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Booked and Un-Booked Primigravidae Delivering at Specialized Maternity Hospital, Khartoum: A Comparison of Sociodemographic Characteristics and Fetal Outcome

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Abstract

Background: Antenatal care is a routine follow-up during pregnancy to ensure a healthy mother and a healthy baby which can be provided in community and healthcare facilities. Utilization of antenatal care services by Sudanese women seems to be the lowest among African countries, so many complications are recognized among patients who do not attend antenatal care during the whole period of their pregnancy, when compared to patients who utilize antenatal care services.

The aim of the study was to compare the pregnancy outcome between booked and un-booked primigravidae who came in labor in Omdurman New Hospital, Sudan.

Methods: This cross-sectional and hospital-based study conducted in 290 primigravidae who attended Omdurman New Hospital during a period of 4 months. Subjects who voluntarily accepted to participate in the study were included. The data were collected by a pretested questionnaire that included clinical examination part. Data were collected by trained medical professionals and analyzed by SPSS version 23.

Results: The results showed that there were 166 (57.2%) un-booked compared to 124 (42.8%) booked primigravidae. The main age group was 18-30 years old however, there were younger patients among un-booked group. Also, un-booked patients were less educated and more prone to be unemployed housewives, has no or little knowledge about the importance of the antenatal care and most of them were coming from rural areas. Also, there were also more cases of hypertensive disorder among um-booked group when compared to booked group who rates of diabetes and cardiac diseases were higher. Regarding baby's outcome, un-booked mothers in this study were more prone to have preterm and postdates babies with lower birth weight, 29.6% of them were less than 2 kg compared to only 1.6% of the booked group. Also, un-booked patients have increased number of IUFD und early neonatal death compared to booked mothers.

Conclusion: Most of the un-booked pregnant women are young, less educated, housewives and coming from rural areas. The rate of preterm

and postdate deliveries are higher among the un-booked women. IUFD and Early Neonatal Death (END) are significantly higher among the un-booked pregnant women.

Keywords: Pregnancy; Early neonatal death; Antenatal care; Postnatal care

Introduction

Antenatal care is a major part in pregnancy management and follow-up, during which any complication can be detected and managed early before affecting mother and baby. It can be provided in hospitals as well as in the community setting by medical professionals [1]. The main purpose of antenatal care is to make sure that both mother and baby in a good health. It is vital to check the pregnant lady every visit for any risk factors that may endanger her life, prevent any possible deterioration and follow-up the growth of her baby. In the other hand ANC provides a good opportunity to counsel the pregnant lady about the pregnancy and prepare her for delivery, breastfeeding, and post-delivery contraception, as well as relieves all her fears regarding these events. This is usually done through a system of record and documentation of all information that include history, physical examination, investigations, and management [2].

Utilization of antenatal care all over the world recognized by the WHO showed that in North Africa and Middle East uses of antenatal care is higher at 65% of pregnant ladies. In Sub-Sahara Africa, the uptake of ANC services is exceptionally low, 68% of women report at least one antenatal visit. The remaining regions of the world range from 82% to 86%. (1) . In the first visit, health care provider should explain to the woman the aim of care offered during pregnancy, which include discussing pregnancy care options, where there is a need to have an ultrasound examination early in the first trimester to determine the gestational age, the estimated date of delivery, assessing for fetal congenital malformation or well-being of the mother and providing opportunities for the women to raise any concerns they wish to discuss [3]. Early in pregnancy, all pregnant women should be given written information about the ANC such as number of visits; timing and content of each visit and discuss this information with the health care provider [4].

Primigravida is a medical term used for the lady who became pregnant for the first time and regarded as an important group that require regular assistance during Antenatal, natal, and postnatal care which help them during pregnancy, labor and puerperium. Primigravidae are at increased risk of complications during pregnancy and labor, which may lead to increased morbidity and mortality for both mother and baby [5,6].

In Sudan, younger generations are more open and accepting the updated health care, because they have greater exposure to modern medicine and have better education than older women. On the other hand, older women have accumulated knowledge on maternal health care and therefore would likely have more self-confidence on pregnancy and delivery, and this, may give less importance for obtaining institutional care [7]. Poorer pregnancy outcomes are more obvious in un-booked than booked patients. In low-income countries, less than 50% of all pregnant women have a minimum of four visits in ANC [8]. Some studies showed that age, parity, inter-pregnancy interval and ANC visits does not associate with increased cesarean section rate [9,10], however, poor perinatal outcome and maternal complications are associated with poor utilization of ANC services. In India, 74% of women seeks ANC care at least once during the whole period of their pregnancy in contrast to 37% who have regular antenatal visits. Un-booked women have a higher risk of adverse maternal and fetal outcomes compared to booked women [11].

