Original Article

Sociodemographic and Medical Factors of Preterm Delivery According to the Clinical Subtypes of Prematurity

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Abstract

Background: Preterm delivery is defined as childbirth occurring at <37 completed weeks. Preterm birth remains one of the most important problems in pregnancy, as it is still a major health problem worldwide, which results in 75% of neonatal mortality. Often, the cause of preterm delivery is unknown; however, several etiological risk factors have been identified. **Objective:** The objective of this study was to examine sociodemographic and medical risk factors of preterm delivery in relation to clinical subtypes as follows: extremely preterm (<28 weeks), very preterm (28 up to 32 weeks), and moderate-to-late preterm (32 up to 37 weeks). **Materials and Methods:** It is a descriptive hospital-based cross-sectional study which was carried out on a convenient sample of 200 preterm babies who were cared for in the neonatal care units in Babylon Maternity and Pediatrics Hospital, Hilla General Teaching Hospital whose mothers accepted to participate in this study. This study was conducted over 5 months from March 1, 2018 to August 1, 2018. **Results:** Thirty-nine percent of respondent mothers had a history of abortion and (18.0%) had a history of recurrent preterm birth. Spontaneous preterm delivery (premature rupture of membrane) was the mode of delivery in (53.5%) of mothers and (49.5%) of respondents were multigravida. As high as (43.5%) of respondent mothers had current medical illnesses, hypertension representing (33.33%) of these illnesses. Forty percent of mothers had irregular ANC and (15.5%) did not have any antenatal care at all. **Conclusion:** Several significant risk associations between preterm birth according to clinical subtypes of prematurity and the following risk factors were identified as follows: maternal age, gravidity, birth order, BMI, educational level, mode of delivery, history of abortion, contraceptive use before pregnancy, and genetic defects.

Keywords: Clinical subtypes, prematurity, preterm delivery, risk factors

Introduction

Preterm birth is defined as all births before 37 completed weeks of gestation or fewer than 259 days since the 1st day of a woman's last menstrual period.[1] Across 184 countries, the rate of preterm birth ranges from 5% to 18% of babies born.[2] There are three primary methods of gestational age estimation; dating based on last menstrual period, ultrasound-based dating, and neonatal estimates.[3]

As a primary cause of neonatal mortality, preterm birth presents a major public health problem since 15 million annual births, or 11% of all births worldwide are preterm.[4] Preterm birth does not only inflict financial and emotional distress on the family but it may also lead to permanent disability (physical or neural damage) in infants. Approximately one-third of preterm delivery survivors suffer from severe long-term neurological disabilities such as cerebral palsy or mental retardation.[5] Preterm birth continues to be the leading cause of perinatal and postnatal mortality and morbidity, especially in developing countries, where health facilities are not only limited but also are not functioning properly.[6] According to a meta-analysis reported by Philip Steer, the overall estimates of preterm birth rates range from 5% in developed countries to 25% in developing countries.[7] Although multiple pregnancies and improved management of high-risk pregnancies leading to improved neonatal outcomes may account for the rise in preterm delivery in developed countries.[8,9]

There are subcategories of preterm birth based on gestational age as follows: extremely preterm (<28 weeks), very

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preterm (28 up to 32 weeks), and moderate-to-late preterm (32 up to 37 weeks).[2]

The cause of preterm birth is often not known.[10] Putative preterm delivery risk factors include low maternal socioeconomic status, maternal African-American race ethnicity, null parity, grand multiparty, a prior history of preterm delivery, pregestational hypertension or diabetes, psychiatric disorders, antepartum hemorrhage, vaginal infections, psychosocial stress, and lifestyle habits such as smoking, alcohol, and illicit drug use during pregnancy.[11,12] The main risk factor of preterm delivery was lack or inadequate prenatal care, no contraceptive use, cesarean delivery, and clinical complications during pregnancy.[13]

