

Pregnancy Outcome in Mothers Receiving Antenatal Care versus Mothers Not Receiving Antenatal Care in Al-Ahrar General Hospital

Mohamed S. M. Fouad¹, Mohamed K. Mustafa¹, Mohamed AH. Rezk², Hazem S. S. Hassan³

¹Professor of Obstetrics & Gynecology – Faculty of Medicine – Al-Azhar University, Egypt

²Professor of Community and Public Health– Faculty of Medicine – Al-Azhar University, Egypt

³Resident of Obstetrics and Gynecology - Al-Ahrar General Hospital, Egypt

dr_hazemsaeed85@yahoo.com

Abstract Background: Pregnancy is a critical event in a women's life that affects her health and wellbeing. Antenatal care (ANC), along with family planning, skilled delivery care and emergency obstetric care, is a key element of the package of services aimed at improving maternal and newborn health. Maternal complications and poor perinatal outcome are highly associated with non-utilization of antenatal care and delivery care services and poor socio-economic conditions of the patient. The provision of and access to quality healthcare for expectant mothers has been a complicated problem. **Objective:** The aim of work is to compare the maternal and perinatal outcomes between booked and unbooked mothers. **Subject and Methods:** A prospective observational study was carried on 320 pregnant women admitted at Emergency labor room at Obstetrics and Gynecology Department of Al-Ahrar General Hospital in 6 months, divided into two groups; Group (I) consists of 203 booked pregnant mothers, Group (II) consists of 117 unbooked pregnant mothers. Both groups underwent thorough clinical examination, Ultrasound Examination, Maternal Outcome Measures, and Neonatal Outcome Measures. **Result:** The results of this study showed that the unbooked mothers were younger in age “25.58±5.64 vs 28.83±6.22” and had low educational level. The unbooked mothers tend toward spontaneous vaginal delivery “SVD” (52.1% unbooked vs 23.2% booked), while booked mothers tend toward Cesarean section “SC” delivery (76.8% booked vs 43.6% unbooked). The maternal outcomes “anteartum hemorrhage, anemia, and postpartum hemorrhage” and the neonatal outcomes “birth weight, Apgar score, Neonatal ICU admission” were worst in unbooked mothers than in booked mothers.

Conclusion: There is positive correlation between unbooked mothers and increased risks of maternal and fetal adverse outcomes and Educating the communities at the grass roots level about the benefits of receiving antenatal care and supervised delivery by skilled attendants will have a significant impact on improving pregnancy outcomes in our locale.

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Keywords: Antenatal; Booked; Unbooked; Maternal; Perinatal.

Introduction

Maternal mortality has become a public health problem requiring urgent, concerted and effective intervention at the various levels of the society (Owolabi, et al. 2008).

Maternal mortality has become a public health problem. In many developing countries, complications of pregnancy and childbirth are the leading causes of death among women of reproductive age. More than one woman dies every minute from such causes; 585,000 women die every year (Pokharel, et al. 2007).

Educating the community about the benefits of receiving regular antenatal care, at grass roots level may have a significant impact on improving pregnancy outcomes (Pokharel, et al. 2007).

In the developed world, antenatal care serves an integral role in facilitating improved pregnancy

outcome, leading to a reduction in perinatal death (Tucker, et al. 2009).

The concept of the unbooked mother has traditionally been associated with women in developing countries who are unable or unwilling to access healthcare facilities (Mutahir and Nyiputen, 2007).

Nowadays the typical picture of the unbooked women has changed to that the unbooked women may now be young healthy women with poor knowledge on how to access health care in the country (Tucker, et al. 2009).

The perinatal outcomes of unbooked women are high rate of preterm delivery, low birth weight babies and neonatal unit admissions (Treacy, et al. 2002).

