



REVIEW ARTICLE

PREVALENCE OF RISK FACTORS IN PREGNANT WOMEN ATTENDING ANTENATAL CARE UNIT IN AL-MANSOUR FAMILY HEALTH CENTRE /BAGHDAD

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ABSTRACT

Background: Pregnancy is a wonderful dream for all married women to establish new family with lovely children's. But not all pregnancies go smoothly. Every pregnancy carries its risks. But good prenatal care and support can help minimize those risks. A high risk pregnancy is one in which some condition puts the mother, the developing fetus, or both at higher than normal risk for complications during or after the pregnancy and birth.

Objectives:

1. To identify the prevalence of risk factors during pregnancy
2. To identify the most prevalent risk factors and factors affecting them

Methods: Across sectional study of a sample of 100 pregnant had been carried out in antenatal care unit in Al-Mansour family health center during the period from February-May 2017. The questionnaire prepared according to the data of antenatal records and completed through direct interview with every participant.

Result: Out of 100 pregnant there were 76 (76%) pregnant women had 1 or more than 1 risk factor of pregnancy distributed as the follows 67(88%) of them had BMI>25 at first visit, while the second risk factor was primagravida38(59%),previous cesarean section and anemia (Hb. level< than 11) were the third risk factor which is equal to 29 (38%) there was a significant association between age and risk factor for pregnancy, also significant association between BMI and educational status, occupation and number of meals and a significant association between anemia and age of pregnant women

Conclusion: Antenatal risk factors is prevalent among more than two thirds of pregnant women in this study population. Interventions to address modifiable ones should be carried out.

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INTRODUCTION

Pregnancy is a wonderful dream for all married women to establish new family with lovely children's. But not all pregnancies go smoothly (Metgud *et al.*, 2009). A pregnancy can be considered a high risk pregnancy for a variety of reason (Christian *et al.*, 2011). A high risk pregnancy is one in which some condition puts the mother, the developing fetus, or both at higher than normal risk for complications during or after the pregnancy and birth (Kilpatrick *et al.*, 2007). Risk factors may present as solitary factor or multiple risk factors occur together during same pregnant period, the risk factors have been defined as the probability that an event will occur (Kilpatrick *et al.*, 2007). Sometimes a high-risk pregnancy is the result of a medical condition present before pregnancy. In other cases, a medical condition that develops during pregnancy for either mom or baby causes a pregnancy to become high risk. Specific factors that might contribute to a high-risk pregnancy include (Burt, 2007):

Advanced maternal age: Pregnancy risks are higher for mothers age 35 and older.

Lifestyle choices: Smoking cigarettes, drinking alcohol and using illegal drugs can put a pregnancy at risk.

Medical history: A prior C-section, low birth weight baby or preterm birth before 37 weeks of pregnancy might increase the risk in subsequent pregnancies. Other risk factors include a family history of genetic conditions, a history of pregnancy loss or the death of a baby shortly after birth.

Underlying conditions: Chronic conditions such as diabetes, high blood pressure and epilepsy increase pregnancy risks. A blood condition, such as anemia, an infection or an underlying mental health condition also can increase pregnancy risks.

Pregnancy complications: Various complications that develop during pregnancy pose risks, such as problems with the uterus, cervix or placenta. Other concerns might include too much amniotic fluid (polyhydramnios) or low amniotic fluid (oligohydramnios), restricted fetal growth, or Rh (rhesus) sensitization.

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Multiple pregnancies: Pregnancy risks are higher for women carrying twins or higher order multiples (Burt, 2007).

Objectives

1. To identify the prevalence of risk factors during pregnancy
2. To identify the most prevalent risk factors and factors affecting them

MATERIALS AND METHODS

Analytic cross sectional study of a convenient sample of 100 pregnant women was conducted from the first of February-30May 2017. The study was carried out in antenatal care unit in Al-Mansour family health center

The Inclusion criteria: Any pregnant female attending Almasour health center and registered in ANC unit.

Exclusion criteria: Any pregnant female attending Almasour health center and refused to be registered in ANC unit and booking or coming for administrative purposes. The questionnaire prepared according to the data of antenatal records and completed through direct interview with every participant. Which includes socio demographic characteristics, BMI, in addition to obstetric, gynecological, medical, surgical and family history and completed through direct interview with every participant who agreed to participate.

