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Pregnancy Outcomes in Vaharai, Batticaloa, Sri Lanka

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Abstract

The outcomes of pregnancy differ significantly between developing and developed countries. The poor use of prenatal and maternal health services can contribute to this difference. **Materials and Methods:** This descriptive cross-sectional study was conducted among all the pregnant mothers who attend to routine antenatal clinic for booking visit in medical officer health (MOH) clinics at Vaharai MOH area for a period of one year. This study was aimed to identify the live birth rate and low birth weight incidence in the studied population and compare these figures with national figure. **Results:** This study included 695 pregnant mothers. 70.4% pregnant mothers attend their first antenatal booking visit before 8 weeks of gestational age. 611 pregnant mothers reached gestational age of more than 28 weeks. 13.7% pregnant mothers had 4 - 6 antenatal visits while 83.6% mothers had more than 7 visits. Among those who had body mass index (BMI) measurement, 39.6% mothers had normal BMI and 43.6% pregnant mothers had low BMI, 16.8% mothers had BMI above the normal range. Among those 611 mothers, 56.8% had adequate weight gain (>7.5 kg) during their antenatal period, 3 of them had weight reduction and 11 mothers had not gain weight during their antenatal period. Majority 85.6% were not anaemic and 14.4% were anaemic. Regarding the current pregnancy outcome, 86.9% had live birth, 12.1% mothers had miscarriage, 0.9% (6) had intra uterine death (IUD) and 0.1% (1) had Hydatidiform mole. This study further showed that 22% of the pregnant mothers had their new-borns birth weight less than 2.5 kg at birth irrespective of their gestational age (low-birth weight babies). **Conclusion:** The lower live-birth rate, more incidence of low birth weight than the national figure of Sri Lanka is seen in the studied population of Vaharai. More incidence of anaemia, more teen-age pregnancies, failure to achieve recommended gestational weight gain during pregnancies despite frequent antenatal care, could be attributed to this adverse outcome.

Keywords

Pregnancy Outcomes, Batticaloa, Sri Lanka

1. Introduction

Good quality antenatal care improves outcomes for pregnant women and their babies [1]. The outcomes differ significantly between developing and developed countries [2]. It is believed that one of the major factors contributing to the high rate of adverse birth outcomes is the poor use of prenatal and maternal health services [3]. There are several factors determine the utilisation of antenatal care such as maternal education, employment, age, poverty, economic status of household, and access to the media [4] [5] [6] [7].

Antenatal care (ANC) remains one of the Safe Motherhood interventions that has the potential to significantly reduce maternal and perinatal mortalities [8]. Although Antenatal care (ANC) might not have the potential to predict and avert obstetric emergencies during pregnancy and childbirth, it exposes women to health education on risk factors and encourages them to be delivered by skilled health workers with health facilities. Therefore, antenatal period presents opportunities for reaching pregnant women with interventions to maximize maternal and neonatal health [9] [10].

Regular antenatal clinic visits provide health personnel with an opportunity to manage the pregnancy such as detection and treatment of pregnancy-induced hypertension, providing tetanus immunization [11] [12] [13], and micronutrient supplementation [14]. These steps are effective in improving pregnancy and neonatal outcomes [15]. Pregnant women in developing countries have an increased risk of maternal and perinatal mortality and morbidity [16] [17]. Low or middle-income countries bear 99% of all maternal and new-born deaths occurring in the world. The Poverty, lack of infrastructure and inadequate healthcare, are the main contributory factors for it [18] [19]. However, good quality antenatal care could prevent many of these complications.

The World Health Organization's (WHO) recommendation of at least fourantenatal clinic visits, spaced across regular intervals and with a skilled attendant has been shown to improve health outcomes for both expectant mothers and infants. To fully benefit from these interventions, it is important that women start ANC early on in their pregnancy. Several studies have shown that women who start to attend ANC early and continue regularly, are more likely to be assisted during delivery by skilled health workers compared to those who initiate ANC late and attend only few visits [20] [21].

