

DOI: <https://dx.doi.org/10.18203/2320-1770.ijrcog20231917>

Original Research Article

## Maternal outcome amongst all deliveries of nullipara in spontaneous labor at term $\geq 37$ weeks at a tertiary health care center in south Gujarat, India

Manan Y. Joshi\*, Urvi Mistry, Anjani Shrivastava

Department of Obstetrics and Gynaecology, Government Medical College, Surat, Gujarat, India

**Received:** 17 April 2023

**Revised:** 24 May 2023

**Accepted:** 30 May 2023

**\*Correspondence:**

Dr. Manan Y. Joshi,

E-mail: [mjmananjoshias@gmail.com](mailto:mjmananjoshias@gmail.com)

**Copyright:** © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

### ABSTRACT

**Background:** Since last one decade there is rising concern over increasing rate of caesarean section in all over world, especially among nulliparous women. The national prevalence of CS in India has modestly increased over the past 25 years. According to data from the National Family Health Survey, the national CS rate in 1992-93 was 2.6% and rose to 17.2% in 2015-16. Study objective was to evaluate fetomaternal outcome of Nullipara  $\geq 37$ wks pregnancy in spontaneous labor.

**Methods:** This prospective observational study was done at Obstetrics and Gynaecology Department of New Civil Hospital Surat for 6 months period after official approval from Ethical Committee.

**Results:** In my study 65% subjects had normal vaginal delivery, 34% subjects had cesarean section and 1% had operative vaginal delivery. In comparison between total no. Of ANC visit and postpartum/intrapartum complication p-value is 0.003 which is  $p < 0.05$ , which is significant, which suggests that women with 4 or less total ANC visits have higher risk of developing postpartum/intrapartum complication than women with more than 4 total ANC visits.

**Conclusions:** The primary caesarean section among nulliparous singleton pregnancy with spontaneous labor is an important contributor to overall caesarean section of the health institute. The main indication for caesarean section were fetal distress, cephalo-pelvic disproportion and meconium stained liquor in early phase of labor. There is need to develop standard clinical protocol for management of these conditions and to promote vaginal delivery in nulliparous singleton pregnancy with spontaneous labor in eligible.

**Keywords:** Maternal outcome, Nulliparous, Spontaneous labor

### INTRODUCTION

Labor is a natural physiological process characterized by progressive increase in frequency, intensity and duration of uterine contractions resulting in effacement and dilatation of the cervix with descent of the fetus through the birth canal.<sup>1</sup> Being a first time mother, woman goes under enormous physiological and psychological changes during pregnancy and also during labor. Early and regular prenatal care is the best way to ensure the healthy outcome for mother and child. Since last one decade there is rising

concern over increasing rate of caesarean section in all over world, especially among nulliparous women. According to WHO 10-15% is ideal caesarean rate.<sup>2,3</sup> The national prevalence of CS in India has modestly increased over the past 25 years. According to data from the National Family Health Survey, the national CS rate in 1992-93 was 2.6% and rose to 17.2% in 2015-16.<sup>4</sup> Various factors contributed to rise in primary caesarean section, like defensive obstetrics to avoid negligence claim, inadequate trial of labor, maternal request of CS to avoid painful

vaginal birth, the family sometimes demands that the baby to be born on auspicious date and time, etc.

In 2011, WHO conducted a systematic review of systems used to classify caesarean section, and concluded that the Robson classification is the most appropriate system to fulfil current international and local needs. WHO recommended building upon this to develop an internationally applicable caesarean section classification system.<sup>5</sup>

In this study we try to assess fetomaternal outcome and mode of delivery in nulliparous woman with assessing caesarean rate among nulliparous woman at tertiary health care facility in Surat. Aim of this study was to evaluate maternal outcome of Nullipara  $\geq 37$ wks pregnancy in spontaneous labor.

**METHODS**

This prospective observational study was done at Obstetrics and Gynaecology department of New Civil Hospital Surat for 6 months period (November 2020 to May 2021) after official approval from Ethical Committee. All 300 consenting women who were nullipara  $\geq 37$ wks pregnancy in spontaneous labor admitted to Obstetrics department of New Civil Hospital Surat were enrolled in this study. All data related to maternal and fetal outcome were collected from case record of mother in a structured proforma. All women were followed till discharge from hospital. Simple random sampling method was used for selection of patients.

**Inclusion criteria**

Inclusion criteria was the consenting Nullipara  $\geq 37$  wks. pregnancy in spontaneous labor with cephalic presentation.

**Exclusion criteria**

Exclusion criteria were women not giving consent for the study, induced labor, malpresentations.

**Statistical analysis**

Data was entered using Microsoft Excel 2010 version and analysed using Epi- Info version 7. Data was summarized in percentages. Diagrammatic representation of the data was represented by pie charts and tables. Chi square test was used to determine any association between variables with significance level at 5% ( $p < 0.05$  considered to be statistically significant).

**RESULTS**

This prospective observational study was done at Obstetrics and Gynaecology department of New Civil Hospital Surat for 6 months period after official approval from Ethical Committee. 300 consecutive consenting

women who was nullipara  $\geq 37$ wks pregnancy in spontaneous labor admitted to Obstetrics department of New Civil Hospital Surat were enrolled in this study.

