

Late antenatal booking and its predictors among mothers attending primary health care centers in Abha, Saudi Arabia

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Objectives: To determine proportion of the women who book late for antenatal care and to assess the predictors of late booking.

Methodology: This cross-sectional study was carried out on 277 women registered at the Antenatal care clinics (ANC) in Primary Health Care Centers, Abha, Saudi Arabia using a data driven form based on records. The outcome variable was late antenatal booking (later than 12 weeks gestation). The investigated predictors were socio-demographic characteristics, parity, history of abortion and any obstetric loss in previous pregnancy. SPSS 17.0 was used for data analysis.

Results: Mean gestational age at booking was 12.2 weeks. Thirty six percent women registered late. Late booking was influenced by older age (AOR=1.44, 95%CI: 0.80 - 2.59), being housewife (AOR=1.20, 95 %CI: 0.66-2.18), previous history

of abortion (AOR=0.85, 95 %CI: 0.47-1.52) and history of previous obstetric loss (AOR=0.66, 95%CI: 0.27-1.62). However, none of them was found to be significant. Nulliparous women were twice more likely to book later in pregnancy as compared to parous women (AOR=2.28, 95%CI: 1.20-4.31) and this difference was significant (p=0.011).

Conclusion: A high proportion of women book late in pregnancy. Socio-demographic and obstetric factors influence initiation of antenatal care. These factors should be addressed in depth to look for reasons of late booking in order to design locally appropriate interventions to encourage women to engage early with antenatal care services. (Rawal Med J 201;41:72-76).

Key Words: Antenatal care, gestational age, late booking, Saudi Arabia.

INTRODUCTION

World Health Organization (WHO) promotes a model package of antenatal care (ANC) that implements evidence based interventions through reduced but goal-oriented clinic visits.¹ This model is also referred to as "focused" or "basic" antenatal care. It recommends early first antenatal visit by 12 weeks of gestation, also known as booking visit. During this visit, a comprehensive history, gestational age and any maternal or fetal risk factors are assessed. Pregnant women are then followed up three times at specified intervals. This model was based on the findings of the WHO Antenatal Care Trial (WHOACT), which concluded that an antenatal care package of evidence-based screening, therapeutic interventions and education across four antenatal visits for low-risk women was not inferior to standard antenatal care and may reduce cost.²

About ten years later, in 2010, a Cochrane review

showed a statistically significant increase in perinatal mortality associated with the reduced care model.³ In light of the above, WHO in 2011 published a statement for antenatal care.⁴ Antenatal care should begin during the first trimester. Late initiation of antenatal care deprives the pregnant woman of the screening process and thus, increases risk in pregnancy. Late or inadequate use of antenatal healthcare, that is, entry after the first trimester and/or an inappropriate number of antenatal visits, may be due to individual characteristics, contextual characteristics and health behavior.⁵

Saudi Arabia, which was one of the participating countries in the WHOACT. It is classified as a developing country, but its gross domestic product (GDP) per capita and maternal and infant health indices are comparable to the developed countries of the world. The per capita health expenditure in Saudi Arabia is \$795 in 2012.⁶

Saudi Arabia also boasts of an excellent maternal and child health record. The maternal mortality ratio per 100,000 live births in Saudi Arabia has steadily fallen in the past few decades, from 41 in 1990 to 16 in 2013.⁷ Free antenatal services are offered, in accordance with the WHO 2001 recommendations, across its well structured healthcare system.

The aim of this study was to find the proportion of late booking mothers and predictors of late booking among mothers in Abha, which is a fast developing city in the mountainous Aseer region of Southwestern Saudi Arabia.

