexual activity per week(52%) , marry with age 16-20 years old(56%) , don't use family planning methods(64%).

**Table (4-3) medical history of study sample:**

Items	Rating and intervals	Study		Control	
		Frequency	Percent	Frequency	Percent
Hypertension	Yes	4	4	8	8
	No	96	96	92	92
Kidney diseases	Yes	1	1	1	1
	No	99	99	99	99
Diabetes mellitus	Yes	2	2	0	0
	No	98	98	100	100
Respiratory diseases	Yes	5	5	4	4
	No	95	95	96	96
Anemia	Yes	26	26	15	15
	No	74	74	85	85
Toxoplasmosis	Yes	12	12	0	0
	No	88	88	100	100
Urinary tract infections	Yes	23	23	7	7
	No	77	77	93	93
Rh incompatibility	Yes	3	3	0	0
	No	97	97	100	100
Accidents and injuries	Yes	5	5	0	0
	No	95	95	100	100
Fall	Yes	1	1	0	0
	No	99	99	100	100
Surgical history	Yes	29	29	29	29
	No	71	71	71	71
Operation type	CS	26	26	14	14
	Appendectomy	2	2	0	0
	Cholecystectomy	1	1	0	0
Congenital uterine anomalies	No	99	99	100	100
	Yes	1	1	0	0
Cervicitis	No	99	99	100	100
	Yes	1	1	0	0
Vaginitis	No	89	89	100	100
	Yes	11	11	0	0
Cervical incompetence	No	93	93	100	100
	Yes	7	7	0	0

Table (4-3) shows that the majority of the study and control groups participants don't exhibit medical history.

**Table ( 4-4 ) association between the study subjects demographic data and their exhibition of abortion**

demographic data	Rating and intervals	Study sample		Chi-square value	d.f.	p-value
		Study	Control			
Age / years	10-19	12	2	18.730	3	0.001 HS
	20.00 - 29.00	50	34			
	30.00 - 39.00	33	48			
	40-49	5	16			
Residency	Rural	19	9	4.153	1	0.042 S
	Urban	81	91			
Levels of education	Illiterate	18	11	9.709	4	0.046 S
	Able to read and write	14	6			
	Primary school graduated	28	23			
	Secondary school graduated	23	38			
	Institute of college	17	22			
Family type	Nuclear	42	53	2.426	1	0.119 NS
	Extended	58	47			
Occupation	Housewife	91	94	0.649	1	0.421 NS
	Employee	9	6			
Economic status	Adequate	65	70	0.749	2	0.688 NS
	Adequate to some extent	29	26			
	inadequate	6	4			
BMI	Obesity	1	0	3.040	3	0.386 NS
	Overweight	37	34			
	Normal	41	36			
	Underweight	21	30			

Table (4-4) shows that there is a significant association between the exhibition of abortion and the participants age , residency, and level of education . While there is a non- significant association with the others demographic data

**Table (4-5) association between the study subjects reproductive history and their exhibition of abortion**

Items	Rating and intervals	Study sample		Chi-square value	d.f.	p-value
		Study	Control			
Gravidity	<= 3	62	72	2.606	2	0.272 NS
	4 - 6	32	25			
	7+	6	3			
Parity	<= 3	33	72	32.071	2	0.001 HS
	4 - 6	52	25			
	7+	15	3			
Number of still birth	No	93	92	0.082	2	0.96 NS
	1	6	7			
	2	1	1			
Family History for Abortion	Yes	29	33	0.374	1	0.541 NS
	No	71	67			
Methods of termination of pregnancy	No	18	100	1.390	2	0.001 HS
	Medical	3	0			
	Surgical	79	0			
Pregnancy spacing / years	Less than 2	58	47	2.426	1	0.119 NS
	2 and more	42	53			
Sexual activity / week	1-2	48	45	0.181	1	0.671 NS
	3 and more	52	55			
Age of marriage	11-15	7	1	11.534	3	0.009

	16 - 20	56	46			HS
	21 - 25	34	41			
	26+	3	12			
Use of Family planning	Yes	36	49	3.458	1	0.063 NS
	No	64	51			

Table (4-5) shows that there is a high significant association between the exhibition of abortion and the number of parity, methods of pregnancy termination, and age at marriage. While there is a non-significant association with other reproductive history variables.