Batticaloa district is in the Eastern province of Sri Lanka. This study was conducted in Vaharai area of Batticaloa. It has a population of 24,828. This area was badly affected during 30 years of civil war. Most of the people from this area are poor. The author conducts outreached antenatal clinic in the area and noted

poor pregnancy parameters, therefore this study was planned to study the pregnancy outcome and compare with the national figures.

2. Materials and Methods

This descriptive cross-sectional study was conducted among all the pregnant mothers who attended to routine antenatal clinic for booking visit in Medical Officer Health (MOH) clinics at Vaharai MOH area and comprises of 10 Public Health Midwife (PHM) areas. This study was aimed to identify the live birth rate and low birth weight incidence in the studied population and compare these figures with national figure.

In Sri Lanka antenatal care package system, when a woman embarks on pregnancy she is registered for antenatal care and two sets of records are maintained; "A" card and "B" card. The "A" card is hand held by pregnant mothers and shown to health care workers during antenatal clinic visit. The "B" is maintained by midwives for record keeping. The entire B cards during this study period of one year from April 2015 to April 2016 were collected for this study. The gestational age of booking visit, total number of antenatal visits, their booking visit BMI, total weight gaining, Haemoglobin level and outcome of the index pregnancy such as birthweight, live birth rate were assessed along with basic demographic details. Data was extracted from the records available. Data extraction sheets were used to obtain data. All data were coded and entered in to SPSS 21 package and analysed.

3. Results

This study included 695 pregnant mothers. Among them majority were Tamil (n = 661; 95.1%) and belong to 19 - 35-year (average) age group (n = 587; 84.5%). Majority of pregnant mothers studied up to ordinary level. (n = 484; 69.6%) (Table 1).

In this study, majority of pregnant mothers (70.4%) attended their first antenatal booking visit before 8 weeks of gestation (Table 2).

Out of 695 pregnant mothers, 611 pregnant mothers reached gestational age of more than 28 weeks (Table 3). They were analysed for adequate number of ANC visits. 13.7% (84) pregnant mothers had 4 - 6 antenatal visits while 83.6% (511) mothers had more than 7 visits. During their booking visit 85.76% of the mothers had their BMI checked and 14.24% (99) pregnant mothers had not have BMI measurement. Among those who had BMI measurement, 39.6% mothers (260) had normal BMI and 43.6% (236) pregnant mothers had low BMI. On the other hand, 16.8% (100) mothers had BMI above the normal range (Table 4).

Among those 611 mothers, 347 (56.8%) had adequate weight gain (>7.5 kg) during their antenatal period, 3 of them had weight reduction and 11 mothers had not gain weight during their antenatal period (Table 5). When haemoglobin level at booking visit is considered, 7% pregnant mother's haemoglobin level measurement report is not recorded in the available B Card. Other mothers Hb

Table 1. Characteristics of studied pregnant population.

	Frequency	Percentage (%)
Ethnicity		
Tamil	661	95.1
Muslim	29	4.2
Sinahala	05	0.7
Age category		
Teenage (<19 years)	75	10.8
Average (19 - 35 years)	587	84.5
Elderly (>35 years)	33	4.7
Parity		
P1	271	39.0
P2	227	32.7
P3	112	16.1
P4	57	8.2
P5 and above	28	4.0
Educational level		
No schooling	15	2.2
Upto grade 5	154	22.2
Upto GCE O/L	484	69.6
Upto GCE A/L	42	6.0

Table 2. Timing of booking visit.

Booking POA	Frequency	%
<8 weeks	489	70.4
8 - 12 weeks	135	19.4
>12 weeks	71	10.2

Table 3. Total number of ANC visits of pregnant mothers reached POA > 28 weeks.

