



Original Article

knowledge and attitude of Iraqi women in reproductive age group about risk factors in pregnancy

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Abstract

Improved knowledge among women about maternal risk factors significantly reduced the likelihood of adverse events in pregnancy and childbirth. This study aimed to explore Iraqi women's knowledge and attitudes about maternal risk factors in pregnancy. A multicenter cross-sectional survey was conducted from 01 January to 31 March 2019 among women of the reproductive age (15-49 years). A convenient sampling technique using a semi-structured questionnaire was recruited to interview the sample. SPSS version 16.0 was used to analyze the data. Descriptive and inferential statistics (Chi-square test) were used to present data with the significance level considered at <0.05. Data of 250 women underwent final analysis. The mean age of respondents was 27.76 (± 6.3 years). Most of the respondents (79.9%) correctly knew the maternal risk factors in pregnancy. A large percentage of women knew that poor nutrition, anemia (95.6%), smoking and passive smoke (95.6%), and obesity (85.2%) during pregnancy are risk factors affecting the fetus' health. However, about 40.0% of women thought there was no harm during pregnancy, and therefore there was no need for medical check-ups regularly. In bivariate analysis, there was a significant association between knowledge and level of education. The higher the level of education, the greater the women's knowledge about risk factors such as malnutrition and anemia ($P < 0.001$), obesity ($P = 0.04$), diabetes ($P = 0.002$), repeated urinary tract infection ($P = 0.017$), Rh incompatibility (< 0.001), history of previous cesarean section ($P = 0.010$), smoking and passive smoking ($P = 0.014$) and evidence of bleeding ($P = 0.001$). In conclusion, Iraqi pregnant women demonstrated a good level of knowledge about the risk factors during the pregnancy.

Keywords: Knowledge, Attitude, Reproductive Age, Risk Factors, Pregnancy, Women, AL-Falluja, Iraq

Background

Undoubtedly, increased knowledge among women about risk factors during pregnancy reduces mortality and morbidity among mothers and children. Pregnancy is an excellent opportunity to adopt a healthy lifestyle that can benefit mothers and newborns. Age is one of the most important determinants and risk factors for pregnancy. Teens under 15 are at high risk of gestational complications such as preeclampsia, anemia, premature delivery, low birth weight, and congenital fetal anomalies [1]. On the other hand, pregnancy over the age of 35 is associated with worse outcomes and is treated as a high-risk pregnancy due to the potential for a higher rate of chronic.

Medical conditions. Combined age-related factors, such as reduced fertility, genetic risks, miscarriage, and stillbirth, can make it more difficult for a woman to get pregnant [2]. Adequate nutrition is a fundamental cornerstone of any individual's health, especially critical for pregnant women because inadequate nutrition affects women's health and their children's health. Children of malnourished women are more likely to face cognitive impairments, short stature, lower resistance to infections, and a higher risk of disease and death [3,4]. According to the World Health Organization, many women do not get enough micronutrients in their diets during reproductive age and pregnancy, contributing to about one-third of all child deaths and impairing their development [5]. Moreover, the significant consequence of nutritional insufficiency is obesity. During pregnancy, there are many complications associated with obesity, such as first and third-trimester miscarriage, preeclampsia, gestational diabetes, failure

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to induce labor, and increased rates of cesarean sections [6]. Over the last few decades, high blood pressure in pregnancy steadily increased. Bateman et al. [7] reported that "1 in every 12 to 17 pregnancies" in the US develop high blood pressure between 20 to 44 years old. Daviglus et al. [8] found that the prevalence is higher in rural areas, especially among the females in the reproductive age group. Although high blood pressure is preventable and treatable during pregnancy, inappropriate diagnosis and treatment bear high risk for mothers and babies such as preeclampsia, eclampsia, stroke, and preterm delivery [9]. High blood sugar develops during pregnancy is called "Gestational diabetes". Fortunately, it normally disappears after birth. The likelihood of having problems is significantly reduced when properly controlling the blood sugar levels. High blood sugar in the first weeks of pregnancy-associated birth defects, an increased risk of miscarriage, a high rate of cesarean sections, and postpartum complications. Babies born to a woman with gestational diabetes are often much larger, a condition called 'Giantism' [10].