**Table (4-6) association between the study subjects medical history and their exhibition of abortion**

Items	Rating and intervals	groups		Chi-square value	d.f.	p-value
		Study	Control			
Hypertension	Yes	4	8	1.418	1	0.234 NS
	No	96	92			
Kidney diseases	Yes	1	1	.000	1	1 NS
	No	99	99			
Diabetes mellitus	Yes	2	0	2.020	1	0.155 NS
	No	98	100			
Respiratory diseases	Yes	5	4	.116	1	0.733 NS
	No	95	96			
Anemia	Yes	26	15	3.712	1	0.054 NS
	No	74	85			
Toxoplasmosis	Yes	12	0	12.766	1	0.001 HS
	No	88	100			
Urinary tract infections	Yes	23	7	10.039	1	0.002 HS
	No	77	93			
Rh incompatibility	Yes	3	0	3.046	1	0.081 NS
	No	97	100			
Accidents and injuries	Yes	5	0	5.128	1	0.024 S
	No	95	100			
Fall	Yes	1	0	1.005	1	0.316 NS
	No	99	100			
Surgical history	Yes	29	29	.000	1	1 NS
	No	71	71			
Operation type	CS	26	14	1.557	2	0.459 NS
	Appendectomy	2	0			
	Cholecystectomy	1	0			
Congenital uterine anomalies	No	99	100	56.929	1	0.001 HS
	Yes	1	0			
Cervicitis	No	99	100	56.929	1	0.001
	Yes	1	0			
Vaginitis	No	89	100	68.709	1	0.001
	Yes	11	0			
Cervical incompetence	No	93	100	60.188	1	0.001
	Yes	7	0			

Table (4-6) shows that there is a significant association between the exhibition of abortion and the toxoplasmosis ,urinary tract infection , accidents and injuries , congenital uterine anomalies, cervicitis, vaginitis, cervical incompetence. While there is a non-significant with other medical variables.

**Table (4-7) Assessment of Study group for Anxiety**

Items	m.s.	Std. dev.	RS%	Assessment
1-Are you afraid from death?	2.15	0.61	71.67	Moderate
2-Do you feel worried about your baby?	2.19	0.66	73	Moderate
3-Do you fear from died fetus?	2.54	0.64	84.67	Mild
4- Are you afraid from a deformed fetus?	2.93	0.29	97.67	Mild
5- Do you feel tired?	2.13	0.69	71	Moderate
6-Do you have a desire pregnancy?	1.69	0.73	56.33	Moderate
7-Are you Afraid about your health?	1.94	0.57	64.67	Moderate
8- Do you worry from pregnancy loss?	2.46	0.67	82	Mild
9-Are you worry from abortion or preterm labour?	2.54	0.64	84.67	Mild
10- Do you worry from other complications?	2.59	0.55	86.33	Mild
11-Are you worry from anesthesia complication?	2.74	0.48	91.33	Mild
12- Are you worry from job had effect on pregnancy?	2.86	0.45	95.33	Mild
13-Are you worry about the family future?	1.9	0.75	63.33	Moderate
14-Do have fear from the financial burden?	2.77	0.47	92.33	Mild
15-Are you worry about the gender of fetus?	2.54	0.58	84.67	Mild

N (100), m.s (2), cut off point (0.66), mild (mean of scores more than 2.33), moderate (mean of scores 1.67-2.33), severe (mean of scores 1-1.66).

Table (4-7) shows that the majority of the study group participants are suffering from mild anxiety at all items except at the items number (1,2,5,6,7,&13) their anxiety level is moderate.

**Table (4-8) Overall Assessment of Study group for Anxiety**

Main domain	Levels	Frequency	Percent	M.S.	Assessment
Overall assessment of anxiety	Mild	61	61.0	2.39	Mild
	Moderate	37	37.0		
	Severs	2	2.0		
	Total	100	100.0		

N (100), m.s (2), cut off point (0.66), mild (mean of scores more than 2.33), moderate (mean of scores 1.67-2.33), severe (mean of scores 1-1.66).

Table(4-8 )shows that the (61%)of the study group participants are exhibit mild anxiety.