Baseline characteristics of all women noted as shown in Table 1. In my study most of nulliparous women (91%) were of from age group 18-25yrs, 8% were from age group 26-30yrs, only 1% were of age  $> 30$ yrs (elderly nullipara). 81% of total subjects were registered in our institute, while 19% subjects were not registered in our institute. 87% of subjects were from urban area and 13% subjects were from rural area.

**Table 1: Baseline details.**

Age group	Number (n=300) (%)
18-25 yrs	273 (91)
26-30 yrs	23 (8)
>30yrs	4 (1)
<b>Registration status</b>	
Booked	242 (81)
Unbooked	Referred 33 (11)
	Non referred 25 (8)
<b>Area</b>	
Urban	261 (87)
Rural	39 (13)

Table 2 shows that in my study 61% subjects had taken  $> 10$  ANC visits, 38% had taken 5-10 ANC visits and only 1% have taken  $< 4$  ANC visits. According to WHO guideline on antenatal care (2016), it recommends minimum of 8 ANC visits in (1 in 1<sup>st</sup> trimester, 2 in 2<sup>nd</sup> trimester and 5 in 3<sup>rd</sup> trimester) pregnancy.

**Table 2: Total no. of ANC visits during pregnancy.**

Total no. of ANC visits	Number (n=300)	Percentage
>10	184	61
5-10	112	38
4 or less	4	01

Analysing mode of delivery in all subjects is shown in Table 3, out of 300 subjects 195 (65%) were delivered normally, 102 (34%) subjects underwent caesarean section and 3 (1%) subjects delivered by operative vaginal delivery.

**Table 3: Mode of delivery.**

Mode of delivery	Number (n=300)	Percentage
Normal vaginal delivery	195	65
Caesarean section	102	34
Operative vaginal delivery	3	1

Indications for cesarean sections depicted in Table 4. Fetal distress (41%) was most common indication for cesarean section followed by cephalo pelvic disproportion (14%)

and meconium stained liquor in early stage of labor (11%). In others causes (25%) of C-section were persistent fetal tachycardia, maternal request, antepartum hemorrhage etc.

**Table 4: Indication in case of caesarean section.**

Indication	Number (n=102)	Percentage
Fetal distress	42	41
Cephalo pelvic disproportion	14	14
MSL in early phase of labor	11	11
Severe PET with unfavourable cervix	9	9
Others	26	25

**Table 5: Comparison between complication/events during vaginal delivery and cesarean section.**

Mode of delivery	Postpartum haemorrhage (%)	Puerperal sepsis (%)	Need for blood transfusion (%)	Need for ICU admission (%)
Normal vaginal delivery	3	3	4	1
Caesarean section	8.5	3	10.5	5

Table 5 shows that in normal vaginal delivery 3% women had postpartum hemorrhage, while in cesarean section 8.5% women had postpartum hemorrhage. Need for blood transfusion were 4% in vaginal delivery, while 10.5% in cesarean section. Need for ICU admission were 1% in vaginal delivery, while 5% in cesarean section.

**Table 6: Comparison between total no. of ANC visit and postpartum/intrapartum complication.**

Total no. of ANC visit	Postpartum/intrapartum complication	
	Yes	No
≤4	2	2
>4	24	272

Table 6 shows that women who had 4 or less ANC visits, 2 women developed postpartum/intrapartum complication, while 2 women had no postpartum/intrapartum complication. Women who had more than 4 ANC visit 24 women developed postpartum/intrapartum complication, while 272 women had no postpartum/intrapartum complication. After applying statistical test (chi square test) on these variables p-value is 0.003 which is  $p < 0.05$ , which is significant. So, this table suggests that women with 4 or less total ANC visits have higher risk of developing postpartum/intrapartum complication than women with more than 4 total ANC visits.

**DISCUSSION**

This is prospective study of fetomaternal outcome of amongst all deliveries of nullipara in spontaneous labor at term >37wks at a tertiary health care centre in south Gujarat over 6 months period. In this study 300 subjects fulfilling inclusion criteria were enrolled.

In this study, 91% subjects were of age group 18-25yrs and only 1% subject was of age group >30yrs. 81% subjects were booked in our institute, 11% subjects were unbooked referred and 8% subjects were unbooked non referred. 87% subjects were from urban area and 13% were from rural area. In a study by Khursheed et al, analysis of primary caesarean section in nulliparous, term, single, vertex maximum number patients belong to 18-24 years (69%). Incidence of elderly pregnancies in the study was 3.5%.<sup>7</sup>

In this study, 68% subjects had >10 ANC visits, 31% subjects had 5-10 ANC visits, 1% subject had 4 or less ANC visits. According to WHO guideline on antenatal care (2016), it recommends minimum of 8 ANC visits in (1 in 1st trimester, 2 in 2nd trimester and 5 in 3rd trimester) pregnancy.<sup>6</sup>