Early initiation of prenatal care is important to prevent and treat obstetric and medical complications. It reduces the risk of occurrence of the congenital anomalies which may arise from exposure of the fetus

to irradiation, drugs or intrauterine infections (as syphilis, toxoplasmosis, cytomegalovirus, rubella, etc.) in the early pregnancy (Zolotor and Carlough, 2014)

2. Subjects and Methods

This is a hospital based prospective observational study conducted in 6 months at Obstetrics and Gynecology Department of Al-Ahrar General hospital-Egyptian Ministry of Health in coordination with the Obstetrics & Gynecology and Community Medicine and Public Health Departments, Faculty of Medicine, Al-Azhar University, during the period from December 2015 to June 2016.

Subjects:

A total number of 320 pregnant women admitted at Emergency labor room at Al-Ahrar General Hospital in 6 months were included and classified into two groups:

1) Group I: “Booked Mothers Group”

Includes 203 booked pregnant women with age ranged from 22-36 years with mean±SD 28.83±6.22 years.

2) Group II: “Unbooked Mothers Group”

Includes 117 unbooked pregnant women with age ranged from 19-32 years with mean±SD 25.58±5.64 years.

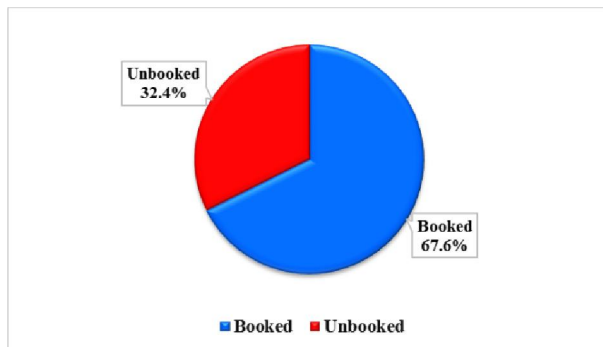


Figure (1): distribution of booked & unbooked groups of study.

Methods:

All women decided to be enrolled in this study were informed about the nature and objectives of the study. A written consent (informed consent) was obtained from them to participate in the study. After written consent, all subjects of the study were subjected to the following:

A. Full history: including Personal, Menstrual, Past & Present Obstetric, Medical and Family.

B. Thorough clinical examination: including General, Abdominal and Local examination.

C. Ultrasound Examination.

D. Maternal Outcome Measures:

- Mode of delivery: vaginal, cesarean, instrumental.

- Course of delivery: easy or obstructed.
- Occurrence of preterm delivery.
- Occurrence of antepartum.
- Occurrence of anemia.
- Occurrence of any maternal morbidity.
- Postpartum course: hemorrhage, sepsis.
- Occurrence of maternal death.
- E. Neonatal Outcome Measures:
 - Gestational age.
 - Sex.
 - Apgar score at 0 and 5 minutes.
 - Birth weight.
 - Birth height.
 - Chest circumference.
 - Head circumference.
 - Abdominal circumference.
 - Congenital anomalies.
 - Neonatal intensive care admission.
 - Perinatal morbidity.
 - Perinatal mortality.

Statistical Analysis:-

Data were revised for completeness and consistency. Accordingly, some questionnaires were excluded from the study and replaced by an equal number of other patients. Pre-coded data were entered and analyzed with the aid of Statistical Package of Social Science Software program (SPSS) version 22.

Mean, standard deviation, range, frequency and percentages were used as descriptive statistics. Chi square test and t-test were used according to type of variables analyzed.

The results were represented in tabular and diagrammatic forms then interpreted.

3. Results:

The mean age in booked group was 28.83±6.22 years (range: 22-36), while in the unbooked group was 25.58±5.64 years (range: 19-32) with a statistical significant difference between both group (*P-value: 0.01*).

Regarding the education level of the mothers, the booked mothers were having a higher educational level than the unbooked mothers and there was a high significant difference between both groups (*P-value: <0.001*).

As regard mode of delivery, the unbooked mothers have higher tendency to deliver by spontaneous vaginal delivery than booked mothers “52.1% against 23.2% of total 108 mothers delivered by spontaneous vaginal delivery”, while the booked mothers have higher tendency toward delivery by cesarean sections than unbooked mothers “76.8% against 43.6% of total 207 mothers delivered by CS”. There was a high significant difference between both groups as regard mode of delivery (*P-value: <0.001*).