Total number of ANC visits	Frequency	%
<4	16	2.6
4 - 6	84	13.7
>7	511	83.6
Total	**611**	**100.0**

Table 4. Distribution of BMI at booking visit.

Booking BMI	Frequency	%
<18.5 kg/m^2	236	39.6
18.5 - 23.5 kg/m^2	260	43.6
>23.5 kg/m^2	100	16.8

N = 99 of pregnant mothers did not have BMI value in their records.

Table 5. Total weight gain of pregnant mothers reached POA > 28 weeks.

Total weight gain	Frequency	%
<5	83	13.6
5 - 7.5	167	27.3
7.5 - 10	190	31.1
>10	157	25.7
Weight reduction	03	0.5
No weight gain	11	1.8
Total	**611**	**100.0**

N = 84 of them had miscarriage (<28 weeks).

reports showed that majority (85.6%) were not anaemic and 14.4% (N = 92) were anaemic. Among the anaemic mothers 8.4% were mild, 5.2% were moderate & 0.8% severe anaemic (Table 6).

This study also shows that out of 695 pregnant mothers, 18.4% (128) mothers had miscarriage or stillbirth or neonatal death or IUD in their previous *pregnancy* (Table 7). Regarding the current pregnancy outcome, 86.9% (604) had live birth, 12.1% (84) mothers had miscarriage, 0.9% (6) had IUD and 0.1% (1) had Hydatitiformmole. This study further showed that 22% of the pregnant mothers had their new-borns birth weight less than 2.5 kg at birth irrespective of their gestational age (low-birth weight) babies (Table 8).

4. Discussion

In Sri Lanka, total live birth rate was 93.7 % in 2015 while this studied population showed live birth rate was 86.9% during the same period. The low birth weight percentages among new born was 11.4 - 16.0 in 2015 in Sri Lanka but this study showed that 22% of the new born were low birth weight in Vaharai area [22]. Thus, this studied population of Vaharai had lower live birth rate and more low birth rate than the national figure.

In Sri Lanka 77.1% of pregnancies had their registration before 8 weeks of pregnancy in 2015. But in this studied pregnant mother, 70.4% attended their first antenatal booking visit before POA of 8 weeks.

The "booking appointment" involves a health and social care assessment of needs and risks to identify pregnant mothers who needs additional care and support during her pregnancy and the provision of information regarding pregnancy and the pregnancy care pathway, including information on screening tests. The pregnant mothers are advised to attend their first appointment before the end of their first trimester, preferably by 10 weeks of pregnancy [23]. The percentage of pregnant women attending the booking appointment by completed 12 weeks of pregnancy has been set as an indicator of access for benchmarking and improving local services [24]. Several studies have identified socio-demographic predictors of late initiation of antenatal care for pregnant women such as young age, high parity, lower socio-economic status indicating

Table 6. Prevalence of anaemia among age categories and Parities.

	Anaemic mothers		Non-Anaemic mothers	
	Frequency	Percentage (%)	Frequency	Percentage (%)
Age category				
Teenage (<19 years)	10	13.7	63	86.3
Average (19 - 35 years)	80	14.9	458	85.1
Elderly (>35 years)	02	6.7	28	93.3
Parity				
P1	46	18.0	210	82.0
P2	27	13.2	178	86.8
P3	09	8.7	95	91.3
P4	07	13.5	45	86.5
P5 and above	03	12.5	21	87.5

N = 54 of pregnant mothers did not undergone measurement of haemoglobin level at booking visit.

Table 7. Miscarriage or still birth or Neonatal death or IUD in previous pregnancy.

	Frequency	**%**
Yes	128	18.4
No	567	81.6

Table 8. Distribution of current pregnancy outcome and birth weight.