Analysis of data: Data analysis was carried out by the use of Microsoft Office Excel software programs version 2010. Chi square was used to determine the association of various related variables with the risk factors of pregnancy. A p-value of < 0.05 was considered statistically significant.

RESULTS

One hundred pregnant women attending ANC had been interviewed 74(74%) of them were among 21-30 years of age, and 23 (23%) were among 31-40 years of age and 2(2%) were < 20 years and only one her age was 41. The mean age of pregnant women was 27.5+4.61 SD As shown in Table 1. Educational level of pregnant women had been reviewed, it was found that 56(56%) of them had bachelor degree, only 1 (1%) illiterate. As shown in Table 1:

76 pregnant women had 1 or more than 1 risk factor of pregnancy, 67(88%) of pregnant women had BMI>25, while the second most common risk factor was primigravida 38(59%), previous cesarean section and anemia (Hb level< than 11) were the third risk factor 29 (38%) identified in this study, 14(18%) pregnant women had previous abortions, and 11(14%) had > than 5 children, 7 (9%) pregnant women had Rh incompatibility, 6(8%) multigravida pregnant women their age >35 years and 2 (3%) had hypertension, and only one pregnant woman(1%) had gestational diabetes and one had(1%) multiple pregnancy. As shown in Table 2. It was found that 49(49%) pregnant women who had risk factors were among 21-30 years age group. And 23(23%) who had risk factors were among 31-40 years age group. This was statistically significant as shown in Table 3. Eleven (11%) pregnant women had normal pregnancy and attend ANC unit <4 visits, and 13(13%) of them had normal pregnancy and attend ANC unit >4 visits, while 31 (31%) had risk factors and attend ANC unit <4 visits and 58(58%) of pregnant women had risk factors

and attend ANC unit >4 visits. This was not statistically significant as shown in Table 4.

Table 1. Socio demographic characteristics

Age (in years)	Number	%
< 20	2	2%
21-30	74	74%
31-40	23	23%
41	1	1%
Total	100	100%
Educational Level	Number	%
illiteracy	1	1%
Primary school	13	13%
Secondary school	15	15%
Tertiary school	10	10%
Diploma	3	3%
Bachelor	56	56%
Higher	2	2%
Total	100	100%
Occupation	Number	%
Housewife	70	70%
Worker	26	26%
Student (undergraduate)	2	2%
Student postgraduate)	2	2%
Total	100	100%
Districts	Number	%
611	34	34%
613	30	30%
617	36	36%
Total	100	100%

Table 2. Risk factors during pregnancy

Type of risk factors	Frequency	%
Previous cesarean section	29	38%
Hypertension	2	3%
Diabetes Mellitus	1	1%
Rh incompatibility	7	9%
BMI ≥25	67	88%
Abortions	14	18%
Multiple pregnancy >5	11	11%
Anemia< 11 gm	29	38%
Prima Gravida	38	50%
Multi Gravid >35 years	6	8%
Multiple pregnancy	1	1%

Table 3. Association between age groups and type of pregnancy

Age Groups/year	Normal pregnancy	%	Risk Pregnancy	%
≤20	1	1%	3	3%
21-30	23	23%	49	49%
31-40	0	0%	23	23%
41	0	0	1	1%
Total	24	24%	76	76%

$X^2=10.0687$; $df=3$; p value ≤ 0.05 statically significant

Table 4. Association between type of pregnancy and number of visits

Type of pregnancy	Number of visits			
	<4 visits	%	≥4 visits	%
Normal pregnancy	11	11%	13	13%
Risky pregnancy	31	31%	45	45%
Total	42	42%	58	58%

$X^2=0.186$; $df=1$; P value= 0.6 statistically not significant.

In our study 62(62%) pregnant women had previous delivery, 29(47%) pregnant women had previous cesarean section, 19(31%) were among 21-30 years of age and 10(16%) were among 31-40 years of age group. 33(53%) pregnant women had previous normal vaginal delivery 25(40%) of them were among 21-30 years of age. As shown in Table 5. We study the association between educational level of pregnant women and type of delivery, it was found that 13(21%) pregnant women

with bachelor & higher degree had previous cesarean section and 5(9%) pregnant women with primary school degree and had previous cesarean section. While those with previous normal vaginal delivery 9 (15%) of them with bachelor & higher degree and another 9(15%) of them with secondary school degree. All these results is Shawn in Table 6.