Regarding maternal outcomes, the incidence of occurrence of antepartum hemorrhage was higher in unbooked mothers than in booked ones “14.5% against 5.9%” with a high significant differences (*P-value: 0.01*). Also the incidence of anemia was higher in unbooked mothers “36 mothers in a percentage of 30.8%” than in booked mothers

“30.8% against 9.9%” and there was a higher significant difference between both groups (*P-value: <0.001*). Regarding postpartum hemorrhage there was no significant difference between both groups (*P-value: 0.83*). There was no maternal mortality recorded among both groups of the study.

Table (1): Comparison between both groups regarding socio-demographic characters:

			Group		Total	X ²	P
			Booked 203	Unbooked 117			
Residence	Rural	Count	110	51	161	3.33	0.068
		%	54.2%	43.6%	50.3%		
	Urban	Count	93	66	159		
		%	45.8%	56.4%	49.7%		
Marital status	Married	Count	199	117	316	2.33	0.12
		%	98.0%	100.0%	98.8%		
	Divorced	Count	4	0	4		
		%	2.0%	0.0%	1.2%		
Special habits	No	Count	193	101	294	13.72	0.001*
		%	95.1%	86.3%	91.9%		
	Smoking	Count	10	9	19		
		%	4.9%	7.7%	5.9%		
	Alcohol	Count	0	7	7		
		%	0.0%	6.0%	2.2%		
Patient Education	Read & write	Count	39	54	94	26.7	0.00**
		%	19.7%	46.2%	29.4%		
	Preparatory secondary &	Count	70	32	102		
		%	34.4%	27.3%	31.9%		
	High	Count	93	31	124		
		%	45.8%	26.5%	38.8%		
Patient Occupation	House wife	Count	80	60	140	14.6	0.001*
		%	39.4%	51.3%	43.8%		
	Laborer	Count	65	45	110		
		%	32.0%	38.5%	34.4%		
	Professional	Count	58	12	70		
		%	28.6%	10.3%	21.9%		

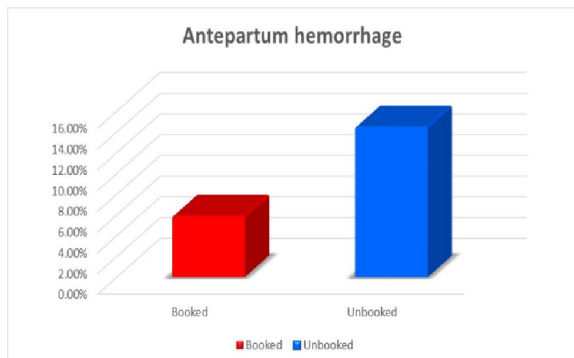


Figure (3): distribution among groups regarding Antepartum hemorrhage.

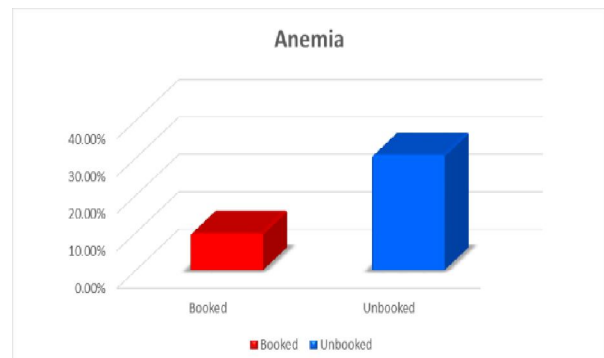


Figure (4): distribution among groups regarding anemia

Regarding neonatal outcomes, there was higher frequency of preterm labor in unbooked group than booked group (23.9% versus 3.9%, respectively) with a high significant difference (*P-value*: <0.001). The birth weight in unbooked group was significantly lower than in booked group (2633.7179 kg versus 3083.9901kg, respectively with a *P-value*: <0.001).

The unbooked mother group was more associated with low Apgar score at 1 and 5 minutes (3.27±1.26 & 5.80±3.19 for unbooked mothers against 4.20±1.33 & 7.57±0.78 for booked mothers) with a significant difference between both groups (*P-value*: <0.001).

