International Journal of Community Medicine and Public Health
Deepender et al. Int J Community Med Public Health. 2023 Aug;10(8):2795-2799
http://www.ijcmph.com
pISSN 2394-6032 | eISSN 2394-6040

DOI: https://dx.doi.org/10.18203/2394-6040.ijcmph20232367

Original Research Article

Antenatal care and its association with pregnancy outcomes at tertiary care hospital, Jhalawar

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Received: 02 May 2023
Accepted: 14 June 2023

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ABSTRACT

Background: Low birth weight is a major public health problem in India. Amongst several many factors affecting birth weight, the two factors are demographic characteristics of mothers and utilization of antenatal care services after timely registration of pregnancy. Aims were to access ANC and its association with pregnancy outcomes at Jhalawar medical college, Jhalawar Rajasthan.
Methods: All the pregnant women were admitted to the maternity ward for delivery in November 2022. The interview consisted of a demographic characteristic of mothers, utilization of ANC services, live birth weight of the baby, and records of the mother from the hospital. Data collection was done from the maternity ward and vaccination site. It was a hospital-based cross-sectional study.
Results: Among mothers who registered in 1st trimester, 81.6% delivered at full term, 77% of new-born were normal birth weight and only 8.5% of new-born needed NICU admission; compared to those who registered in 2nd and 3rd trimesters delivered at full term 67.1% and 55% respectively, 63.3% and 50% new-born had normal birth weight and NICU admission needed by 17.7% and 55% new-born needed NICU admission respectively. Those mothers who received ≥4 ANC visits had delivered 186 (78.8%) new-born with normal birth weight and required NICU admission for 24 (10.2%) new-born as compared to those who had <4 ANC visits delivered 109 (64.9.8%) new-born with normal birth weight.
Conclusions: Early registration of pregnancy prevents chances of LBW baby, long stay in NICU also leads to a reduction in preterm delivery.

Keywords: Ante natal care, LBW, NICU, Utilization

INTRODUCTION

Antenatal care is the care given to pregnant women so that they have a safe pregnancy and healthy baby.[1] The provision of antenatal care (ANC) services brings with it a positive impact on pregnancy as it enables the identification of risk factors and early diagnosis of pregnancy complications like preterm delivery and appropriate management.[2]

The positive impact can be achieved through screening for pregnancy problems, assessing pregnancy risk, treating problems that may arise during the antenatal period, giving medication that may improve pregnancy outcomes, providing information to the pregnant woman, and preparing physically and psychologically for childbirth and parenthood.[3,4]

Generally, at the first antenatal visit to a healthcare facility, a pregnant woman is issued an antenatal care

card. This card is the principal record of the pregnancy and is filled in whenever the woman goes for an ANC visit. After the first visit, the woman is considered to be booked for subsequent ANC visits to identify the complications like preterm delivery and manage these complications on time.[5]

The first visit is important because that is when a woman receives a complete assessment of gestational age and the risk factors.[6]

There is wide recognition that one of the major factors contributing to the high rate of adverse birth outcomes is the low use of prenatal and maternal health services.[7,8]

India has achieved significant socio-economic development in the last decade. However, progress in maternity outcomes is stagnating.[9] Prenatal care is one of the most important factors determining pregnancy outcomes.[10]

Aim

To access ante natal care and its association with pregnancy outcomes at Jhalawar medical college, Jhalawar Rajasthan.

Objective

To study the demographic characteristics of mothers delivering in tertiary care centre. To study the utilization of antenatal care services among mothers. To study the relation between antenatal care and pregnancy outcome as well as birth weight of babies.

METHODS

Data collection from post-natal care of the maternity ward of zanana hospital Jhalawar in month of November 2022 was done, where we collected data from admitted mothers and records of Hospital. We collected sample size approximate 404 of PNC of the maternity ward in the month of November 2022. Post-natal ward also including the vaccination site in zanana hospital Jhalawar was conducted using a pretested, semi-structured questionnaire.

Method and material

It was a hospital-based a cross sectional study conducted at HKB zanana hospital, Jhalawar medical college, Jhalawar including pregnant mothers who delivered live child at HKB hospital.

Inclusion criteria

All female who delivered live birth at zanana hospital during period of months November 2022.

Exclusion criteria

Those who refused to participate. Mentally not sound. Critically ill patients.