Table 5. Association between Age group and type of delivery

Age Group/Year	Cesarean section		Normal vaginal delivery	
	Number	%	Number	%
≥20	-	-	1	2%
21-30	19	31%	25	40%
31-40	10	16%	6	9%
41	-	-	1	2%
Total	29	47%	33	53%

X²= 3.57; df 3; p value =0. 3 statistically not significant

Table 6. Association between educational level of pregnant women and type of delivery

Educational level	Cesarean section		Normal vaginal delivery	
	Number	%	Number	%
Illiterate	0	0%	1	1%
Primary school	5	9%	7	11%
Secondary school	4	6%	9	15%
Tertiary school	3	5%	7	11%
Diploma	4	6%	0	0%
Bachelor&higher	13	21%	9	15%
Total	29	47%	33	53%

X²=9, 35 DF 5 P value=0.095 not significant

Table 7. The relation between number of meals and BMI

Number of meals	BMI					
	18.5-24.9		25-29.9		30>	
2 meals	1	1%	2	2%	1	1%
3 meals	19	19%	27	27%	23	23%
4 meals	6	6%	10	10%	6	6%
>4 meals	0	0	1	1%	4	4%
Total	26	26%	40	40%	34	34%

X²=5.66 df 6 p value= 0. 46 statistically not significant

Table 7 showed the association between number of meals and BMI. It was found that 69(69%) of pregnant women had 3meals/day of them only 19(19%) their BMI was 18.5-24.9 (normal weight). Those who are taking 4 meals 6 (6%) of them had normal BMI (18-24.9) and 6 (6%) of them were obese their BMI 30>, 4(4%) pregnant women whom taking more than 4 meals/day were obese and only 1(1%) was overweight her BMI (25-29.9). About educational level and its association with BMI it was found that twenty six (26%) pregnant women with normal BMI, 17(17%) had bachelor degree,5(5%) had tertiary school degree,3(3%) had secondary school degree, and 1(1%) had primary school degree. The relation between educational level and BMI was statistically significant, as shown in Table 8.

Table 8. Relation between Educational level of pregnant women and BMI

Educational Level of the pregnant women	BMI					
	18.5-24.9		25-29.9		30≥	
Illiteracy	-	-	1	1%	1	1%
Primary school	1	1%	4	4%	8	8%
Secondary school	3	3%	6	6%	6	6%
Tertiary school	4	4%	5	5%	1	1%
Diploma	-	-	2	2%	1	1%
Bachelors & higher	17	17%	25	25%	15	15%
Total	25	25%	43	43%	32	32%

X²=11.5; df 10; p value =0.3 not significant.

For occupation and its association with BMI those pregnant women with normal BMI 17(17%) of them were housewives and 9(9%) of them were workers or students. The relation between occupation of pregnant women and their BMI was statistically not significant as shown in Table 9.

Table 9. Association between occupation of pregnant women & BMI

Occupation	BMI					
	18.5-24.9		25-29.9		30>	
Housewife	17	17%	30	30%	23	23 %
Worker or Student	9	9%	10	10%	11	11%
Total	26	26%	40	40%	34	34%

X²= 0.8289; df =2; p value =0.6.

Laboratory investigations had been carried out to every pregnant woman attending ANC unit. Ninety eight (98%) pregnant women did the above investigations and only 2(2%) refused to do it because she had done investigations in private lab. According to ANC guidelines Hb. Test repeated in each trimester of pregnancy and if Hb. level < 11gm/dl, this should be repeated several times after giving treatment. 71 (71%) of them had normal Hb. test 34 (34%) of them had < 4 visits and 37 (37%) had > 4 visits. Twenty seven (27%) pregnant women were anemic in the first trimester, 13 of them (13%) < 4 visits and 14(14%) of them > 4 visits. The relation between Hb. result in the first trimester and number of visits had been statistically reviewed; it was found that the result is not significant as shown in Table 10.