Pregnant women experience many hormonal and mechanical changes that enhance urinary stasis and vesicoureteral reflux. Urinary tract infection (UTI) is associated with pyelonephritis, preterm labor, low birth weight, and an increased risk of perinatal mortality [11]. Having an Rh-negative blood type requires special attention during each pregnancy. Historically, Rh-negative women were often at risk for miscarriage in the second or third trimester. It has become rare as pregnant Rh-negative women are routinely given the RhoGAM injection to lessen this risk [12]. Most women take some kind of drug or medication without realizing the potential for harm. Some of these substances may cross the placenta and reach the developing fetus.

The possible effects may include developmental delay "erotogenic", intellectual disability, birth defects, miscarriage, and stillbirth, and the potential harm depends on the amount and frequency of use [13]. Undergoing several abortions or enduring more than one miscarriage increase is the risk of problematic subsequent pregnancies. These women face higher chances of vaginal bleeding, preterm birth, low birth weight, and placenta complications [14]. Smoking during pregnancy can lead to probable complications later on, so it is sensible to completely avoid any kind of exposure to smoking or passive smoking to reduce the worse consequences such as newborn low birth weight, congenital disabilities, premature labor, miscarriage, and sudden infant death syndrome [15]. This study aimed to determine the knowledge and attitude of women in the reproductive age group regarding the risk factors associated with pregnancy.

Methods

Study design

A cross-sectional multicenter interview-based survey was conducted from 01 January to 31 March 2019. A convenient sample technique was used to collect the data from the outpatient gynecological services of four health centers located in Al-Falluja and Baghdad, Iraq. We conducted the research following the Declaration of Helsinki. The author conducted the research following the Declaration of Helsinki. The study's protocol was approved by the Ethics committee of the Faculty of Medicine, University of Anbar, 2019. Moreover, informed

consent was obtained from each participant after explaining the study objectives and the guarantee of secrecy.

Inclusion and exclusion criteria

All the Iraqi pregnant women of the reproductive age (15-49) and willing to participate have been included. Women aged out of the reproductive life, unable to answer the questionnaire, and not willing to participate have been excluded from the study.

Sample size

According to a local study conducted by Al Abedi GA et al. [16], the knowledge of pregnant women about the risk of pregnancy in Iraq was 42.0% in 2019. The sample size calculator arrived at 257 participants, using a margin of error of $\pm 6.0\%$, a confidence level of 95%, and a 42.0% response distribution.

Study instrument and data collection

A semi-structured questionnaire was developed to interview the participants. The questionnaire was divided into three sections:

First Sections: Socio-demographic data including age, marital status, occupation, level of education, number of children, number of abortions, and number of dead children. For analysis, the education variable was categorized as either "mild education" for illiterate women, "moderate education" for those who can read and write or in the primary and Intermediate school, and "high education" for those who were in secondary school or undergraduate level.

Second Sections: Twelve close-ended questions to assess the knowledge of women about pregnancy-related risk factors such as the effect of nutritional state, obesity, hypertension, diabetes Miletus, urinary tract infection, ABO and Rh system blood group, non-prescribed drugs, and smoking.

Third Section: Five closed-ended questions to assess a woman's attitude towards pregnancy, such as harm caused by pregnancy, regular check-ups with doctors, and attention to doctors' advice regarding nutrition and pregnancy planning.

Statistical analysis

The univariate analysis is presented in the form of mean, standard deviation (SD), and percentage. Bivariate analysis using the Chi-square test was performed to evaluate the association between the women's knowledge (Yes and No) and the education level of respondents (Mild, Moderate, and High). A P-value of ≤ 0.05 was considered statistically significant. The statistical analysis was carried out by using SPSS 16.

Results

Socio-demographic, obstetrics, and gynecology characteristics

Out of 257 respondents, the data of 250 respondents have undergone the final analysis. Women were of the reproductive age (15-49) with a mean age of 27.76 ± 6.3 years. Most of the respondents (21.6%) in the age group (30-34 years) were married (96.8%), highly educated (34.0%), housewives (83.2%), and primiparous women (22.4%). About 21.2% experienced abortion, and 9.2% had a child death (Table 1).