The objectives of this study were to determine the difference in pregnancy outcomes between booked and un-booked primigravidae and to determine the difference in their social characteristics.

Materials and Methods

This is a cross-sectional study conducted in Omdurman New Hospital in Khartoum Sudan. The study included all primigravidae who attended the hospital in labor during the study period and accepted to participate in the study. All multiparous women, primigravidae who are not reached the viability (gestational age less than 28 weeks), and primigravidae who came in labor and did not accept to participate were not included in the study. A total of 290 primigravidae participated in this study and the data collection were carried out using patients' assessment data sheet which included personal information, past medical history, booking status of the patient, clinical assessment of the mother and her baby. Physicians

collected data after having training about how to ask and probe questions. The Data were analyzed by SPSS, version 23 (SPSS, Chicago, Illinois, USA). We employed the Chi-square to test significant difference between qualitative variables; p value of less than 0.05 was significant.

Results

Table 1 represents distribution of the sociodemographic factors of the sample as booked compared to un-booked pregnant women. Subjects who were less than 18 years old in the un-booked group were 79.2% compared to 20.8% of the booked group. Women older than 30 years among the booked and the un-booked groups were 44.2. % and 55.8% respectively. Most of the women in this study belonged to the age group 18-30 years (54.3%) for the booked and (45.7%) for the un-booked group. For the booked group, women who had primary, secondary and university education were 24.2%, 45.5%, and 82.2% respectively. For the un-booked group, women who had primary, secondary and university education were 75.6%, 54.5%, and 17.9% respectively. Women who had no education were 10.8% and 89.2% for the booked and un-booked women, respectively. Most women in the booked group were having jobs (85.3%) while most women in the un-booked group were housewives (72.1%). Most women in the booked group resides in urban settings (57.4%) while most women in the un-booked group resides in rural settings (82.2%).

Table 2 represents the results of the delivery outcome according to the gestational age at the time of labor, there were 25.3 % preterm deliveries among un-booked group compared to 15.3% in the booked group. 28.3 postdates deliveries in the un-booked group compared to l5.3% among the booked group and 46.4% term deliveries in the un-booked compared to 69.4% of the booked group. Delivery outcome is statistically significant with booking status (p<0.001).

Table 3 shows the outcome of the babies of the two groups of mothers in this study. IUFD babies among un-booked group were 15.7% compared to 6.5% among the booked group. Babies died during the first 24 hours post-delivery (Early Neonatal Death) were 18.7% among un-booked group compared to 5.6% among the booked group. Baby outcome is statistically significant with booking status (p<0.001).

Table 4 represents the rate of medical diseases associated with pregnancy. Patients who developed pregnancy induced hypertension with its all varieties and complications, were 24.7% among the un-booked group compared to 17.7% among the booked group (p=0.10). Diabetes was 8.9% and 5.4% among the booked and the un-booked group respectively (p=0.18). Cases with cardiac diseases among the booked group was 5.6%, no cardiac disease among the un-booked group. The relation between, booking status and diseases among pregnant primigravidae is not significant (p=0.002).

Table 1: Difference in social characteristic of booked and non-booked pregnant women.

Social characteristics	Booked		Un-booked		Total No. (%)	p
	No.	%	No.	%		
Age						
Less than 18 year	11	20.8	42	79.2	53 (18.3)	
18-30	69	44.2	87	55.8	156 (53.8)	
More than 30	44	54.3	37	45.7	81 (27.9)	<0.001
Occupation						
Housewife	60	27.9	155	72.1	215 (74.1)	
Employer/ worker	64	85.3	11	14.7	75 (25.8)	<0.001
Education						
None	5	10.8	41	89.2	46 (15.9)	
Primary	19	24.4	59	75.6	78 (26.9)	
Secondary	45	45.5	54	54.5	99 (34.1)	
University	55	82.1	12	17.9	67 (23.1)	<0.001
Residence						
Urban	105	57.4	78	42.6	183 (63.1)	
Rural	19	17.8	88	82.2	107 (36.9)	< 0.001

Table 2: Baby outcomes according to the gestational age in both booked and un-booked groups of women.