Table 10. The relation between hemoglobin result in each trimester with number of visits

Hemoglobin Results with trimester of pregnancy	Number of visits					
	< 4 visits			≥4 visits		
	number	%	number	%	number	%
First trimester hemoglobin result	normal	33	33%	normal	36	36%
	anemic	14	14%	anemic	15	15%
Second trimester hemoglobin result	Total	47	47%	Total	51	51%
	normal	33	33%	normal	44	44%
Third trimester hemoglobin result	anemic	5	5%	anemic	13	13%
	Total	38	38%	Total	57	57%
Total	normal	32	32%	normal	45	45%
	anemic	1	1%	anemic	4	4%
Total	33	33%	Total	49	49%	

X² =0.16 df 1 p value =0.9 not statically significant(first trimester Hb. test result)

X² =1.38df 1 p value =0.24 not statistically significant (second trimester Hb. test result).

X² =0.9 df 1 p value =0.3not statistically significant (third trimester Hb. test result).

In the second trimester of pregnancy, hemoglobin test had been done to 95(95%) pregnant women in this study, 33 (33%) of them had normal Hb. test and had < 4 visits, 5 (5%) were anemic and had < 4 visits, while 44(44%) pregnant women had normal Hb. test and had >4 visits and only 13(13%) were anemic and had> 4 visits. The relation between Hb. result in the second trimester and number of visits was statistically not significant as shown in Table 10. In the third trimester of pregnancy, hemoglobin test had been done to 82(82%) of pregnant women in this study, 33(33%) of them had < 4 visits, from those 33 pregnant women 32 (32%) had normal Hb, test and only 1 (1%) were anemic. Forty nine(49%) pregnant women had > 4 visits 45(45%) of them had normal Hb. test, and 4 (4%) had anemia. The relation between Hb. result in the third trimester and number of visits was statistically significant as shown in Table 10. We study the Association between age group of pregnant women and hemoglobin level; it was found that 69(69%) pregnant women out of 98 pregnant women did the Hb. test in the first visit had no anemia and 29(29%) had anemia. Those who had anemia 13 (13%) of them were among

21-30 years age group and another 13(13%) were among 31-40 years age group, 2(2%) were >years age group and only 1 (1%) her age was 41 and had anemia. In this study pregnant women with normal Hb. level most 59(59%) of them were among 21-30 years of age, and 10 (10%) were among 31-40 years of age. These results were shown in Table 11.

Table 11. Association between age group of pregnant women and hemoglobin level

Age of the pregnant women	*Hb. Level			
	Hb. level< 11g/dl (anemia)	%	Hb. level ≥ 11g/dl(normal)	%
20 ≤	2	%2	0	0%
21-30	13	13%	59	59%
31-40	13	13%	10	10%
41	1	1%	0	0%
Total	29	29%	69	69%

$\chi^2=19.7$ df=3 P value<0.001 highly significant
Hb. mean hemoglobin level*

Educational level of pregnant women with hemoglobin level had been taken in our study, it was found that 69(%) pregnant women had normal Hb. test 40(40%) Of them had bachelor and higher level of education and 11(11%) had secondary school of education, 9(9%) of them had primary school of education and 6 (6%) had tertiary school of education and 2(2%) had diploma and only 1 (1%) was illiterate. 29 (29%) pregnant women in this study had anemia of them, 16 (16%) of them with bachelor and higher degree, 4(4%) of them with primary school of education and another 4 (4%) with secondary school of education and other 4 (4%) had tertiary school of education and only 1 (1%) with diploma. As shown in Table 12.

Table 12. Association between Educational levels of pregnant women with hemoglobin

Educational Level of the pregnant women	Hb. Level			
	Hb. level< 11g/dl (anemia)	%	Hb. level ≥ 11g/dl(normal)	%
Illiteracy	-	-	1	%1
Primary school	4	%4	9	%9
Secondary school	4	%4	11	%11
Tertiary school	4	%4	6	%6
Diploma	1	1%	2	%2
Bachelors& higher	16	%16	40	%40
Total	29	%29	69	69%