Table 1: Socio-demographic, obstetrics, and gynecology characteristics of the study sample (N=250)

Variables	Categories	N	%
Age (years)	Mean \pm SD	27.76 \pm 6.3	
	<20 years	18	7.2
	20 – 24 years	70	28
	25 – 29 years	75	30
	30 – 34 years	54	21.6
	35 – 39 years	14	5.6
Social status of women	40 years and above	19	7.6
	Married	242	96.8
	Widow	7	2.8
	divorced	1	0.4
Education of women	Illiterate	18	7.2
	Read & write	24	9.6
	Primary	33	13.2
	Intermediate	50	20
	Secondary	40	16
	University	85	34
Occupation of women	Housewife	208	83.2
	Employed	42	16.8
Parity	(0)	68	27.2
	1	56	22.4
	2	51	20.4
	3	39	15.6
	4	18	7.2
	5+	18	7.2
Abortion		53	21.2
Child deaths		23	9.2

The knowledge regarding risk factors in pregnancy

A high percentage (79.9%) of women showed good knowledge of pregnancy-related risk factors. About half of them (50.6%) knew that the pregnancy at the age above the 35 years causes congenital anomalies, compared to 73.2% of them who knew that pregnancy at age 15 or younger puts the life of the mother and fetus at risk and the possibility of a cesarean section. Most mothers knew the leading risk factor during pregnancy. More than ninety percent agreed that malnutrition (95.6%) causes preterm labor, smoking (95.6%) is harmful to the health of the fetus, and those who experienced previous abortion or cesarean section (90.8%) are more likely to need frequent doctor visits.

More than eighty percent of mothers knew using drugs not prescribed by the doctor during pregnancy may cause fetus malformations (89.2%), obesity (85.2%) may cause complications during pregnancy, bleeding at the beginning or during pregnancy may cause abortion (86.0%) and, the repeated urinary tract infection during pregnancy is a risk factor (82.0%). More than seventy percent of mothers knew that high blood pressure during pregnancy could cause maternal death (76.0%), and parents' Rh-group incompatibility (70.8%) may expose the fetus to fall or deformation. About 63.9% know that diabetes can cause miscarriage (Table 2).

Table 2: Women's knowledge about risk factors during pregnancy (n=250)

No.	Questions	Categories	No.	%
1.	Pregnancy with an age greater than 35 years may lead to fetal abnormalities.	Yes	127	50.8
		No	123	49.2
2.	The malnutrition and anemia of the pregnant woman result in low birth weight or premature birth.	Yes	239	95.6
		No	11	4.4
3.	High blood pressure during pregnancy can cause maternal death.	Yes	190	76.0
		No	60	24.0
4.	Obesity in the pregnant mother may cause complications during pregnancy.	Yes	213	85.2
		No	37	14.8
5.	Diabetes during pregnancy may cause miscarriage or the birth of a large-weight child.	Yes	159	63.6
		No	91	36.4
6.	Pregnancy at the age of 15 or less presents the life of the mother and fetus at risk and the probability of a cesarean section.	Yes	183	73.2
		No	67	26.8
7.	Repeated urinary tract infection during pregnancy or swollen feet is a risk factor for pregnancy.	Yes	205	82.0
		No	45	18.0
8.	If the mother's blood type is negative and the father is cheerful (Rh incompatibility), the fetus is exposed to fall or deformation.	Yes	177	70.8
		No	73	29.2
9.	The doctor's use of drugs not prescribed during pregnancy presents the fetus with malformations.	Yes	223	89.2
		No	27	10.8
10.	If the mother has projections or a previous cesarean section, she needs frequent doctor reviews.	Yes	227	90.8
		No	23	9.2

11	Smoking and passive smoking are harmful to fetal health.	Yes	239	95.6
		No	11	4.4
12	Any bleeding at the beginning or during pregnancy is a risk factor.	Yes	215	86.0
		No	35	14

Women's attitude towards some risk factors during pregnancy

The women's attitudes toward some risk factors during pregnancy showed that about forty percent agreed that they do not find harm in pregnancy every year and thought it was unnecessary to regularly visit the doctor or health care center when the pregnancy is normal.

