

Maternal Complications and Perinatal outcome Associated with Un-booked Women in King Saud Medical City in Riyadh, Saudi Arabia

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Abstract

Background: Numerous studies have revealed a strong correlation between un-booked mothers and poor maternal problems. Determining the impact of booking status on maternal and perinatal mortality was the aim of this study.

Method: The research design in this research was a quantitative design, non-experimental descriptive comparative study. The was conducted in King Saud Medical City in Maternity Hospital in the Obstetrics Unit in Riyadh city, the population of the study were all un-booked and booked pregnant women in the hospital in the study duration. This study included 488 mothers in total which include all women eligible for inclusion in the study and presented during the study period from Sep to Dec 2023 in King Saud Medical City in Maternity Hospital in the Obstetrics Unit in Riyadh city.

Results: This study included 488 patients in total (332 scheduled and 166 unscheduled). The difference in mean age between the two groups was statistically significant. The booking status correlation with parity and obstetric complications was statistically significant. Preeclampsia was 7.2% and PIH was 21.1% more common in un-booked mothers than in booked mothers (p values of 0.04 and 0.001, respectively). Compared to booked mothers, the percentage of emergency cesarean sections among un-booked respondents was greater at 6% versus 3.6%.

Conclusion: Compared to booked mothers, un-booked mothers had worse intra-partum, maternal, and obstetric outcomes.

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Keywords: Booking Status; Follow Up; Antenatal Care; Outcomes

1. Introduction

At about 17 per 100,000 live births, Saudi Arabia's maternal mortality rate is still very high (1). In this nation, older multiparous women, those with poor incomes, and those without any education have been recognized as higher risk categories (2). More research is necessary to find viable solutions for this public health issue in order to enhance results. Making reservations for prenatal care and monitoring for expectant mothers is one such method that is frequently used. Finding higher-risk women, spotting early departures from normal pregnancy physiology, and making sure the right birth safety measures are in place are the goals of prenatal surveillance and care (3).

Preventing possibly preventable pregnancy and delivery problems is the main goal (4). Regardless of the existence of variables like advancing age, parity, and comorbidities that render the pregnancy "higher-risk," it has been shown that prenatal surveillance and care have positive effects for both mother and fetus (5). Numerous nations have shown that being un-booked throughout pregnancy is associated with worse results for both the mother and the fetus; however, the majority of these research date back ten years.

Most of the women died from the consequence of complications during pregnancy and delivery (6). Most of these complications happen during pregnancy, and most are preventable or treatable. Additional complications may exist before pregnancy but are become worse during pregnancy, mostly if not managed as part of the woman's care (6).

The WHO documented that in 2017, around 808 women died every day from pregnancy and childbirth complications (6). Many studies reported that maternal complications and poor fetus outcomes are highly associated with un-booked women. Furthermore, the risk for a high incidence of postpartum hemorrhage, obstructed labor, antenatal preeclampsia, and anemia (7). Because the doctors don't have any previous history about the mother and the fetus, they will not be prepared to expect and prevent complications during labor. Our goal in this study was to determine the effect of booking status on maternal and perinatal mortality.

2. Method

The research design in this research was a quantitative design, non-experimental (descriptive - comparative study), to assess the relationship between dependent variable in the study (maternal complications and Perinatal outcome) and independent variable booking status.

The setting chosen to conduct the study was in King Saud Medical City in Maternity Hospital in the Obstetrics Unit in Riyadh city, the population of the study were all un-booked and booked pregnant women in the hospital in the study duration. The inclusion criteria in this study were all the un-booked and booked pregnant women (primigravida and multigravida, more than 24 weeks, who is referred for any complication during labor and she is un-booked case, who is admitted with spontaneous rupture of membrane or for artificial rupture of membrane, who is admitted from the emergency department in labor room for observation or delivery in King Saud Medical City). The exclusion criteria in this study was: all the un-booked and booked Pregnant women admitted with antenatal complications less than 24 weeks. This study included 488 mothers in total which include all women eligible for inclusion in the study and presented during the study period from Sep to Dec 2023 in King Saud Medical City in Maternity Hospital in the Obstetrics Unit in Riyadh city.

Data collection form was designed by the study authors with the aid of supervisor which include (demographic characteristics, Obstetric complications, Intra-partum complications and maternal outcomes).

Ethical approval was obtained from king Saud University Institutional Review Board after filling up all applications form required, as well as from King Saud Medical City. After the ethical approval from each setting. Both the researcher and the participant signed the consent form. The participant provided a copy of the written consent to keep it with them. And maintain the confidentiality of those who prefer to participate in the research.