$\chi^2=1.87$ df 5 p value =0.9 statistically not significant

DISCUSSION

A high risk pregnancy is one in which some condition puts the mother, the developing fetus, or both at higher-than-normal risk for complications during or after the pregnancy and birth. Understanding perception of pregnancy risk is important, because it can affect women's health care use, motivations to seek care, pregnancy and labor decisions, adherence to medical recommendations, and health behavior (Beers *et al.*, 2004; Hamilton *et al.*, 2010; Martin *et al.*, 2012). Risk perception is also incorporated as a key concept in constructing several theories of health behavior such as the Health belief Model, Protection Motivation Theory, and Prospect Theory. Our study showed that the prevalence of risk factors increased with increasing maternal age. Age is one of the most common factors that can add risk to a woman's pregnancy. The number of babies born to women in their late 30s has progressively increased over the past decade, also older women were more likely than comparison women to be overweight. Pregnancy at

advanced maternal age, defined as age 35 years or older, is associated with several adverse pregnancy outcomes including preterm birth, low birth weight, still birth, chromosomal defects, labor complications, and cesarean section (Balasch *et al.*, 2012; Montan *et al.*, 2007; Hung, 2008; Aldous and Edmonson, 1993); therefore, it is considered to be a "high risk" pregnancy. Many of the increased risks appear to be explained by multiple pregnancy or use of assisted conception. Studies have reported an association between advanced maternal age and a higher risk of adverse maternal and infant outcomes (Cleary-Goldman *et al.*, 2015; Jacobsson *et al.*, 2004; Bayrampour and Heaman, 2010). Older women were significantly more likely than the comparison women to have a plan at booking for more than the recommended number of antenatal visits for low risk women. Support for this result was seen in a study done in Erbil at 2012 (Ali, 2012) which showed that there was high significant association between age and number of pregnancy (Gravida > 5) and at the same time with anemia. The published data on the risks associated with childbirth at >35 years are inconsistent. It is known that older women are more likely to have pre-existing medical disorders such as diabetes mellitus or hypertension (Hansen, 1986) and Some studies have demonstrated an increased incidence of antepartum haemorrhage, malpresentation, operative vaginal delivery, Caesarean delivery (Suplee *et al.*, 2007; Fretts *et al.*, 1995; Fonteyn and Isada, 1988). In contrast, other studies report little or no adverse outcomes associated with pregnancy in older women (Barkan and Bracken, 1987; Kowalewski *et al.*, 2004; Ales *et al.*, 1999). Pregnancy in older women is associated with many confounding factors e.g. parity, pre-existing diabetes mellitus and/or hypertension, which should be taken into account if the risks associated with advanced maternal age are to be quantified (Chan and Lao, 1999; Gilbert *et al.*, 1999).

The greatest differences between older women and controls were identified in the mode of delivery. One possible explanation is that obstetricians may have a lower threshold for intervention in older women. The results of our study showed that BMI more than 25 was the most prevalent risk factor, there was no significant association between overweight obese and number of meals, educational level or type of occupation. Given the rapid increase in the prevalence of obesity, obesity during pregnancy is now a common high-risk obstetrical condition affecting about one in five women who give birth. In contrast, whereas pregnancies complicated by preexisting diabetes mellitus, gestational diabetes mellitus, or a hypertensive disorder were associated with greater use of medications than were pregnancies without apparent complications, the use of medications (as well as the number of telephone calls to the department of obstetrics and gynecology) increased with increasing maternal BMI, even for women without a high-risk conditions. Numerous studies have documented the increased risks of adverse outcomes associated with obesity during pregnancy, (Cnattingius *et al.*, 1998; Ehrenberg *et al.*, 2004; Garbaciak *et al.*, 1985; Catalano and Ehrenberg, 2006; Villamor and Cnattingius, 2006) but few studies have provided quantitative estimates of the associated increase in the use of health care services. As was found in other studies, there was strong associations between higher maternal BMI and older age, higher parity, and lower socioeconomic status, although in our study there was no relation between the raised BMI and socioeconomic state probably because most of our patient were of medium socioeconomic.