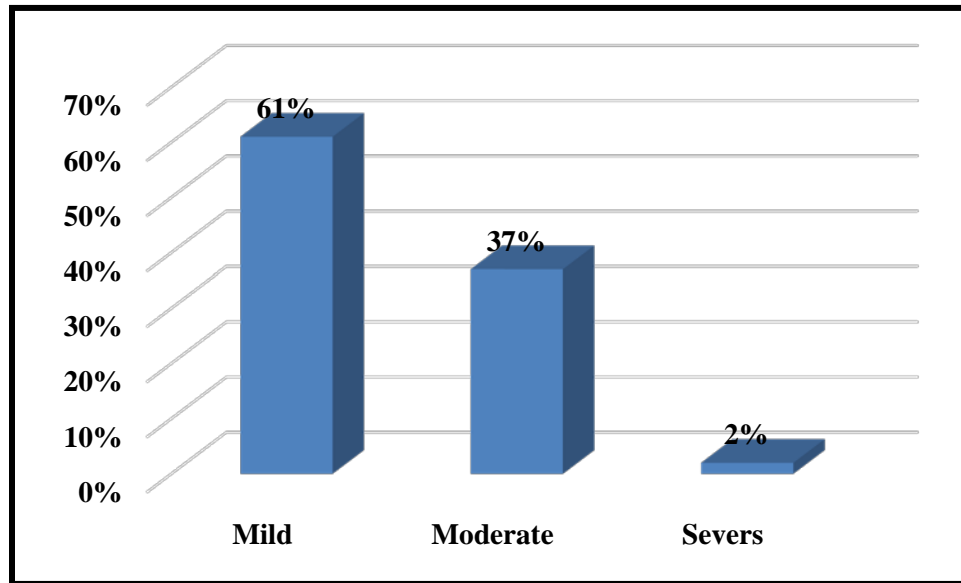


Figure ( 4-1 ) Overall Assessment of Study group for Anxiety

Table (4-9) Assessment of control group for Anxiety

Items	m.s.	Std. dev.	RS%	Assessment
1-Are you afraid from death?	1.98	0.14	66	moderate
2-Do you feel worried about your baby?	1.9	0.59	63.33	moderate
3-Do you fear from died fetus?	2.3	0.59	76.67	moderate
4- Are you afraid from a deformed fetus?	2.89	0.37	96.33	mild
5- Do you feel tired?	2.97	0.17	99	mild
6-Do you have a desire pregnancy?	2.27	0.6	75.67	moderate
7-Are you Afraid about your health?	1.81	0.73	60.33	moderate
8- Do you worry from pregnancy loss?	2.03	0.58	67.67	moderate
9-Are you worry from abortion or preterm labour?	2.91	0.29	97	mild
10- Do you worry from other complications?	2.91	0.29	97	mild
11-Are you worry from anesthesia complication?	2.87	0.34	95.67	mild
12- Are you worry from job had effect on pregnancy?	2.95	0.22	98.33	mild
13-Are you worry about the family future?	2.95	0.26	98.33	mild
14-Do have fear from the financial burden?	1.48	0.66	49.33	severe
15-Are you worry about the gender of fetus?	2.85	0.36	95	mild

N (100), m.s (2), cut off point (0.66), mild (mean of scores more than 2.33), moderate (mean of scores 1.67-2.33), severe (mean of scores 1-1.66).

Table (4-9) shows that the assessment of anxiety levels among control group participants is mild at all items , except at the items number (1,2,3,6,7,&8) the participants anxiety level is moderate , while at the item number (14) their anxiety level is severe.