Historically, efforts have been primarily aimed to improved survival and health of preterm infants (tertiary intervention). Such efforts, however, have not reduced the incidence of preterm birth. Increasingly, primary interventions that are directed at all women, and secondary intervention that reduce existing risks are looked upon as measures that need to be developed and implemented to prevent the health problems of premature infants and children.[14]

Materials and Methods

This is a cross-sectional study which was conducted at the neonatal care units in Babylon Maternity and Pediatric Hospital, Hilla General Teaching Hospital, Babylon province, Iraq. The time for this study was over 5 months beginning from March 1, 2018 to August 1, 2018. This study included a convenient sample of 200 preterm babies who were cared for in the neonatal care units of the two above-mentioned hospitals whose mothers agreed to participate in this study. Data were collected by using a predesigned questionnaire which included maternal sociodemographic factors, obstetrical history, and neonatal variables. The statistical analysis of data was done using Statistical Package for the Social Sciences version 23 (SPSS, IBM Company, Chicago, USA) computer software (statistical package of social science), categorical variables were presented as numbers and percentages, continuous variables were presented as mean and standard deviation, Chi-square test was used to show the association between categorical variables, and analysis of variance was also used to determine the mean differences between groups; $P < 0.05$ was considered as statistically significant.

Results

Figure 1 shows that 62.5% of the infants were moderate-to-late preterm (32 up to 37 weeks), while 30.5% were very preterm (28 up to 32 weeks). Those born extremely preterm (<28 weeks) accounted for 7.0% of the infants.

Regarding the distribution of the infants by birth order, results found that preterm infants whose birth order was the first accounted for 34.0% and whose birth order was the second were 17.0%. The remaining infants whose birth order was third or more were 49.0%.

Table 1 shows the distribution of variables related to preterm birth which include recurrent preterm birth, family history of preterm birth, history of stillbirth, history of abortion, history of primary or secondary infertility, history of fertility-enhancing drugs and/or *In vitro* fertilization, sexual activity within 48 h of preterm delivery, and history of hard physical activity. Recurrent preterm birth found in around one in five of the respondents, one in ten had a family history of preterm birth,

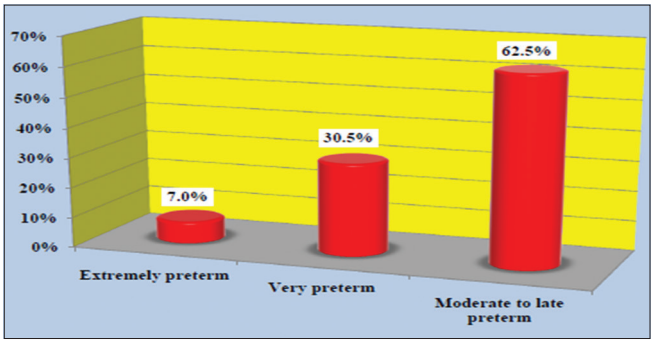

Figure 1: Distribution of infants by clinical subtypes of prematurity

Table 1: Distribution of variables related to preterm birth

	n (%)
Recurrent preterm birth	
Present	36 (18.0)
Absent	164 (82.0)
Total	200 (100.0)
Family history of preterm birth	
Present	17 (8.5)
Absent	183 (91.5)
Total	200 (100.0)
History of stillbirth	
Present	20 (10.0)
Absent	180 (90.0)
Total	200 (100.0)
History of abortion	
Present	78 (39.0)
Absent	122 (61.0)
Total	200 (100.0)
History of primary or secondary infertility	
Present	24 (12.0)
Absent	176 (88.0)
Total	200 (100.0)
If yes, history of fertility-enhancing drugs and/or IVF (*n*=24)	
Present	23 (95.83)
Absent	1 (4.17)
Total	24 (100.0)
Sexual activity within 48 h of preterm delivery	
Yes	28 (14.0)
No	172 (86.0)
Total	200 (100.0)
Hard physical activity	
Present	37 (18.5)
Absent	163 (81.5)
Total	200 (100.0)

IVF: *In vitro* fertilization

and similarly, 10.0% had a history of stillbirth. Abortion seems to be abundant in the history of respondents accounting for almost 39.0% of the obstetrical history of the respondent mothers. History of primary or secondary infertility was recorded in 12.0% of the respondents. Fertility-enhancing drugs and/or *in vitro* fertilization were almost universal in those with infertility (95.83%). Within 48 h of preterm delivery, 14.0% of respondents had sexual activity, and 18.5% had hard physical activity before preterm birth.