Current pregnancy outcome	**Frequency**	**%**
Miscarriage	84	12.1
Live birth	604	86.9
IUD	06	0.9
Hydatitiform mole	01	0.1
Total	**695**	**100.0**
Birth weight of baby—Current pregnancy		
1000 - 1499	04	0.7
1500 - 2499	129	21.3
>2500	471	78.0
Available samples other than miscarriage, IUD and Hydatitiform mole	**604**	**100.0**

that late initiation of antenatal care is more likely amongst groups of women already known to be at higher risk of adverse pregnancy out comes [25] [26] [27]. There are several personal, structural and service-related factors that delay or prevent access to antenatal care [28]. To identify how such factors can be effectively addressed, an understanding of local contexts and of both factors that promote and delay the early initiation of antenatal care is needed.

In 2015, about 79.9% of pregnant mothers in Sri Lanka had their BMI as-

sessed. This study showed that 85.76% of the mothers had their BMI checked during their booking visit. So, data truly reflect distribution of BMI among the studied population. This study shows that 43.6% of the studied population had low BMI (less than 18.5) at booking visit while in the country figure was 20.2% during the same study period.

While the 55.7% of pregnant population of Srilanka in their booking visiting had normal BMI, in the study area of Vaharai only 39.6% pregnant mothers had normal BMI. In addition, percentage of overweight (BMI more than 25) women also less in the study area than that of in the country 16.8% and 21.3% respectively. So, this study shows that many women embarked pregnancy with suboptimal pre-pregnancy weight. Pre-pregnancy body mass index is an important predictor of birth weight. American Institute of Medicine introduced weight gain recommendations for pregnant women with different recommendations for underweight, normal weight, overweight and obese women [29].

This study shows that among those 611 mothers, 56.8% (347) had adequate weight gain (equal or more than 7.5 kg) during their antenatal period. One study in Kegalle District of Sri Lanka shows that despite frequent antenatal care, majority of mothers did not achieve recommended gestational weight gain [30]. As per 2012 Population Census in Sri Lanka, the mean age at marriage of females is 23.4 years. As teen marriage causes several medical, social and obstetric problems, early marriage during teen age is highly discouraged. In Sri Lanka, the teenage pregnant mothers (less than 20 years) out of all registered pregnancies were 5.3% in 2015 [22]. This study shows 10.8% of the pregnancies were teen age group.

The level of education of women influences the ANC coverage in low income countries. A study in Ethiopia shows that ANC utilization by skilled care providers increases as the level of education of woman increases; only 25% by women who had no education, compared with 90% of those who had higher than secondary level education [31]. In Sri Lanka a pregnant mother had an average 6.3 visits during her pregnancy in 2014. In this study 13.7% (84) pregnant mothers had 4 - 6 antenatal visits and 83.6% (511) mothers had more than 7 visits. So, most of pregnant women received adequate antenatal clinic visits and comparable to rest of the country pregnant population. This study shows that even though majority of pregnant mothers studied up to GCE O/L (n = 484; 69.6%) they used the existing services very well. It shows good strength of the antenatal care services in Sri Lanka.

5. Conclusions

The lower live-birth rate, the more incidence of low birth weight than the national figure of Sri Lanka was seen in the studied population of Vaharai. More incidence of anaemia, more teen-age pregnancies, failure to achieve recommended gestational weight gain during pregnancies despite frequent antenatal care, could be attributed to this adverse outcome. Although this study shows

women who begin their antenatal care late in pregnancy future qualitative studies can provide insights into women's views and experiences of seeking care and of accessing and engaging with antenatal care services.

Intervention is required to optimize pre-pregnancy weight and correction of anaemia through proper nutritional care and it should be continued throughout during pregnancy.

Personal resources in terms of time, money and social support are considered alongside service provision issues including the perceived quality of care, the trustworthiness and cultural sensitivity of staff and feelings of mutual respect. The respectful care in a friendly environment would establish good rapport between care providers and pregnant mothers. This is an important factor to encourage pregnant mother to initiate care early, especially if the pregnant mothers are from underprivilege or marginalized society.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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