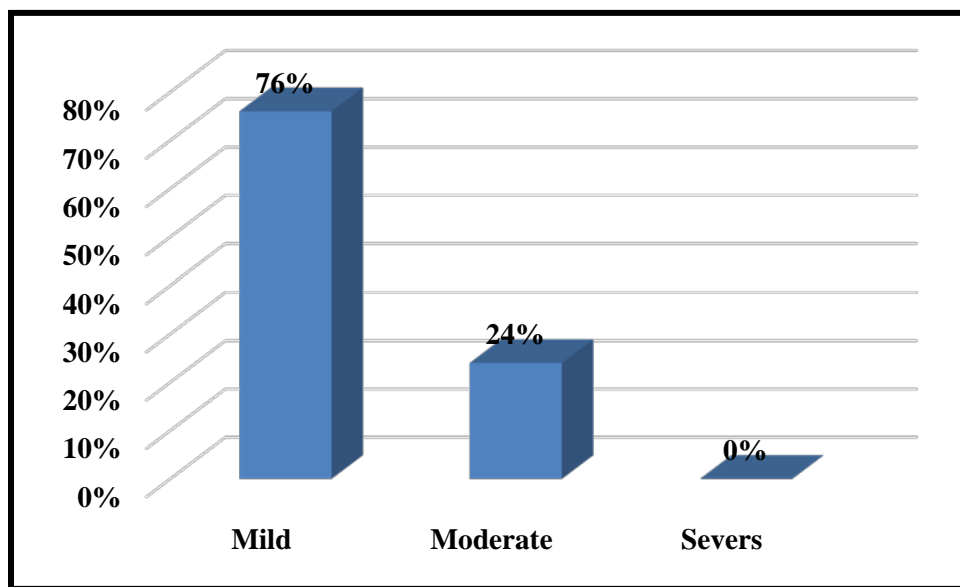


**Table (4-10) Overall Assessment of control group for Anxiety**

Main domain	Levels	Frequency	Percent	M.S.	Assessment
Overall assessment of anxiety	Mild	76	76.0	2.49	Mild
	Moderate	24	24.0		
	Severs	0	0		
	Total	100	100.0		

N (100), m. s. (2), cut off point (0.66), mild (mean of scores more than 2.33), moderate (mean of scores 1.67-2.33), severe (mean of scores 1-1.66).

Table(4-10) shows that the majority of control group participants (76%) are suffering from mild anxiety.



**Figure (4-2) Overall Assessment of control group for Anxiety**

**Table (4-11) Mean Differences between the study an control groups anxiety levels**

Main Domain	Groups	Mean	Std. Deviation	T-Value	D.F.	P-Value
Anxiety Levels	Study	2.39	0.32	2.56	198	0.011 S
	Control	2.49	0.18			

S(significant at p-value less than 0.05).

Table (4-11) shows that there is a significant differences between the study & control groups anxiety levels . With respect to the mean difference this table indicate that the study group exhibit anxiety more than those in control groups.

#### IV. DISCUSSION

Concerning to table (4-1) the results shows that the most of study group age (20-29) years old . this result supported with the result of a study conducted by **Kamble and Banerjee(2017)**, which found that the age of women even in their early age (20 to 30 years) associated with miscarriage because women in this age

are suffers from physical, emotional and social trauma that are associated with miscarriage .

Relative to the residency, the present study shows that the majority of study group and control group are living in urban residential area, This result matches with the result of **Ameen and Tawfeeq (2015)**, in their study when comparison between rural and urban results of pregnancy outcome showed spontaneous miscarriage was higher in urban than in rural area.

About educational level, the present study indicates that the majority of study group are primary school graduated, while in control group the highest percentage of sample were secondary school graduated .This results supported by **Zheng et al.,(2017)**, their study was found "educational attainment were inversely associated with the risk of spontaneous abortion" when they

"Compared with women in low educational attainment, women in higher educational attainment had a lower prevalence of SA".

Regarding to the type of family, the majority of study are living in an extended families. while the majority of control group live in a nuclear families. This results disagree with **Catak et al.,(2016)**, in their study found the majority of study and control group are living in a nuclear family. This due to in Iraqi society, the individuals are often lived in extended families due to the social, economic and may be due to the security factors.

Relative to housewives the majority of both study and control groups are housewives this results agree with **Fadhil,(2014)**, reported in her study that the majority of the sample are "Housewife", and they accounted for 160 (80.0%) of the total sample.

Regarding to the socio-economic status, high percentage of both study and control groups were withan adequate economic status . This results supported by **Zheng et al.,(2017)**, their findings indicate that the majority of the study participants are present with an adequate economic status.

Relative to theoverweight, in the present study most of study group are overweight. This results agreement with **Rittenberg et al.,( 2011)** In their study, found 41% of women included were either overweight or obese and these can lead to occurrence of SA .