Table 2 shows the distribution of maternal obstetrical history which include mode of delivery, if cesarean section/did the timing of it depend on ultrasound only, gravida, uterine anomaly, antenatal care, contraceptive use before pregnancy, mistake of using contraceptive while pregnant, if yes/what is the duration. Just over half of the mothers gave birth through spontaneous preterm delivery, while those who gave birth through elective or emergency cesarean section were almost evenly distributed at 20.0%, 25.5%, respectively.

Table 2: Distribution of maternal obstetrical history

Variable	*n* (%)
Mode of delivery	
Spontaneous preterm delivery (PROM*)	107 (53.5)
Medical-induced rupture of membrane	2 (1.0)
Elective cesarean section	40 (20.0)
Emergency cesarean section	51 (25.5)
Total	200 (100.0)
If cesarean section, did the timing of it depend on ultrasound only (*n*=91)	
Yes	29 (31.87)
No	62 (68.13)
Total	91 (100.0)
Gravida	
One	76 (33.5)
Two	34 (17.0)
More than two	99 (49.5)
Total	200 (100.0)
Uterine anomaly	
Present	6 (3.0)
Absent	194 (97.0)
Total	200 (100.0)
Antenatal care	
Regular	89 (44.5)
Irregular	80 (40.0)
Not at all	31 (15.5)
Total	200 (100.0)
Contraceptive use before pregnancy	
Yes	27 (13.5)
No	173 (86.5)
Total	200 (100.0)
Mistake of using contraceptive while pregnant (*n*=27)	
Yes	6 (22.2)
No	21 (77.8)
Total	27 (100.0)
If yes, what is the duration (n=6)	
<2 weeks	1 (16.7)
Equal or more >2 weeks	5 (83.3)
Total	6 (100.0)

*PROM: Premature rupture of membranes

Medically induced rupture of the membrane as a mode of delivery in preterm birth accounted for 1.0%. The timing of cesarean section depending on ultrasound only was not the sole factor in the decision to carry out the surgery in 68.13%. About 33.5% of the respondent mothers were pregnant for the first time, and 3.0% knew that they have uterine anomaly. Compliance with antenatal care was regular in 44.5% of mothers; over one in ten did not have any antenatal care at all. 13.5% used contraception before pregnancy and 22.2% of those continued to use contraception in the 1st week of pregnancy by mistake.

Table 3 shows the distribution of maternal nonobstetrical variables including current medical illnesses, types of medical illness if present, and past surgical history for nonobstetric reasons. As high as 43.5% of a respondent mothers had current medical illnesses which include diabetes mellitus, hypertension, urinary tract infection (UTI), pelvic inflammatory disease (PID), nutritional anemia, and others. Past surgical history for nonobstetrical reasons accounted for 4.5%.

Table 4 shows the distribution of the infant variables including gender, birth order, number of baby, and genetic defect. Males outweigh females with male reaching just shy of 60.0%. Preterm infants who were first birth order accounted for 34.0%, and singletons accounted for 70.5%. Genetic defects (chromosomal defects, genetic mutations, and inborn errors of metabolism) accounted for 5.0% of the infants.

Table 5 shows that Chi-square test/Fisher's exact test was conducted to show the association between maternal sociodemographic factors (maternal age, residence, educational level, and occupation) and clinical subtypes of prematurity (extremely preterm, very preterm, and moderate-to-late preterm). There is a significant association between maternal age and educational level with clinical subtypes of prematurity $P = 0.05$, <0.001, respectively.

