IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

Role of private and public health institution in Caesarean delivery in the districts of Andhra Pradesh, India

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Abstract

Caesarean section can be a lifesaving operation when either the mother or her baby faces certain complications before or during labor and delivery. It can be of two types viz. voluntary and emergency (Karim R. 2015). When medically justified, a caesarean section can effectively prevent maternal and perinatal mortality and morbidity.

Besides, financial benefit to doctors increased the rate of C-section, particularly in the private healthcare sector. It is also important to note that the family size in Andhra Pradesh has reduced substantially and the couple can afford to spend for C-sections for one or two deliveries, without fear of any medical complications in the subsequent deliveries. This study aims to investigate the role of private and public healthcare institution in the Caesarean delivery in Andhra Pradesh.

We used the secondary data collected from the National family Health survey (NFHS-4) data conducted by the International Institute for Population Sciences; Mumbai is designated as the central agency to implement the survey. National Family Health Survey is a large-scale multi- round survey conducted in a nationally representative sample of households which covers about 99% of Indian population.

For the first time the National Family Health Survey-4 (NFHS-4), provided district level estimates for a number of important indicators, which necessitated expanding the sample size nearly six-fold as compared to NFHS-3. Stata14 statistical software package was used to carry out the analysis. Descriptive statistics and bivariate analysis were used to find the preliminary results. Since the data of the prevalence of caesarean deliveries across 'Public' and 'Private' is continuous, we have used T-test to compare the means across public and private hospitals.

We found wide variations in the prevalence estimate of caesarean section deliveries across different districts in the state, ranging from 27 percent to 61 percent. Among the district, the maximum prevalence has been found in districts are West Godavari, Sri Potti Sriramulu Nellore, Guntur and Krishna in Andhra Pradesh.

Caesarean in private hospitals as the prime driver of this high trend. We found Around 25 percent women were undergoing c-section in public institutions whereas the prevalence of women having c-section in private institution was as high as 74 percent. A substantial proportion of women in various districts of Andhra Pradesh chose private health care facility over public institutions for the performing c-section delivery. While

considering religion and place of delivery, Christian women preferred public health facilities whereas more Hindu women underwent c-section in private health facilities.

Keywords: Caesarean section, health institution, Public and Private, Demographic, districts, Andhra Paresh, India.

Introduction

Caesarean section is a surgical procedure used to deliver a baby through incisions in the abdomen and uterus. According to the guidelines laid down by the World Health Organization (WHO), the procedure should only be used in complicated pregnancies. Caesarean section can be a lifesaving operation when either the mother or her baby faces certain complications before or during labor and delivery. It can be of two types viz. voluntary and emergency (Karim R. 2015). Voluntary C-section, in situations when a woman does not want to undergo excessive labor pain, she wants to deliver on a particular predefined date or when the doctor has made it clear that the baby can only be delivered surgically on the other hand it is called emergency C-section when after going into labor, the woman faces complications in delivering like fetal distress, breech presentation of baby, placental abruption or placenta previa.

Wagner (2000), Thomas and Paranjothy (2001), Villar et.al (2006), Hall and Bewley (2009) have discussed about the most frequent complications which may occurred during and after a caesarean delivery to the mother and also suggested by Medical Advisory Board are: infection, heavy blood loss, a blood clot in the legs or lungs, nausea, vomiting, and severe headache after the delivery, injury to another organ (such as the bladder) etc., and to child are: injury during the delivery, need for special care in the neonatal intensive care unit (NICU), immature lungs and breathing problems etc.. And secondly, high cost for operation and stay (Robson et.al (2013)) in any medical institution.

Around 1 in 5 child born in the world is delivered by caesarean section, this account for around 18.6 percent of the total births in the world delivered by this surgical procedure (McCulloch S, 2018). WHO recommends safe caesarean section rate to be between 10-15 percent (Mc Donald SD, 2012), however, several developed nations have rates much above the stipulated rate. Proportion of Caesarean section birth to the total births is considered as one of the important indicators of emergency obstetric care (World Health Organization, 2009). In this context, the rapid increase of caesarean section birth rate throughout the world has become a serious public health threat because several studies have found that the high rate of caesarean section delivery does not really accord to an improved maternal health and pregnancy outcome (Shabnam, 2013).

Caesarean sections have become increasingly common in both developed and developing countries. Indian scenario is no different, over the past decade an increasing trend of the same has been observed, from around eight percent during NFHS-3 (2005-06) to as high as 17 percent during NFHS-4 (2015-16). Though this is not exorbitantly high in absolute terms but relatively when we compare the two rounds it can be seen that the change in prevalence is huge.