Concerning to smoking, in this study both study and control group are non-smoker. This results supported by **Huan et al .,(2016)**,in their study shows that the majority of study group are non-smoking. In addition, the cultural and social factors make a number of barriers prevent the female from experiencing of smoking as compared with male in our society. Furthermore, the awareness about the health problems associated with the smoking may plays an important role in decreasing the females interesting in smoking, smoking can lead to SA.

According to (table 4-2):The study results shows that the majority of the study and control groups' participants have three and less than three gravidity, 4-6 parity, These results supported by **Nilsson, et al., 2014**, they studied "the risk factors for miscarriage from a prevention perspective", their results indicate that the majority of the study subjects are multigravida and multipara, so multigravida and multipara lead to weakness in the uterus and cervix this can lead to SA .

Regarding to the number of still birth, the present study show high percentage of study group have no still births. This result agree with **Khalil et al., (2013)**, in their study found the majority of their study are have still births.

Also the study results shows that the majority of study and control group have no family history of abortion. This results agreement with **Huan et al .,(2016)**, in their study found that the majority of their study have no family history of abortion.

Regarding to number of present abortion, the present study show the majority of study sample have one previous abortion. This result agree with **Fadhil,(2014)**, reported in her study thatthe majority of the sample was reported at "previous one abortion", and they are accounted 105(52.5%) of the study sample.

Also the study results showed that the majority of study group have missed abortion. This result agree with **Fadhil,(2014)**, her study shows the majority of study sample have missed abortion.

Regarding to the methods of pregnancy termination , the study results indicate that the majority of study group participants use surgical methods for abortion management. this results supported by **Adeniran et al.,(2015)**,their study shows the majority of study are managing with surgical management this was because majority of the patients presented with significant vaginal bleeding.

[1] In addition , the study results shows that the majority of the study group are use of interval between pregnancyfor less than 2 years, while the majority of the control group use 2 year & more. This results disagree with **Poorolajal, et al., (2014)**, in their study found that the majority of study group and control group are use  $\geq 3$  interval between pregnancy.

And the majority of the study and control groups participants are do 3 & more sexual activity per week. This result supported by **Pauletaet al.,(2010)**, that reported in there study "most frequent period of sexual intercourse in the first trimester was (44.7%)".

Relative to age at marriage the present study shows that the majority of study group are marry with age 16-20 years old . This results supported by **Shamshad et al.,(2016)**, in their study found the majority of study married with were below 18 yearsbecause of early teenage marriage their age, "very young mothers place into a high risky category as they are biologically and psychologically immature". In addition in Iraq most familiespreferred early marriage because of socioeconomic position and traditions in country.

About family planning the majority of study sample don't use family planning methods. this results disagree with **Catak et al.,(2016)**, they found in their study the majority of study and control group are use family planning method.

Concerning to table (4-3) the present study shows that the majority of the study and control groups participants don't exhibit medical history. This results in present study disagree with **Adel and Abdul. Razzaq,(2013)**, that found in their study highest percentage of medical factors contributed to spontaneous abortion.

Table (4-4) the present study shows that there is a significant association between the exhibition of spontaneous abortion and the participants age , residency, and level of education. While there is a non- significant association with the others demographic data. This results disagree with **Adel et al.,(2015)**,their study concluded that there was no association between spontaneousabortion and any of the socio-demographic characteristics.

Relative to table (4-5) the results shows that there is a high significant association between the exhibition of abortion and the number of parity, methods of pregnancy termination , and age at marriage . While there is a non-significant association with other reproductive history variables.

Concerning to number of parity, in this table found there is a high significant association between the exhibition of abortion and the number of parity. This result comes along with **Kareem, 2012**, he found in his study show a strong relationship between parity and spontaneous abortion.

Also table (4-5) the results shows that there is a high significant association between the exhibition of abortion and methods of pregnancy termination. This result supported by

**Carthy et al.,(2013)**, they found in their study "women managed with surgical method have an increased risk of having a pregnancy complicated".

Concerning to age at marriage table (4-5) the results shows that there is a high significant association between the exhibition of abortion and age at marriage. This result supported by **Shamshad, et al., 2016**, they stated that Early teenage marriage is replete with problems during the pregnancy period. Because of their age, very young mothers place into a high-risky category, as they are "biologically and psychologically immature". Women who marry before 18 years and with their blood relatives stay at high risk of spontaneous abortion, fetal death and infant mortality during the childbearing period. Moreover, early marriage minimize short the woman's education and employment chances. It burdens the girl with continual pregnancy, childbearing and excessive responsibilities at an immature age. These additional factors increase the impact of early age marriage upon the pregnancy outcome of these women.