Table 6 shows that Chi-square test/Fisher's exact test was conducted to show the association between maternal obstetrical variables (mode of delivery, if cesarean section/did the timing of it depend on ultrasound only, gravida, history of abortion, uterine anomaly, and contraceptive use before pregnancy) and clinical subtypes of prematurity (extremely preterm, very preterm, and moderate-to-late preterm). There is a significant association between (mode of delivery, if the mode of delivery is through cesarean section/did the timing of it depend on ultrasound only, gravida, history of abortion, and contraceptive use before pregnancy) with clinical subtypes of prematurity, $P < 0.001$, 0.034, <0.001, 0.02, and 0.005, respectively.

Table 7 shows there is a significant association between maternal body mass index (BMI) and clinical subtypes of prematurity (extremely preterm, very preterm, and moderate-to-late preterm).

Table 3: Distribution of maternal nonobstetrical variables

Variable	*n* (%)
Current medical illness	
Present	87 (43.5)
Absent	113 (56.5)
Total	200 (100.0)
Types of medical illness if present (*n*=87)	
Diabetes mellitus	12 (13.79)
Hypertension	29 (33.33)
UTI and PID*	21 (24.14)
Nutritional anemia	21 (24.14)
Others	4 (4.6)
Total	87 (100.0)
Past surgical history for nonobstetric reasons	
Present	9 (4.5)
Absent	191 (95.5)
Total	200 (100.0)

*UTI: Urinary tract infection, PID: Pelvic inflammatory disease

Table 4: Distribution of infant variables

Variable	*n* (%)
Gender	
Male	119 (59.5)
Female	81 (40.5)
Total	200 (100.0)
Birth order	
First	68 (34.0)
Second	34 (17.0)
Third or more	98 (49.0)
Total	200 (100.0)
Number of baby	
Single	141 (70.5)
Multiple	59 (29.5)
Total	200 (100.0)
Genetic defects*	
Present	10 (5.0)
Absent	190 (95.0)
Total	200 (100.0)

*Genetic defects: Chromosomal defects, genetic mutations, and inborn errors of metabolism

Table 8 shows that Chi-square test/Fisher's exact test was conducted to show the association between infants variables (gender, birth order, number of baby, and genetic defect) and clinical subtypes of prematurity (extremely preterm, very preterm, and moderate-to-late preterm). There is a significant association between (birth order and genetic defect) with clinical subtypes of prematurity, $P < 0.001$, 0.034, respectively.

Discussion

Our findings showed that the vast majority of the infants were moderate-to-late preterm (32 up to 37 weeks) which accounted for 62.5%, while 30.5% were very preterm (28 up to 32 weeks) and those born extremely preterm (<28 weeks) accounted for 7.0% of the infants. These results were slightly different from the study which had been done in Egypt that showed moderate-to-late preterm births comprised 79.6% of cases, very preterm births accounted 12.6% while extremely preterm was only 7.8%.[15] These results were different from that internationally recorded by the WHO.[16]

Regarding obstetrical history, we found that recurrent preterm birth was found in around one in five of the respondents 36 (18.0%). This may be due to the persistence of the same risk factors which lead to the same condition, for example, hemorrhage or hypertension and that was confirmed by other study.[17] A study done in the Gaza Strip revealed that 68 (34.2%) of mothers had a history of previous preterm birth, and it was significantly related to preterm births.[18] Furthermore, we found that one in ten had a family history of preterm birth and similarly 10.0% had a history of stillbirth. Furthermore, abortion was seen to be abundant in the history of respondents accounting for almost 78 (39.0%) of the obstetrical history of the respondent mothers, and it had a significant association with clinical subtypes of prematurity. Our findings were supported by a study that revealed that 22.8% of mothers had a history of abortion, and it significantly affects preterm births.[19]