Obese women have an increased risk of infertility and pregnancy-related complications, including hypertension, gestational diabetes, they are also at a higher risk of giving birth to a child with congenital anomalies and blood clots also more likely than women who aren't to require cesarean sections. Two reports from Montpellier, France, estimated the complications from and costs of obesity during pregnancy in the same clinic population during two time periods (France Hivert *et al.*, 2015). The average costs were significantly higher for overweight and obese women than for women of normal weight. The presence of a high-risk condition modified the associations between maternal BMI and certain measures of use. For example, among women with a high-risk condition during pregnancy, the numbers of prenatal fetal tests and obstetrical ultrasonographic examinations were significantly higher for women in the two highest BMI categories. This finding may reflect the fact that clinicians will monitor fetal growth and development more closely in women with high-risk conditions, but because measuring growth clinically in very obese or extremely obese women is more difficult, more frequent tests may be needed (Shingairai *et al.*, 2015). Even a modest rise in BMI increased the risk of fetal and infant death. Severely obese women those with a BMI greater than 40 had a twofold to threefold increase in these outcomes, compared with women who had a BMI of 20, which is within normal range. In the current study primigravida was the second prevalent risk factor, primigravida are more likely to have abortion, pre-eclampsia and to deliver by cesarean section. Prior birth confers a strong protective effect against preeclampsia, whereas a prior abortion confers a weaker protective effect. Parous women who change partners in a subsequent pregnancy appear to lose the protective effect of a prior birth. Other study showed that cesarean section rate does not differ significantly between adolescents and adults (Tufail and Hashmi, 2008). A lot of controversy exists in the literature about the mode of delivery in teenage mothers. Some studies showed that adolescents had a lower cesarean section rate than adults (Gupta *et al.*, 2008).

This probably because the rate of cesarean section could easily be influenced by the attitude of obstetricians and midwives towards labor and delivery. In our study previous cesarean section and anemia were equally contributed to be the third most prevalent risk factor. Not surprisingly, women who had their first child by cesarean delivery were at high risk for having their second child the same way. Four out of five women who delivered first children vaginally achieved vaginal births the second time around, compared with just 31% of women with a history of cesarean births. After falling modestly in recent years, cesarean delivery rates are again on the rise, with roughly one in four babies in the U.S. and the U. K. now delivered by C-section (Deneux-Tharoux *et al.*, 2006). There is also a trend away from offering vaginal deliveries to women who have had C-sections, Women who have a uterine cesarean scar have slightly higher long-term risks. These risks, which increase with each additional cesarean delivery, including breaking of the incision scar during a late pregnancy or labor (uterine rupture). Placenta previa, the growth of the placenta low in the uterus (Liu *et al.*, 2007). Placenta accreta, placenta increta, placenta percreta (least to most severe). These problems occur when the placenta grows deeper into the uterine wall than normal, which can lead to severe bleeding after childbirth, and sometimes may require a hysterectomy (Seow *et al.*, 2004). Anemia diagnosed early in pregnancy is associated with increased risks of low birth weight and preterm

delivery. In several studies, the association between anemia and outcomes reversed direction during the third trimester; maternal anemia was no longer a risk factor for poor pregnancy outcomes. Maternal iron-deficiency anemia, diagnosed at entry to prenatal care, was associated with low dietary energy and iron, inadequate gestational gain, and twofold or greater increases in the risks of preterm delivery and low birth weight. During the third trimester, these associations (except with inadequate gestational gain) were no longer present (Scanlon *et al.*, 2000). This reversal of risk status may be attributable to the poor predictive value of anemia and iron deficiency tests during the third trimester (Adekanle *et al.*, 2008). Daily maternal supplementation of multiple micronutrients compared to iron-folic acid before and after childbirth did not reduce all-cause infant mortality to age 6 months, but did result in significant reductions in preterm birth and low birth weight, according to study (Liu *et al.*, 2007). Various studies have reported variable prevalence rates of anemia during pregnancy and it varies from 33% to 75% (World Health Organization, 2007; McLean *et al.*, 2009). In this study, anemia was significantly associated with age which may reflect the general state of nutritional deficiency in these women. These findings have also been reported by several other studies (UNICEF/UNU/WHO, 2001; McLean *et al.*, 2007).

Conclusion

- Antenatal risk factors is prevalent among more than three quarters of pregnant women BMI > 25, anemia and previous C/S are the most common risk factors in this study.
- There was a significant association between age group with type of delivery and with Hb. Level.

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