Baby outcomes	Booked		Un-booked		Total	p
	No.	%	No.	%	No. (%)	
Preterm	19	15.3	42	25.3	61 (21)	
Term	86	69.4	77	46.4	163 (56.2)	
Postdate	19	15.3	47	28.3	66 (22.8)	<0.001

Table 3: Baby outcome according to viability in both booked and un-booked groups of women.

Viability	**Booked**		**Unbooked**		**Total No (%)**	**P**
Alive	109	87.9	109	65.7	218 (75.2)	
LBW	2	1.6	49	29.5	51 (17.6)	
IUFD	8	6.5	26	15.7	34 (11.7)	
E.N.D	7	5.6	31	18.7	38 (13.1)	<0.001

Table 4: Comparison of diseases between booked and un-booked pregnant women.

Medical condition	**Booked**		**Unbooked**		**Total No. (%)**	**P**
PIH						
Yes	22	17.7	41	24.7	63 (21.7)	
No	102	83.3	125	75.3	227 (78.3)	
Total	122	100	166	100	292 (100)	0.1
Diabetes						
Yes	11	8.9	9	5.4	20 (6.9)	
No	113	91.1	157	94.6	270 (93.1)	
Total	124	100	166	100	290 (100)	0.18
Cardiac disease						
Yes	7	5.6	0	0	7 (2.4)	
No	117	94.6	166	100	283 (97.6)	
Total	124	100	166	100	290 (100)	0.002

Discussion

In our study 57.2% of the women were un-booked in contrast to 42.8% of the women were booked in a specialized maternity hospital, inside the capital city, Khartoum State, Sudan. This reflects the poor utilization of the antenatal care services provided to pregnant women. This finding is higher compared to the finding of Adhikary et al. and Butt et al. who found un-booked women were 39.1% and 30%respectively [12,13]. The study showed that un-booked women were younger in age and less educated when compared to the booked group [12,14]. Furthermore, most of the un-booked pregnant women in this study were housewives (93.4%) compared to 48.4% of the booked women. This finding is consistent with results of a study conducted in Egypt which found that most (70%) of the un-booked women were housewives [15]. Our result showed that 82.2% of the primigravidae were coming from the rural areas. This finding is consistent with other studies. These studies showed that un-booked status is significantly higher in teenage pregnancy [12,16]. This study also showed higher rates of un-booked patients who developed hypertensive disorders (PIH, eclampsia/pre-eclampsia or HELLP syndrome) where 24.7% of the un-booked group had one of these disorders compared to only 17.7% of the booked women. The results do not show significant difference of Diabetes Mellitus and hypertensive disorders between the booked and un-booked primigravidae. These findings are inconsistent with other studies [16,17]. Regarding babies' outcome, this study shows that un-booked patients had higher rate of preterm (25.3% *vs.* 15.3%) and postdates deliveries (28.3% *vs.* 15.3%) when compared with the booked group. Term babies are higher among booked compared to un-booed pregnant women (69.4% versus 46.4%). Th relation between baby outcome and the

booking status of the pregnant women is statistically significant ($p<0.001$) [12-14,18]. IUFD is more among un-booked group where 15.7% of mothers gave birth of dead babies (macerated and fresh stillbirth), as well as early neonatal death where l8.7% of the babies born to the un-booked mother died in the first 24 hours following delivery compared to only 5.6% in the booked group. Babies of un-booked mothers had lower birth weight where, 29.5% had less than 2 kg compared to 1.6% in the babies delivered by the booked group. Those results are comparable to that of Rural India study where there were more cases of stillbirth among un-booked group where 6.1% babies were stillborn and only 0.8% in booked group were still born. A study conducted in London showed that un-booked mothers were five times more likely to have preterm delivery and three times more likely to have low birth weight than booked mothers [11,18,19].

Conclusion

The study concluded that there is a high rate of un-booked pregnant women who presented in labor in specialized maternity hospitals. Most of the un-booked pregnant women are young, less educated, housewives and coming from rural areas. The rate of preterm and postdate deliveries are higher among the un-booked women. IUFD and Early Neonatal Death (END|) are significantly higher among the un-booked women. These results reflect poor maternal and neonatal outcomes among un-booked mothers.

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