In the current study, history of primary or secondary infertility was recorded in 12.0% of the respondents, fertility-enhancing drugs/or IVF was almost universal in those with infertility (95.83%). Furthermore, a study in Iran revealed that history of infertility was reported in 47 (64.4%), and it was risk factor of preterm delivery.[20]

Regarding the mode of delivery, just over half of the mothers gave birth through spontaneous preterm delivery, while those who gave birth through elective or emergency cesarean section were almost evenly distributed at 20.0% and 25.5%, respectively. This showed a significant association with clinical subtypes of prematurity ($P < 0.001$). Our findings were in line with results of other studies that revealed most preterm births occur spontaneously.[21] We found that 42.4% of moderate-to-late preterm infants and 68.9% of very preterm infants were delivered by spontaneous preterm delivery (premature rupture of the membrane [PROM]). The timing of cesarean section depending on ultrasound only was not the sole factor in the decision to carry out the surgery in (68.13%); however, it was significantly associated with clinical subtypes of prematurity.

As regards the relationship between obstetric history and preterm births, we found that gravidity had an effect, where preterm births were more likely to be third or more rather than first or second. About 33.5% of the respondent mothers were pregnant for the first time, and 49.5% of mothers were multigravida. This agrees with other study that showed multiparity was directly correlated with preterm birth.[20] While some studies considered that the small pregnant uterus in case of the first baby may not yet be well prepared to receive the coming baby and primiparity may be the most important contributing factors of preterm birth, support this view by

Table 5: Association between maternal sociodemographic factors and clinical subtypes of prematurity

Study variables	Clinical subtypes of prematurity (%)			χ^2	*P*
	Extremely premature	Very premature	Moderate-to-late premature		
Maternal age (year)					0.05*.**
<18	2 (14.3)	7 (11.5)	7 (5.6)		
18-35	10 (71.4)	52 (85.2)	100 (80.0)		
>35	2 (14.3)	2 (3.3)	18 (14.4)		
Total	14 (100.0)	61 (100.0)	125 (100.0)		
Residence					
Urban	8 (57.1)	41 (67.2)	86 (68.8)	0.783	0.676
Rural	6 (42.9)	20 (32.8)	39 (31.2)		
Total	14 (100.0)	61 (100.0)	125 (100.0)		
Educational level					
Illiterate	0 (0.0)	17 (27.9)	11 (8.8)		<0.001*
Primary	14 (100.0)	17 (27.9)	68 (54.4)		
Secondary	0 (0.0)	15 (24.6)	29 (23.2)		
Higher education	0 (0.0)	12 (19.6)	17 (13.6)		
Total	14 (100.0)	61 (100.0)	125 (100.0)		
Occupation					
Employed	0 (0.0)	6 (9.8)	14 (11.2)	1.757	0.415
Housewife	14 (100.0)	55 (90.2)	111 (88.8)		
Total	14 (100.0)	61 (100.0)	125 (100.0)		

*$P \leq 0.05$ was statistically significant, **Fisher's exact test

Table 6: Association between maternal obstetrical variables and clinical subtypes of prematurity