METHODOLOGY

This cross-sectional study was carried out on women who had registered at ANC in three selected primary health care centers (PHCC) of Abha, Southwestern Saudi Arabia using cluster sampling method. A data driven form was developed to collect the data, which are based on WHO guidelines for antenatal care. Information was noted for 300 women who had registered for antenatal care and delivered during 2012. Gestational age at booking was calculated according to the woman's reported last menstrual period. The outcome variable was late antenatal booking, defined as where the booking appointment was attended later than 12 weeks gestation. The investigated predictors were socio-demographic characteristics (data concerning age and occupation only was available), parity, history of abortion and any obstetric loss in previous pregnancy.

Twenty three (7.6%) women were excluded because of missing information in any of the variables, leaving a final sample of 277 for analysis. Data were analyzed using SPSS v 17.0. Chi square test was used as a test of statistics and Odds ratios were calculated. Multivariable logistic regression was used to build the final model and adjusted odds ratio at 95% CI calculated.

$P \leq 0.05$ was considered statistically significant.

RESULTS

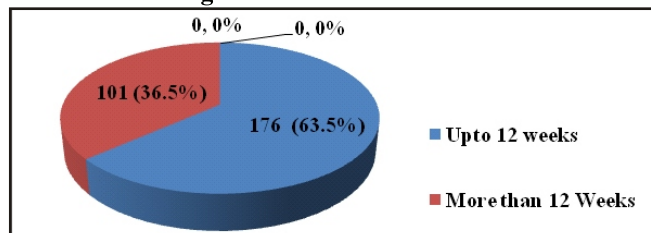
The study group comprised of 277 women. The mean age was 29.67 ± 6.27 years (range 16 to 48).

Table 1. Distribution of the study group by sociodemographic and obstetric characteristics

Variable	Number	%
Age		
Upto 30 Years	163	58.8
More than 30 Years	114	41.2
Working status		
House Wife	212	76.5
Working	65	23.5
Parity		
Nullipara	67	24.2
Multipara	160	57.7
Grandmultipara	47	17
Great grand multipara	3	1.1
No. of Living children		
None	69	24.9
1-5	179	64.6
More than 5	29	10.5
Bad Obstetric History		
No	254	91.7
Yes	23	8.3
History of abortion		
No	192	69.3
Yes	85	30.7

In our study, 58.8% women were upto 30 years and 41.2% above 30 yrs of age. Most of the women were housewives (76.5%), while rest were working or students. One fourth (24.2%) women were nulliparous, while most were para one or more. Most of the women (160, 57.7%) were multiparous, and 47(17%) were grandmultiparous. Three (1.1%) women were identified as great grand multis with more than 10 previous pregnancies (Table 1). On chi square test, those women with no living children had significantly higher odds ($p=0.04$; OR 1.74, 95% CI: 1.00-3.03) of registering later for ANC, than those with children. This variable was not included in multivariate analysis. Just 23 (8.3%) women had a bad obstetric history (previous still birth/neonatal death /3 or more consecutive, spontaneous abortions). Eighty five mothers (30.7%) had a history of abortion in previous pregnancy.

Fig. 1. Percentage distribution of study group by time of antenatal booking



A very high proportion (36.5%) woman registered late (Fig. 1). The mean gestational age at booking in our study group was 12.2 weeks.

Table 2. Predictors of late booking.

Variable	Late Booking visit (□12 completed weeks)		Crude odds Ratio		Adjusted odds Ratio		p
	Yes N (%)	No N (%)	COR	95%CI	AOR	95%CI	
Age							
More than 30 Yrs	44 (38.5)	70 (61.5)	1.16	0.71-1.91	1.44	0.80-2.59	NS
Upto 30 Years	57 (35.0)	106(65.0)	1		1		
Working status							
House Wife	78 (36.8)	134 (63.2)	1.06	0.59-1.89	1.20	0.66-2.18	NS
Working	23 (35.4)	42 (64.6)	1		1		
Parity							
Nullipara	31 (46.3)	36 (53.7)	1.72	0.98- 3.01	2.28	1.20- 4.31	0.011
Para 1 and above	70 (33.3)	140 (67.7)	1		1		*
Bad Obs. History							
No	91 (35.8)	163 (64.2)	0.72	0.30-1.72	0.66	0.27-1.62	NS
Yes	10 (43.5)	13 (56.5)	1		1		
History of abortion							
No	68 (35.5)	124 (64.5)	0.86	0.51-1.46	0.85	0.47-1.52	NS
Yes	33 (38.8)	52 (61.2)	1		1		