The need for neonatal intensive care “NICU” admission was found to be higher among the babies of the unbooked mothers “14.5%” against those of the booked mothers “5.9%” with a statistical difference with a (*P-value*: <0.01).

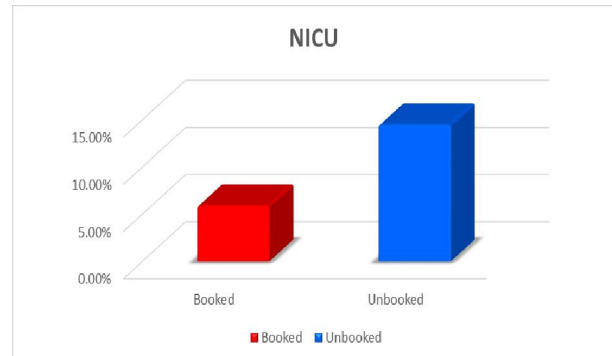


Figure (4): distribution among groups regarding NICU.

Table (2): Comparison between both groups regarding maternal outcome measures:

			Group		Total	X ²	P
			Booked 203	Unbooked 117			
Mode of delivery	SVD	Count	47	61	108	39.8	0.00**
		%	23.2%	52.1%	33.8%		
	VENTOSE	Count	0	5	5		
		%	0.0%	4.3%	1.6%		
CS	Count	156	51	207			
	%	76.8%	43.6%	64.7%			
Indication of CS	Not CS	Count	47	66	113	45.4	0.00**
		%	23.2%	56.4%	35.3%		
	Pre eclampsia	Count	7	8	15		
		%	3.4%	6.8%	4.7%		
Eclampsia	Count	16	0	16			
	%	7.9%	0.0%	5.0%			
Others	Count	133	43	176			
	%	65.5%	36.8%	55.0%			
Antepartum hemorrhage	Yes	Count	12	17	29	6.69	0.01*
		%	5.9%	14.5%	9.1%		
	No	Count	191	100	291		
		%	94.1%	85.5%	90.9%		
Postpartum hemorrhage	Yes	Count	11	7	18	0.045	0.83
		%	5.4%	6.0%	5.6%		
	No	Count	192	110	302		
		%	94.6%	94.0%	94.4%		
Anemia	Yes	Count	20	36	56	22.49	0.00**
		%	9.9%	30.8%	17.5%		
	No	Count	183	81	264		
		%	90.1%	69.2%	82.5%		
Maternal morbidity	Yes	Count	12	12	24	2.02	0.15
		%	5.9%	10.3%	7.5%		
	No	Count	191	105	296		
		%	94.1%	89.7%	92.5%		
Maternal Mortality	No	Count	203	117	320		
		%	100.0%	100.0%	100.0%		

4. Discussion

The provision of and access to quality healthcare for expectant mothers has been a complicated problem, especially in the developing world. Inadequate numbers of skilled birth attendants and medical resources, the social status of women as well as limited communication and transportation facilities tend to mask the provision of appropriate quality of maternal healthcare (*Atinga and Baku, 2013*).

Maternal mortality is one of the health indicators with the greatest irreconcilable difference between the developed and developing countries. Estimates of the maternal mortality ratio (MMR) suggest 44 per 100,000 live births in Europe and Central Asia compared with 900 in Sub-Saharan Africa (*Paruzzolo et al., 2010*).

In the developed world, antenatal care serves an integral role in facilitating improved pregnancy outcome, leading to a reduction in perinatal death (*Bari and Mazhar, 2012*).

Developing countries accounted for 99 per cent (355,000), with the highest MMR of 290 in stark contrast to the developed nations which is 14 (*WHO, UNICEF, UNFPA and the World Bank, 2010*).

Several studies had confirmed the positive influence of antenatal care on maternal and perinatal outcomes irrespective of other maternal characteristics, such as age and parity (*Vijayasree, 2015*).

In this study sociodemographic and personal characteristics were comparable among booked and unbooked mothers without significant differences except that special habits as smoking and alcohol consumption is higher in unbooked group. While the educational level when comparable among both groups showed high significant differences as the booked mothers were having a higher educational level than the unbooked mothers (*P-value: <0.001*).