Duration of study

The study was conducted in the month of November 2022.

Sample size and sampling technique

Complete enumeration of eligible pregnant women during study period.

Statical analysis

Data were entered in excel 2017 and analysed using version 23. At time registration and total number ANC visits association between LBW and baby stay in NICU were obtained using Chi-square test.

Procedure of data collection

Data was collected from PNC maternity ward and vaccination centre of HKB zanana hospital Jhalawar in months of November 2022. Data was obtained by interview of delivered mothers and reviewing hospital records. A pretested, semi-structured questionnaire was used to collect information related to socio-demographic variables, ANC care, pregnancy outcome, birth weight and NICU admission of delivered baby. Association of pregnancy outcome and others factors was established with adequate ANC care.

Those given informed consent were involved in the study. Interview consisted of demographic characteristic of mothers, utilization of antenatal services and maternal records of pregnancy and live birth weight of baby and records of mother from the hospital. Data collection were done from alternate day maternity ward and vaccination site. We analysed association of registration of pregnancy with LBW, baby stay in NICU, term and preterm delivery and association of total number ANC visits with LBW and baby stay in NICU after delivery.

RESULTS

Table 1 shows, among the mothers who registered in first trimester delivered maximum 235 (77.0%) child with normal birth weight and mother registered in 2nd and 3rd trimester delivered 50 (63.3%) and 10 (50%) children with normal birth weight respectively. Those mothers who have complete four or more than four ANC visits born child with low birth weight 50 (21.2%) Compared to less than four ANC visits where it was 59 (35.1%). Time of registration and total no ANC visits was significantly associated with LBW ($p<0.005$).

Table 2 shows among the mothers who registered in first trimester their child admitted in NICU. Only 26 (8.5%), chances of NICU admission become doubled 14 (17.7%) in child delivered by mothers registered in 2nd and further increased to 7 times 11 (55%) in mother registered in 3rd trimester. Child stay in NICU was less 24 (10.2%) in mother those have ≥4 ANC visits and it was 27 (16.1%) in mother less than four ANC visits. Time of registration was significantly associated with stay in NICU (p<0.0001).

Table 1: Association of LBW with time of registration and ANC visits.

Variables		LBW		Total (%)	Chi-sq. P value
		<2.5 (%)	≥2.5 (%)		
Time of registration	1st trimester	70 (23.0)	235 (77.0)	305 (100.0)	11.688 0.003*
	2nd trimester	29 (36.7)	50 (63.3)	79 (100.0)	
	3rd trimester	10 (50.0)	10 (50.0)	20 (100.0)	
Total ANC visits	<4 visits	59 (35.1)	109 (64.9)	168(100.0)	9.670 0.002*
	≥4 visits	50 (21.2)	186 (78.8)	236 (100.0)	
Total		109 (27.0)	295 (73.0)	404 (100.0)	

*Indicates p value is statistically significant (<0.05)

Table 2: Association of NICU admission with time of registration and ANC visits.

Variables		Stay in NICU		Total (%)	Chi-sq. P value
		No (%)	Yes (%)		
Time of registration	1st trimester	279 (91.5)	26 (8.5)	305 (100)	39.068 <0.0001*
	2nd trimester	65 (82.3)	14 (17.7)	79 (100)	
	3rd trimester	9 (45.0)	11 (55.0)	20 (100)	
Total ANC visits	<4 visits	141 (83.9)	27 (16.1)	168 (100.0)	3.099 0.078
	≥4 visits	212 (89.8)	24 (10.2)	236 (100.0)	
Total		353 (87.4)	51 (12.6)	404 (100.0)	

*Indicates p value is statistically significant (<0.05)

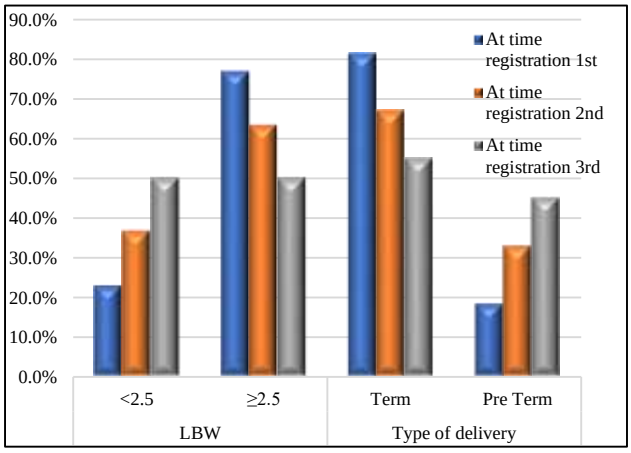

Figure 1: Association of LBW and type of delivery with time of registration of pregnancy.