Majority of subject in my study was delivered by normal delivery (65%) and primary caesarean rate was 34%. In a study by Khursheed et al, analysis of primary caesarean section in nulliparous, term, single, vertex normal vaginal delivery rate is 66%, and caesarean section rate is 34%.<sup>7</sup> In a review article by Goonewardene et al, of the 621 primigravida who had a CS, 470 (76%) belonged to the category of NTSV resulting in a CS rate of 25% in NTSV.<sup>8</sup>

Most common indication for caesarean section was fetal distress (41%), followed by CPD (14%) and MSL in early phase of labor (11%). In a study by Khursheed et al, analysis of primary caesarean section in nulliparous, the main indications for emergency caesarean sections in NTSV in the study were fetal distress, nonprogress of labour, failed induction. i.e. 44.76%, 16.65%, 15.31%, respectively.<sup>7</sup>

In comparison between total number of ANC visit and postpartum/intrapartum complication p-value is 0.003 which is  $p < 0.05$ , which is significant, which suggests that women with 4 or less total ANC visits have higher risk of developing postpartum/intrapartum complication than women with more than 4 total ANC visits. In a study by Haftu et al, pregnant women adherence level to antenatal care visit and its effect on perinatal outcome among mothers in Tigray Public Health institutions, PPH, preterm labor, early neonatal death and LBW complication was reduced by 81.2%, 52%, 61% and 46% respectively among women's with complete adherence to ANC visit.<sup>9</sup>

This study shows that postpartum hemorrhage was more in caesarean section and need for ICU admission and need for blood transfusion were more in caesarean section than normal delivery. In a study by Rowaily et al, complications like ICU admission and blood transfusion were higher in CS than normal delivery.<sup>10</sup>

This study has some limitations. Small sample size due to migration of people to their, native places. Exclusion of outside delivery in our study. Present study not include nulliparous women which was not in labor or  $< 37$ wks or induced.

## CONCLUSION

The primary caesarean section among nulliparous singleton pregnancy with spontaneous labor is an important contributor to overall caesarean section of the health institute. The main indication for caesarean section were fetal distress, cephalo-pelvic disproportion and meconium stained liquor in early phase of labor. There is need to develop standard clinical protocol for management of these conditions and to promote vaginal delivery in nulliparous singleton pregnancy with spontaneous labor in eligible parturients. Terminology for diagnosis of failure to progress and fetal heart patterns should be standardized to help improve the comparability of studies and better management of labor in nulliparous singleton pregnancy with spontaneous labor to reduce primary CS rates in this low risk group. Intrapartum/postpartum complications are more in women with 4 or less ANC visits than women with  $> 4$  ANC visits. WHO has now recommended minimum 8 ANC visits compared to 4 visits previously. Women with antenatal high risk factor also have higher chance of developing complication, which can identify earliest by frequent ANC visits and intrapartum/postpartum complication can be managed properly.

*Funding: No funding sources*

*Conflict of interest: None declared*

*Ethical approval: The study was approved by the Institutional Ethics Committee*

## REFERENCES

1. Dutta DC. Textbook of Obstetrics. Chapter 13. 8th ed. JP Medical Ltd; 2015:134.
2. WHO. WHO statement on caesarean section rates, 2015. Available at: <https://www.who.int/publications/i/item/WHO-RHR-15.02>. Accessed 20 January 2023.
3. Moore B. Appropriate technology for birth. *Lancet*. 1985;326(8458):787.
4. IIPS. National Family Health Survey, India, 2021. Available at: <http://rchiips.org/nfhs/>. Accessed on 09 April 2023.
5. Torloni MR, Betran AP, Souza JP, Widmer M, Allen T, Gulmezoglu M, et al. Classifications for cesarean section: a systematic review. *PLoS ONE*. 2011;6(1):e14566.
6. WHO. WHO antenatal care guidelines, 2016. Available at: <https://www.who.int/publications/i/item/9789241549912>. Accessed 09 February 2017.
7. Khursheed R, Dalal A, Reddy A, Gan A. Analysis of primary cesarean sections in NTSV (Nulliparous, Term, Single, Vertex) in a tertiary care hospital in South India. *Ind J Obstet Gynecol Res*. 2018;5(4):489-95.
8. Goonewardene M, Manawadu MH, Priyaranjana DV. Audit: the strategy to reduce the rising cesarean section rates. *J South Asian Feder Obst Gynae*. 2012;4(1):5-9.
9. Haftu A, Hagos H, Mehari MA, G/Her B. Pregnant women adherence level to antenatal care visit and its effect on perinatal outcome among mothers in Tigray Public Health institutions, 2017: cohort study. *BMC Res Notes*. 2018;11(1):872.
10. Al Rowaily MA, Alsalem FA, Abolfotouh MA. Cesarean section in a high-parity community in Saudi Arabia: clinical indications and obstetric outcomes. *BMC pregnancy and childbirth*. 2014;14:1-0.

**Cite this article as:** Joshi MY, Mistry U, Shrivastava A. Maternal outcome amongst all deliveries of nullipara in spontaneous labor at term  $\geq 37$  weeks at a tertiary health care center in south Gujarat, India. *Int J Reprod Contracept Obstet Gynecol* 2023;12:2105-8.