These results go in agree with results reported by *Chigbu, et al. (2009)*: “Compared to booked mothers, unbooked mothers were younger in age (28.2 +/- 5.80 vs. 29.3 +/- 6.04; $p < 0.001$) and had a lower educational status ($P < 0.001$)”.

Regarding mode of delivery the unbooked mother were having higher tendency toward spontaneous vaginal delivery while the booked mothers were having higher tendency towards cesarean section delivery. There was high significant difference between both groups as regard mode of delivery (*P-value: <0.001*).

These results go in agreement with what was reported by *Chigbu, et al. (2009)* in these results that “Spontaneous vaginal delivery was nearly similar in both groups “71.3% unbooked and 63.87% booked”. Elective caesarian section rate was high in booked group “31.5% booked and 20.99% unbooked” because of early recognition of complications, booking of

patients with previous caesarian section for recurrent indication and operations when indicated to save the mother and baby in other conditions”.

In contrast, these results disagree with *Aamir, et al. (2012)* who reported that Caesarean section rate was also found to be higher in unbooked mothers than the booked mothers (31.5% unbooked against 19.66% booked with P -value < 0.001).

In this study as regard maternal outcomes, there was a statistical significant difference between both groups of the study when talking about the antepartum hemorrhage and anemia. The incidence of occurrence of antepartum hemorrhage and anemia was higher in unbooked mothers than in booked mothers.

These results go in agree with *Aamir, et al. (2012)* who found that there was significant difference between both groups as regard antepartum hemorrhage (24 “8%” booked & 36 “18%” unbooked) and anemia (120 “40%” booked & 170 “85” unbooked). While it goes against what was reported by *Danish, et al (2010)* that Anemia was observed in almost all patients whether booked or un-booked ranging from mild to severe.

Incidence of postpartum hemorrhage was higher in unbooked mothers than booked mothers with no statistical significant between both groups of the study “*P-value: 0.83*”. These results go in agreement with the study done by *Aamir, et al. (2012)* reported that postpartum hemorrhage was higher in unbooked mothers than in booked mothers “1% against 8% with *P-value < 0.001*”. And go against results of the study done by *Zakari, et al. (2014)* who reported that Postpartum haemorrhage is commoner in the booked patients (2.73% against 1.07% with *P-value < 0.001*).

Our data revealed that there was higher frequency of preterm labor in unbooked group than booked group with significant difference between both groups, this corresponds with *Tucker et al., 2010* who reported that preterm delivery to be of the significant adverse pregnancy outcome. The unbooked group had significantly higher percent of preterm delivery than booked group (15.4% versus 2.7%, respectively).

As regard neonatal outcome, our data showed that the unbooked mothers had a higher number of; low birth weight, low Apgar score at 1 and 5 minutes and also had higher number of babies who need NICU admission in contrast to the booked mothers group with a high significant difference between them (*P-value: < 0.01*).

These results go in harmony with studies done by; *Tucker, et al. (2010)* who found that the most significant adverse pregnancy outcome was low birth weight which was three times more likely in the unbooked women group compared to the booked women group, *Zakari, et al. (2014)* who reported that low Apgar scores is higher among babies of the

unbooked patient (17.17% against 4.29%, $P=0.000$), and *Gonied, (2011)* who reported that the need for neonatal ICU was 13.8% in unbooked mothers against 3.2% booked mothers with a $P\text{-value} <0.01$ ".

The combined factors of preterm delivery and low birth weight leading to poorer perinatal morbidity and mortality has been documented by previous authors (*Raatikainen, et al. 2007; Tucker, et al. 2010*).

Conclusion

The study showed a positive correlation between unbooked mothers and increased risks of maternal and fetal adverse outcomes. Educating the communities at the grass roots level about the benefits of receiving antenatal care and supervised delivery by skilled attendants will have a significant impact on improving pregnancy outcomes in our locale. Our primary healthcare facilities should be staffed with trained staff supervised by obstetricians and the secondary care hospitals should have obstetricians and facilities for providing emergency services.

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