A large proportion (92.0%) of women agreed to visit the doctor immediately if they had bleeding during pregnancy. Moreover, eighty-eight percent agreed that pregnant women should follow the doctor's advice on nutrition during pregnancy. About two-thirds of pregnant women agreed on four or fewer children (Table 3).

Table 3: Attitude of women towards some risks with pregnancy (n = 250)

Questions	Categories	N	%
Do not find harm in pregnancy every year.	Agree	101	40.4
	Disagree	149	59.6
I do not think it is necessary to check the doctor or care regularly when my pregnancy is normal.	Agree	103	41.2
	Disagree	147	58.8
Follow the doctor's advice on nutrition during pregnancy.	Agree	221	88.4
	Disagree	29	11.6
See your doctor immediately if you have bleeding during pregnancy.	Agree	230	92.0
	Disagree	20	8.0
Have four or fewer children.	Agree	196	67.6
	Disagree	81	32.4

Association between women's knowledge and the educational level

Bivariate analysis showed a significant association between knowledge and level of education. The high educated women have significantly more knowledge than the mild and moderate educated women in terms of knowing the

impact of malnutrition and anemia ($p < 0.001$), obesity ($P = 0.039$), diabetes mellitus ($P = 0.002$), repeated urinary tract infection ($P = 0.017$), parents' Rh incompatibility ($P < 0.001$), history of previous cesarean section ($P = 0.010$), and bleeding during pregnancy ($P = 0.014$), respectively (Table 4).

Table 4: Association between women's knowledge about risk factors in pregnancy and the educational level (n=250)

Questions	Knowledge	Mild N(%)	Moderate N(%)	High N(%)	*p-value
Age of pregnant women >35 years	Yes	34(13.6)	47(18.8)	46(18.4)	0.274
	No	4(16.4)	43(17.2)	39(15.6)	
Malnutrition and anemia during pregnancy	Yes	66(26.4)	88(35.2)	85(34.0)	<0.001
	No	9(3.6)	2(0.8)	0(0.0)	
Obesity of the pregnant mother	Yes	38(15.2)	85(34.0)	90(36.0)	0.039
	No	10(0.4)	18(7.2)	9(3.6)	
Diabetes mellitus during pregnancy	Yes	19(7.6)	90(36.0)	50(20.0)	0.002
	No	40(16.0)	21(8.4)	30(12.0)	
Age of pregnant women 15 years or less	Yes	83(33.2)	45(18.0)	55(22.0)	0.180
	No	34(13.6)	20(8.0)	13(5.2)	
Repeated urinary tract infection during pregnancy	Yes	65(26.0)	50(20.0)	90(36.0)	0.017
	No	25(10.0)	5(2.0)	15(6.0)	
Parents' Rh incompatibility	Yes	75(30.0)	80(32.0)	22(8.8)	<0.001
	No	25(10.0)	18(7.2)	30(12.0)	
Using drugs not prescribed by the doctor during pregnancy	Yes	73(29.2)	100(40)	50(20.0)	0.768
	No	12(4.8)	7(2.8)	8(3.2)	
Mothers have a previous cesarean section.	Yes	88(35.2)	44(17.6)	95(38.0)	0.010
	No	16(6.4)	2(0.8)	5(2.0)	
Smoking and passive smoking	Yes	95(38.8)	89(35.6)	60(24.0)	0.014
	No	6(2.4)	5(2.0)	0(0.0)	
Bleeding at the beginning or during pregnancy	Yes	35(14.0)	89(35.6)	91(36.4)	
	No	15(6.0)	11(4.4)	9(3.6)	