Above figure shows, among the mothers who have registered in first trimester 81.6% delivered at full term child with 77.0% normal weight compare to those mothers who have registration in third trimester only 55.0% delivered full term child with 50.0% normal weight.

Among mothers who registered in 1st trimester, 81.6% delivered at full term, 77% new-born were normal birth weight and only 8.5% new-born needed NICU admission; compared to those who registered in 2nd and 3rd trimester delivered at full term 67.1% and 55% respectively, 63.3% and 50% new-born had normal birth weight and NICU admission needed by 17.7% and 55% new-born needed NICU admission respectively.

Those mothers who received ≥4 ANC visits had delivered 186 (78.8%) new-born with normal birth weight and required NICU admission for 24 (10.2%) new-born as compared to those who had <4 ANC visits delivered 109 (64.9.8%) new-born with normal birth weight and required NICU admission for 27 (16.1%) new-born.

DISCUSSION

The present study was carried out in tertiary care hospital Jhalawar district. 404 women, who had delivered within one months with the aim of ANC services utilization, total number ANC visits, their association with low birth weight and baby stay in NICU after delivery factors affecting them. Early registration of pregnancy significance associated with birth weight of child admission in NICU and also with term delivery. Number of ANC visits with significant association with low birth weight but no significance associated with admission in NICU.

Patel et al conducted a study with the aim to identify the determinants of adverse pregnancy outcomes (abortion, miscarriage, and stillbirth) among women aged 15-49 years in India. Data for the analysis were taken from the latest survey of the National Family Health Survey 2015-2016. The determinants associated with abortion, miscarriage, and stillbirth among women in the age group of 15-49 years were identified. The analysis was done using adjusted binary logistic regression. This study revealed that high prevalence of adverse pregnancy outcomes was found in India. The association between sociodemographic variables and the pregnancy outcomes are attributed to the fact that there is a lack of availability of fundamental health care services for young women.[11]

Mumbare et al conducted a cross-sectional study regarding "ante natal care services utilization, delivery practices and factors affecting them in tribal area of north Maharashtra" which was carried out in two tribal blocks, Peth and Surgana, of Nashik district and they found the utilization of ANC services and deliveries at health centers were significantly associated with education of the women and their spouses, and the socioeconomic status of the family. Main reasons for inadequate utilization of ANC services were financial, unawareness about ANC services, etc. Place of delivery was associated with the type of the family. Traditional practices were the most common reason for conducting the deliveries at home.[12]

Ashtekar et al conducted a retrospective study about "analysis of birth weights of a rural hospital" at Dindori block of district Nashik (Maharashtra) from 1989 to 2007. They found no change in the average birth weights (average 2.71 kg) over the period. Although the birth weight showed some expected variance with the age of mother, it was found to have no relation with the baby's birth order and gender. The low-birth-weight proportion is about 24% and shows little difference before and after the series midpoint of year 1998.[13]

CONCLUSION

Identification of these bottlenecks will help in forming suitable strategies to mitigate the problem of low birth weight. Early registration of pregnancy prevents chances of LBW baby, long stay in NICU also leads to a reduction in preterm delivery.

Recommendations

There is need of more efforts by the health functionaries to strengthen the ANC services and to improve the utilization of them. Utilization of individual ANC services like ANC registration in first trimester and ANC check-ups were more than health outcome. In this study, various socio-demographic factors such as at time registration with low birth weight and baby stay in NICU and total number of ANC visits with low birth weight and baby stay in NICU after delivery showed a significant association with the utilization of antenatal care services. It emphasizes the impact of education on awareness and utilization of health services by the community.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Deepender, Shukla US, Sharma A, Gupta PK, Jain M, Saini VK, et al. Antenatal care and its association with pregnancy outcomes at tertiary care hospital, Jhalawar. Int J Community Med Public Health 2023;10:2795-9.