About medical and reproductive history table (4-6) the results shows that there is a significant association between the exhibition of abortion and the toxoplasmosis ,urinary tract infection , accidents and injuries , congenital uterine anomalies, cervicitis, vaginitis, cervical incompetence, and placental disease. While there is a non-significant with other medical variables.

Concerning to toxoplasmosis infection in this table found a significant association between the exhibition of spontaneous abortion and the toxoplasmosis. This result disagree with **Saki et al., (2015)**in their study showed "no significant difference between the case and control groups in IgG anti-Toxoplasma antibody but detected one sample with IgM antibodies in woman with abortion during the first trimester of pregnancy".

Also the study results shows that there is a significant association between the exhibition of spontaneous abortion accidents and injuries. This result disagree with **Jibril et al.,(2014)**, in their study shows no significant associated between spontaneous abortion accidents and trauma due to they found a small number of woman exhibit to trauma or accident during first trimester.

Regarding to uterine anomalies the study result shows that there is a significant association between thecongenital uterine anomalies and spontaneous abortion. this result comes along with**Chan et al .,(2011)**, they found in their study "uterine defects were associated with reduced clinical pregnancy rates and increased rates of first-trimester miscarriage".

In addition; the study result shows that there is a significant association between the vaginitis, cervicitis and genital infection and spontaneous abortion. This result agree with **Giakoumelou et al.,(2016)**, reported in their study "The association of vaginal infection with bacterial vaginosis, with increased risk of miscarriage has been demonstrated".

About the cervical incompetence present study shows a significant association between thecervical incompetence and occurrence of spontaneous abortion. This result supported with **Carthy et al.,(3013)**, that reported in their study"Women with a previous miscarriage or termination managed by cervical dilatation and curettage had an increased risk of having a pregnancy complicated".This due to dilatation and curettage cause cervical dilated. Also women with age more than 35 and

those who have high number of parity they having cervical problems and pregnancy complication.

Regarding the effect of the anxiety on the occurrence of spontaneous abortion, the present study indicates the study results show that there is a significant difference between the study & control groups' anxiety levels. With respect to the mean difference this table indicate that the study group exhibit anxiety more than those in control groups. **Maconochie, et al.,(2006)**;**Wainstock et al.,(2013)**.,they studied the stress during pregnancy between two group as a case control and they find that "the psychological stress and anxiety are participated and increase risk the occurrence of abortion".

## V. ETHICAL CONSIDERATION

This is one of the most basic principles before gathering the data, to keep the patient's values and self-respect. The researcher achieved this agreement from the Ethical committee at the Faculty of Nursing / University of Kufa (Appendix-B). The researcher promised to keep the patient's information confidential, and use these data for this study only then he explained the purpose of this study to each participant without affecting the routine visiting and care. In addition to above the researcher told each participant that this is voluntary work, and they can leave any time even the interview process is not completed.

## VI. CONCLUSIONS

According to the study findings and discussion, the study concluded the following:

1. Half of study sample (50%) women range between age ( 20-29) years and (81%) urban residents and (28%) primary school graduated are high risky for miscarriage.
2. Increase parity number and age at marriage (16-20) years are high risk of miscarriage.
3. Infection like (toxoplasmosis ,urinary tract infection, cervicitis and vaginitis), cervical incompetence, congenital uterine anomalies and placenta problems, accidents and injuries are risk factors for spontaneous abortion.
4. There is a significant differences between the study &control groups in anxiety levels , anxiety during pregnancy is a risk factor associated with spontaneous abortion.

## VII. RECOMMENDATIONS

**Based on the study results discussion and conclusions the study recommended that:**

1. An education programs should applied by the ministry of higher education and scientific research and the ministry of health to increase the population awareness about the risk factors of spontaneous abortion and how manage this factors .
2. Activate the nurses role in health education for women about the impact of the reproductive disorders on the reproductive health and the outcomes of pregnancy .
3. Mass media should utilize to educate the population about the risk factors of spontaneous abortion and the appropriate management for this factors.