*Parity was shown to be significant predictor of gestational age at booking visit ($p \leq 0.05$). NS= Not significant

Thirty eight percent of older women (age greater than 30) booked late as compared to 35% younger women. Older women (30 yrs and above) had higher odds (AOR=1.44, 95%CI: 0.80-2.59) for booking later in pregnancy than younger women (less than 30 yrs), however it was not significant. About 37% housewives are late bookers, and 35.4% working women also booked late. Working status, housewives, parity and history of abortion were related with late booking (Table 2).

DISCUSSION

This study provides insight into the timing of initiating antenatal care in an area with a good and ever improving maternal mortality record. A large proportion (36.5%) of women booked late in pregnancy (after 12 completed weeks). Timing of antenatal visits results in maternal mortality in developing countries like Nigeria, Ethiopia, India and Mexico.⁸⁻¹¹ Among the late bookers in developed countries like UK, Australia and Italy, timing of

initiation of antenatal care shows huge differences. In UK, NHS national average was 27.7% of women booking later than 12 completed weeks of gestation in the 2012/13.¹² In Italy, it ranges from 2.9-15%,¹³ while in Australia it is as high as 41%.¹⁴ A study from US found that 20% US women do not begin antenatal care in the first trimester of pregnancy.¹⁵ Unfortunately, there is a dearth of research concerning the focus of this study in gulf countries. In this study, all variables showed some influence on the occurrence of late booking. Higher age, being a housewife, having suffered previous bad obstetric history and previous abortion, all place the woman at higher odds for initiating antenatal care later than the recommended period of 12 weeks, however, none of them were found to be significant. A surprising finding was that older women (more than 30 yrs) were at higher odds for initiating antenatal care late, as compared to younger women. Also, nullipara had significantly higher odds of initiating late antenatal care. Although most of the nullipara

(92%) belong to the younger age group, when age adjusted odds were calculated, nullipara were found to be at significantly higher odds of booking late.

Most of the research in developed countries has found an association between younger and multiparity associated with late booking or inadequate utilization of antenatal services. Younger maternal age and multiparity were independently associated with late initiation or inadequate use of prenatal care in a systematic review on determinants of late/ inadequate use of prenatal care in high income countries, and also in another systematic review on factors affecting the use of prenatal care by non-western women in industrialized western countries.^{14,16-18} However, our findings are comparable to findings in developing countries like Ethiopia and India, which have shown an association of older age with late booking.^{9,10} These are interesting findings in light of Saudi Arabia's health and wealth indices.^{6,7}

The socio cultural context also plays an important part and strong cultural and religious influences are seen in all areas of life including health. Unfortunately, no data regarding the educational level of the women was available to us, however, when we compared the working status of mothers; housewives were more likely to book late. This may be due to poor empowerment of housewives, who are highly dependent on their husband for visiting health facilities. This has also been previously emphasized in studies in Saudi Arabia.¹⁹ Other findings in this study were that women, who had previous abortion or obstetric loss, were more likely than women had none, to book late in pregnancy. Similar finding was reported in a study in Ethiopia.²⁰

CONCLUSION

There was a high proportion of women who still book late in pregnancy. Findings of the study indicate that despite improvement in health indicators, the uptake of timely antenatal care is still lacking. Educating the women about timeliness of antenatal care and health work force training to counsel the women attending premarital clinics may be helpful. Also, new avenues like social media can be used to increase awareness of the women about importance of antenatal care.

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Conflict of Interest: None declared

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