Discussion

In this study, we tried to assess the knowledge and attitude of Iraq women toward pregnancy-related risk factors. Our target population was the pregnant women of the reproductive age (15-49 years) attending four outpatient clinics in AL-Falluja and Baghdad city. Most of our respondents (30.0%) were in the age group (25-29 years), and 7.6% were aged 40 and above, which is lower than that reported by Espanito et al. [17] and Mastroiacvone et al. [18]. Moreover, the percentage of highly educated women was higher than that reported by earlier studies from Nepal [19] and Sudan [20]. However, most of our respondents were housewives (83.2%) because of fewer chances for employment in Iraq [4], especially among the families exposed to internal displacement [21,22]. Most of the respondents were multiparous women. A similar finding was reported in a previous study in Iraq, confirming that the average Iraqi family is seven members [23]. In this study, most respondents had good knowledge (79.9%) about the main risk factors in pregnancy. Indeed, the findings showed that most surveyed samples knew that malnutrition, obesity, smoking, diabetes, and bleeding were pregnancy-related risk factors. Similarly, findings were reported in other studies in Italy [24] and the USA [25], indicating that smoking is the risk factor affecting pregnancy. Shub et al. [26] found that pregnant women have adequate knowledge about the association of obesity with pregnancy complications [26]. Regarding knowledge of women about risk factors in pregnancy, almost 96.5% of all respondents knew malnutrition and anemia in pregnant women might lead to low birth weight or premature birth. Our results were higher than those reported by Eni-olorunda et al. [27] in Nigeria (36.7%) but lower than that reported by Ghimire and Pande (98.0%) [19]. Likewise, to the finding reported by Mahejabin et al. [28] in Bangladesh, our respondents showed excellent knowledge that a mother who has a history of abortion and cesarean section should do frequent doctor's visits for antenatal care. Moreover, Uzun et al. [29] indicated that fear is one of the important motives behind the woman's desire to undergo tests. A large percentage of women knew that using a drug during pregnancy without a doctor's advice and pregnancy with age greater than 35 years might lead to fetus malformation (89.6%) compared to findings reported by Eni-olorunda et al. [27]. In light of the attitude of women towards the risk factors in pregnancy, about sixty percent of them were worried about the liability of harm to their fetus or newborn baby and the necessity to contact healthcare providers during the pregnancy. However, still, forty percent did not care for harm and refused to see doctors when the pregnancy was normal. Such a finding is probably due to the lower education of surveyed women. Our result disagrees with findings reported elsewhere in Nigeria [27].

Furthermore, 88.4% of women agreed to follow the doctor's advice on nutrition during pregnancy, reflecting high awareness regarding their nutrition. Moreover, about 67.0% of them favored having four children or fewer, reflecting a good attitude. However, long-term development programs such as integrated management of neonate and child health are ideal for enhancing women's education and children's health protection [30]. This study complained about several limitations, including the cross-sectional design. Bias in data collection is liable because of the face-to-face interview. This study also had a small sample selected from a few centers. Therefore, the findings may not be generalizable. Nevertheless, our results may help evaluate the knowledge and attitude of an important segment of Iraqi society.

Conclusion

In conclusion, the findings of this study showed that pregnant women had adequate knowledge regarding most of the pregnancy-related risk factors, including smoking, obesity, and malnutrition in pregnancy. Forty percent of the women expressed a lack of knowledge of the risks of pregnancy and did not bother to see doctors during pregnancy. Therefore, it is crucial and effective to implement measures to promote appropriate behaviors in women before pregnancy, including assessing pregnant women's knowledge and behaviors about key risk factors.

Abbreviation

UTI: Urinary Tract Infection; SD: Standard Deviation

Declaration

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Availability of data and materials

Data will be available by emailing med.badeaa.thamir@uoanbar.edu.iq.

Authors' contributions

All authors equally contributed to the concept, design, literature search, data analysis, data acquisition, manuscript writing, editing, and reviewing. All authors have read and approved the final manuscript.

Ethics approval and consent to participate

We conducted the research following the Declaration of Helsinki. The study protocol was approved by the Ethics committee of the Faculty of Medicine, University of Anbar (2019). All patients gave written informed consent.

Consent for publication

Not applicable

Competing interest

The authors declare that they have no competing interests.

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