Study variables	Clinical subtypes of prematurity (%)			χ^2	*P*
	Extremely premature	Very premature	Moderate-to-late premature		
Mode of delivery					
Spontaneous preterm delivery (PROM*)	12 (85.8)	42 (68.9)	53 (42.4)		<0.001*
Medical-induced rupture of membrane	1 (7.1)	0 (0.0)	1 (0.8)		
Elective cesarean section	0 (0.0)	3 (4.9)	37 (29.6)		
Emergency cesarean section	1 (7.1)	16 (26.2)	34 (27.2)		
Total	14 (100.0)	61 (100.0)	125 (100.0)		
If cesarean section, did the timing of it depend on ultrasound only (*n*=91)					0.034*
Yes	0 (0.0)	2 (10.5)	27 (38.0)		
No	1 (100.0)	17 (89.5)	44 (62.0)		
Total	1 (100.0)	19 (100.0)	71 (100.0)		
Gravida					
One	6 (42.9)	33 (54.1)	28 (22.4)		<0.001*
Two	5 (35.7)	8 (13.1)	21 (16.8)		
More than two	3 (21.4)	20 (32.8)	76 (60.8)		
Total	14 (100.0)	61 (100.0)	125 (100.0)		
History of abortion					
Present	3 (21.4)	17 (27.9)	58 (46.4)	7.871	0.02*
Absent	11 (78.6)	44 (72.1)	67 (53.6)		
Total	14 (100.0)	61 (100.0)	125 (100.0)		
Uterine anomaly					
Present	0 (0.0)	0 (0.0)	6 (4.8)		0.273
Absent	14 (100.0)	61 (100.0)	119 (95.2)		
Total	14 (100.0)	61 (100.0)	125 (100.0)		
Contraceptive use prior to pregnancy					
Yes	3 (21.4)	1 (1.6)	23 (18.4)	10.672	0.005*
No	11 (78.6)	60 (98.4)	102 (81.6)		
Total	14 (100.0)	61 (100.0)	125 (100.0)		

*$P \leq 0.05$ was significant, Fishers' exact test was performed for statistical analyses. PROM: Premature rupture of membranes

Table 7: Association between maternal body mass index and clinical subtypes of prematurity

BMI	Clinical subtypes of prematurity			Total	*P*
	Extremely premature	Very premature	Moderate to late premature		
Less than 18.5 count	1	5	7	13	0.03*
Percentage within clinical subtypes	7.1	8.2	5.6	6.5	
18.5-24.9 count	7	42	55	104	
Percentage within clinical subtypes	50.0	68.9	44.0	52.0	
25-29.9 count	4	12	44	60	
Percentage within clinical subtypes	28.6	19.7	35.2	30.0	
≥30 count	2	2	19	23	
Percentage within clinical subtypes	14.3	3.3	15.2	11.5	
Total (%)	14 (100.0)	61 (100.0)	125 (100.0)	200 (100.0)	

*$P \leq 0.05$ was significant

Table 8: Association between infant variables and clinical subtypes of prematurity

Study variables	Clinical subtypes of prematurity (%)			χ^2	*P*
	Extremely premature	Very premature	Moderate to late premature		
Gender					
Male	6 (42.9)	43 (70.5)	70 (56.0)	5.303	0.071
Female	8 (57.1)	18 (29.5)	55 (440.0)		
Total	14 (100.0)	61 (100.0)	125 (100.0)		
Birth order					
First	6 (42.9)	33 (54.1)	29 (23.2)		<0.001*
Second	5 (35.7)	8 (13.1)	21 (16.8)		
Third or more	3 (21.4)	20 (32.8)	75 (60.0)		
Total	14 (100.0)	61 (100.0)	125 (100.0)		
Number of baby					
Single	10 (71.4)	39 (63.9)	92 (73.6)	1.848	0.397
Multiple	4 (28.6)	22 (36.1)	33 (26.4)		
Total	14 (100.0)	61 (100.0)	125 (100.0)		
Genetic defect					
Present	0 (0.0)	7 (11.5)	3 (2.4)		0.034*
Absent	14 (14.0)	45 (88.5)	122 (97.6)		
Total	14 (100.0)	61 (100.0)	125 (100.0)		

*$P \leq 0.05$ was significant

study in Gonder, Ethiopia, reported that 50.9% of mothers were primigravida.[22]

In this current study, we found that within 48 h of preterm delivery, 14.0% of respondents had sexual activity, this is in agreement with other study that showed intercourse during the previous week affected preterm birth, and this may be explained by direct effects of semen on initiating preterm labor or alteration of vaginal pH.[23]