The test statistics used to analyze the data by descriptive correlation were undertaken to identify significant findings and a relationship between the variables and inferential statistical testing by using the mean, frequencies, and percentages additionally chi square test was utilized with P value to find the relation between the categorical variables (booking status and other variables). Data were presented on tables to explain the findings. SPSS v24 was used for data processing and analysis.

3. Results

This study included 488 patients in total (332 scheduled and 166 unscheduled). The age group of 25 to 29 years included the largest proportion of both booked and un-booked mothers (112 (33.7%) and 64 (38.6%), respectively, while the age group of less than 20 years comprised the smallest proportion (1.2%) and 3.01% for both booked and un-booked patients, respectively. The booked mothers mean age was 31.9 years, whereas the un-booked mothers mean age was 29.2 years. This difference in mean age was statistically significant (p value 0.001). Compared to 18.1% of un-booked respondents, 32 (9.64%) of the booked respondents were primipara. Parity and booking status were statistically significantly correlated (p value 0.02). Compared to 59% of respondents who were not booked, 76.2% of those who were booked belonged to a high socioeconomic group (Table 1).

The percentage of women who experienced obstetric problems was higher—47% of un-booked women experienced them compared to 29.2% of booked women—and the correlation between booking status and obstetric complications was statistically significant (p value 0.032). Preeclampsia was 7.2% and PIH was 21.1% more common in un-booked mothers than in booked mothers (p values of 0.04 and 0.001, respectively). Un-booked mothers had a greater rate of pre-eclampsia (7.2%) (P value 0.049). Vaginal tears were the most common intra-partum complication, occurring in 35.5% and 24.7% of booked and un-booked mothers, respectively. There was also a significant difference in the proportion of intra-partum complications between un-booked mothers (83, 44%) and booked mothers (33.4%), p value (0.032) (Table 2).

Compared to booked mothers, the percentage of emergency cesarean sections among un-booked respondents was greater at 6% versus 3.6%. Booking status and delivery method were statistically significantly correlated (P value 0.032). Furthermore, fewer women with follow up (12.3%) had blood transfusions than those without follow up (17.5%). 11.1% of women with follow up and 15.1% of women without follow up stayed more than five days. According to Table 3, there was no statistically significant difference in the length of hospital stay.

Table 1 Demographic characteristics of participants

Variable	Booked (N= 332)		Un booked N = (166)		P value
	Number	Percentage %	Number	Percentage %	
Age group					0.001
less than 20	4	1.2	5	3.01	
20 to 24	37	11.1	22	13.3	
25 to 29	112	33.7	64	38.6	
30 to 34	87	26.2	47	28.3	
35 to 39	62	18.7	21	12.7	
40 years or more	30	9.04	7	4.22	
Mean ± SD years	31.9 ± 6.1		29.2 ± 5.2		
Socio-economic status					0.132
High	253	76.2	98	59	
Low	79	23.8	68	41	
Parity					0.002
Primipara	32	9.64	30	18.1	
Multipara	284	85.5	121	72.9	
Grand multipara	16	4.82	15	9.04	

Table 2 Intra-partum and obstetric complications

Variable	Booked (N= 332)		Un booked N = (166)		P value
	Number	Percentage %	Number	Percentage %	
Obstetric complications					0.032
Yes	97	29.2	78	47	
No	235	70.8	88	53	
Type of obstetric complications					0.255
Anemia		0		0	
Yes	14	4.22	12	7.23	
No	318	95.8	154	92.8	0.049
Pre-eclampsia		0		0	
Yes	5	1.51	12	7.23	
No	327	98.5	154	92.8	0.001
PIH		0		0	
Yes	26	7.83	35	21.1	
No	306	92.2	131	78.9	0.246
PROM		0		0	
Yes	14	4.22	4	2.41	
No	318	95.8	162	97.6	0.622
APH		0		0	
Yes	28	8.43	12	7.23	
No	304	91.6	154	92.8	0.824
GDM		0		0	
Yes	4	1.2	3	1.81	
No	328	98.8	163	98.2	0.032
Intra-partum complications					
Yes	111	33.4	73	44	
No	221	66.6	93	56	0.124
Haemorrhage		0		0	
Yes		0		0	
No	332	100	166	100	0.076
Vaginal Tears		0		0	
Yes	118	35.5	41	24.7	
No	214	64.5	125	75.3	0.043
Retained Placenta		0		0	
Yes	5	1.51	12	7.23	
No	327	98.5	154	92.8	