As high as 43.5% of respondent mothers had current medical illness which include diabetes mellitus, hypertension, UTI, PID, nutritional anemia, and others. Most of the maternal illness was hypertension represent 33.33%, while in Egypt, it reported about 43.9% and it significantly affects preterm birth.[24] The reason for this might be due to the fact that complications of pregnancy-induced hypertension can cause vascular damage to the placenta and this induces oxytocin receptors, which result in preterm delivery. Other medical illness was (UTI and PID) account for 24.14% of illness; urinary tract infections can weaken the membranes of the amniotic sac around the baby. This could lead to PROMs and preterm labor.[25] While in other studies, a significant association has been observed between preterm birth and UTI.[26,27]

In this study, multiple pregnancies accounted for 29.5% of preterm infants and singleton accounted for 70.5%, however, these results showed no significant association with clinical subtypes, in reverse to the study done in Iran[19] revealed that the relationship between multiple pregnancies and preterm labor was found to be significant which is consistence with the results of other similar studies.[28,29] Births from multiple pregnancies are mostly premature, and these pregnancies often result from the use of ovulatory drugs and the increased use of medically assisted reproductive technique in the treatment of infertility.[30]

Concerning the relationship between infant's characteristics and occurrence of preterm births, we observed that males outweigh females with males reaching just shy 60.0% of

preterm infants. This is consistent with a study in Africa that showed more preterm infants were male 54.6%[31] and a number of reports have documented the relationship of a male fetus to preterm births such as Shiozaki who stated that male fetus is one of the risk factors of preterm births. He concluded that there is a greater synthesis of active prostaglandins in the placenta with male fetuses in a state of inflammation, which may explain the higher incidence of preterm birth,[32] while Diagne in Senegal noted a female predominance.[33]

The presence of genetic defects (chromosomal defects, genetic mutations, and inborn errors of metabolism) accounted for 5.0% of the infants, and it significantly influenced clinical subtypes of prematurity in our study. This is in agreement with a study in Cameroon that showed a significant association between malformations and preterm births,[31] also Diagne in Senegal, found congenital malformations among 2.5% of preterm neonates.[33] The causes of birth defects and the mechanisms that may explain the occurrence of prematurity are unknown but may probably have resulted from an interaction between environmental and genetic risk factors.[34,35]

Regarding the birth order, we found that preterm infants whose birth order was first accounted for 34.0%, those whose birth order was second accounted for 17.0% while the remaining infants whose birth order was third or more accounted for 49.0%. A significant association between birth order and clinical subtypes of prematurity was found in our study ($P < 0.001$). Infants with birth order third or more were significantly higher, while other studies in Basrah, Iraq,[36] and others all reported that first birth order was at significantly high risk of preterm birth ($P < 0.05$).[37,38]

The coverage of antenatal care is very low in Iraq, about 30%, and antenatal visits are mainly made for high-risk pregnancies.[39] We observed that the compliance with antenatal care was regular in 44.5% of mothers and 55.5% lack ANC or tend to have irregular visits. Lack of antenatal care was similarly implicated by other studies in Nigeria.[40,41]

In this study, we found that BMI of the respondent mothers was significantly associated with clinical subtypes of prematurity ($P = 0.03$), 58.5% of the mothers had BMI <25, and 11.5% had BMI ≥30. Our findings were in line with some previous reports,[16,42] and also study in Egypt showed that low BMI <25 and high BMI >30 were at higher risk of preterm birth ($P = 0.003$) and nutritional factors remain important determinants of preterm birth as indicated by changes in BMI.[15]

Conclusion

Based on the results of the present study, risk factors which were significantly associated with clinical subtypes of prematurity (extremely preterm, very preterm, and moderate-to-late preterm) included maternal age, gravidity, birth order, BMI, educational level, mode of delivery, history of abortion, contraceptive use before pregnancy, and genetic defect. The majority of infants were moderate-to-late preterm, and spontaneous preterm delivery (PROM) was the mode of delivery to most of the respondent mothers. Over half of the respondents lack ANC or tend to had irregular visits. Most of the respondent mothers had current medical illnesses, and others had obstetrical history of abortion, recurrent preterm birth, and stillbirth.

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Conflicts of interest

There are no conflicts of interest.

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