Uterine Rupture		0		0	
Yes	0	0	1	0.6	
No	332	100	165	99.4	
Obstructed Labor		0		0	0.026
Yes	6	1.81	7	4.22	
No	326	98.2	159	95.8	

Table 3 Maternal outcomes

Variable	Booked (N= 332)		Un booked N = (166)		P value
	Number	Percentage %	Number	Percentage %	
Mode of delivery					0.032
Vaginal	201	60.5	91	54.8	
Elective CS	102	30.7	52	31.3	
Emergency CS	12	3.61	10	6.02	
Instrumental vaginal delivery	17	5.12	13	7.83	
Blood transfusion					0.098
Yes	41	12.3	29	17.5	
No	291	87.6	137	82.5	
Hospital Stay					0.430
5 days or less	295	88.9	141	84.9	
more than 5 days	37	11.1	25	15.1	
Mean ± SD					
Maternal Outcome					0.511
Favorable	301	90.7	146	88	
Unfavorable	31	9.34	20	12	

4. Discussion

In a tertiary medical institution in Riyadh, Saudi Arabia, this study evaluated and contrasted the maternal and perinatal outcomes of women who were booked and those who were not. The results showed that un-booked moms were considerably younger than booked mothers, which is consistent with findings from earlier studies (8,9). This indicates that younger expectant mothers are still likely to be un-booked over time. The mother is at risk for morbidity and death since she is young, pregnant, and may be experiencing several problems for the first time if she does not receive the treatments that antenatal care offers (10).

According to our study, the majority of mothers were booked, which is comparable to a Saudi Arabian cohort study that also found substantial differences in parity between booked and un-booked mothers. The frequency of full-term births, the number of spontaneous vaginal deliveries in the un-booked group compared to induced labor, the birth weight of the booked group, and the amount of blood lost after cesarean delivery were among the outcomes that were different between the two groups (11).

While a larger percentage of multiparous and grand-multiparous pregnant women were booked, a sizable fraction of primiparous pregnant women were not. This is unexpected because one would think that being pregnant for the first time would thrill them and motivate them to seek medical professionals. This is in line with the results of a 2016 research that compared the socio-demographic traits, obstetrical problems, and maternal and fetal outcomes of women who were booked and those who were not, which showed that the number of primigravida un-booked cases was higher than the number of booked cases (12).

While a sizable percentage of women in high socioeconomic status were booked, it was found that more women in low socioeconomic status were un-booked. This result was anticipated and is consistent with a 2008 research (8). This is because people with low socioeconomic level have less money to spend on health promotion and prevention programs like antenatal care. Because of the perceived expense of treatment at institutions with higher standards of care, women may also decide to seek care in subpar facilities during these unfavorable economic times.

Maternal problems were statistically significantly higher in un-booked patients than in booked individuals. Antenatal problems, which contribute to poor outcomes for mothers, such as antepartum hemorrhage and postpartum hemorrhage, were more common among un-booked patients. It's possible that some of the unscheduled patients were hospitalized in labor in inadequate community facilities, only to be sent to the university hospital or central hospital after a protracted wait and the emergence of difficulties (13).

Various variables, including poverty, illiteracy, aversion to cesarean sections, expensive hospital expenses, and environmental and cultural biases, have been identified by several studies as obstacles that prevent women from using prenatal care and hospital birth (13,14). An early diagnosis of problems allows obstetricians to intervene for improved outcomes. This is made possible by adequate prenatal care and hospital births (15).

Un-booked women had greater rates of elective cesarean sections and emergency caesarean sections, mostly as a result of delayed presentations with problems that necessitated immediate surgical intervention (16). Despite saving lives, emergency caesarian sections may result in higher rates of maternal and fetal morbidities and deaths (16).

Un-booked patients had increased rates of intrapartum problems, including obstructed labor, uterine rupture, and retained placenta. This is in line with a 2016 research that found un-booked moms were more likely to experience obstructed labor, uterine rupture, and retained placenta (12). Whether or not they are scheduled, pregnant women are susceptible to intrapartum problems; nevertheless, the likelihood of serious adverse outcomes is decreased by prenatal care, birth ready, and complication readiness (17).

5. Conclusion

Unbooked moms experienced poorer obstetric, maternal, and intrapartum outcomes than booked mothers. Stakeholders must increase the sustainable implementation of policies, programs, and services by educating people about the advantages of prenatal care and skilled attendant-supervised delivery, which will significantly improve pregnancy outcomes.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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