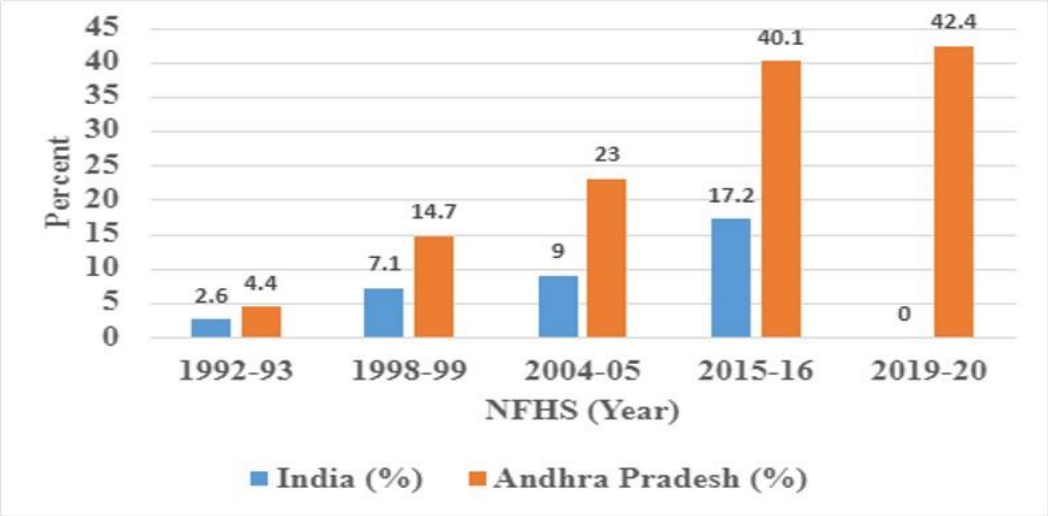
When medically justified, a caesarean section can effectively prevent maternal and perinatal mortality and morbidity. There is huge speculation about the sharp increase in the rates of caesarean section, some say it's completely due to non-medical reasons and due to rising number of women going for voluntary C-section instead of normal delivery which is very painful. As caesarean section is less painful and less time consuming the patients request the obstetricians to perform the caesarean and in case of the physicians it is also much more convenient and quicker than attending a normal vaginal delivery (Pai, 2000). In India giving birth in an auspicious day are driving the women to go for a caesarean section (Mishra, 2002).

Financial benefit to doctors increased the rate of c-section, particularly in the private healthcare sector. There is another equally important aspect that needs to be understood: women find it convenient to avoid experiencing

strenuous long hours of labour pain since the C-section technology is easily available and affordable to most. "It is also important to note that the family size in India has reduced substantially and the couple can afford to spend for C-sections for one or two deliveries, without fear of any medical complications in the subsequent deliveries.

Caesarean section in Andhra Pradesh that many women come with the mindset that they will not bear the pain and want a surgical delivery only. With this new trend, it is becoming very difficult to convince them to opt for labor. The C-sections have become a demand from the side of the women and the family mainly because of Muhurtham, with this kind of atmosphere, doctors alone can't refuse it. Earlier, it was complications after labor which made then rush. But now it is a planned surgery at a particular time and day according to the family.

Figure 1 Caesarean delivery in India/Andhra Pradesh from NFHS 1 to NFHS 5



These high C-section rates have a number of negative effects, including a loss of systemic efficiency, poor health outcomes, and increased financial risk, but there are a number of factors such as poor information on the part of consumers, poor training of providers, convenience of obstetricians, violence against them in case of adverse outcomes, a competitive spirit between private and public sectors, and poor control by insurers (on the private sector) and government ministries of health (on government hospitals) that are responsible for these high rates (Nachiket Mor1,2020).

Data Source and Methodology

This study utilizes the secondary data collected from the National family Health survey (NFHS 4) data conducted by the International Institute for Population Sciences; Mumbai is designated as the central agency to implement the survey. For the first time the National Family Health Survey-4 (NFHS-4), provided district level estimates for a number of important indicators, which necessitated expanding the sample size nearly six-fold as compared to NFHS-3.

Statistical software package used in the study to carry out the analysis was Stata14, to prepare map ArcGIS was used, besides these two, we also used MS Excel. Descriptive statistics and bivariate analysis were used to find the preliminary results. Since the data of the prevalence of caesarean deliveries across 'Public' and 'Private' is continuous, we have used T-test to compare the means across public and private hospitals.

A t-test is a statistical test that is used to compare the means of two groups. It is often used in hypothesis testing to determine whether a process or treatment actually has an effect on the population of interest, or whether two groups are different from one another.

The formula for the two-sample t-test (a.k.a. the student's t-test) is shown below.

$$t = \frac{\overline{x}_1 - \overline{x}_2}{\sqrt{(s^2(\frac{1}{n_1} + \frac{1}{n_2}))}}$$

In this formula, t is the t-value, x_1 and x_2 are the means of the two groups being compared, s_2 is the pooled standard error of the two groups, and n_1 and n_2 are the number of observations in eachof the groups.

In our study X1= public hospitals x2= private hospitals

A larger t-value shows that the difference between group means is greater than the pooled standard error, indicating a more significant difference between the groups.

We can compare calculated t-value against the values in a critical value chart to determine whether the t-value is greater than what would be expected by chance. If so, we can reject the null hypothesis and conclude that the two groups are in fact different.

Further, multivariate analysis (binary logistic) was done to fulfil the objective of the study. The outcome variables used for analysis were caesarean section delivery (0 "no" and 1 "yes"), Place of Delivery (0 "Public" and 1 "Private") and Complications faced during delivery (0 "No" and 1 "Yes"), psychological health (0 "high" and 1 "low"), subjective well-being (0 "high" and 1 "low") and cognitive ability (0 "high" and 1 "low"). The results were presented in the form of odds ratio (OR) with a 95% confidence interval (CI). The model is usually put into a more compact form as follows:

$\ln (Pi1-Pi) = \beta 0+\beta 1x1+\ldots+\beta Mxm-1,$

Where β0,….., βM are regression coefficients indicating the relative effect of a particular explanatory variable on the outcome. These coefficients change as per the context in the analysis in the study.

Results

Level and patterns of caesarean section deliveries in Andhra Pradesh

Figure 2 District wise prevalence of Caesarean section rates, classified as per NFHS- 4Caesarean rates classification.

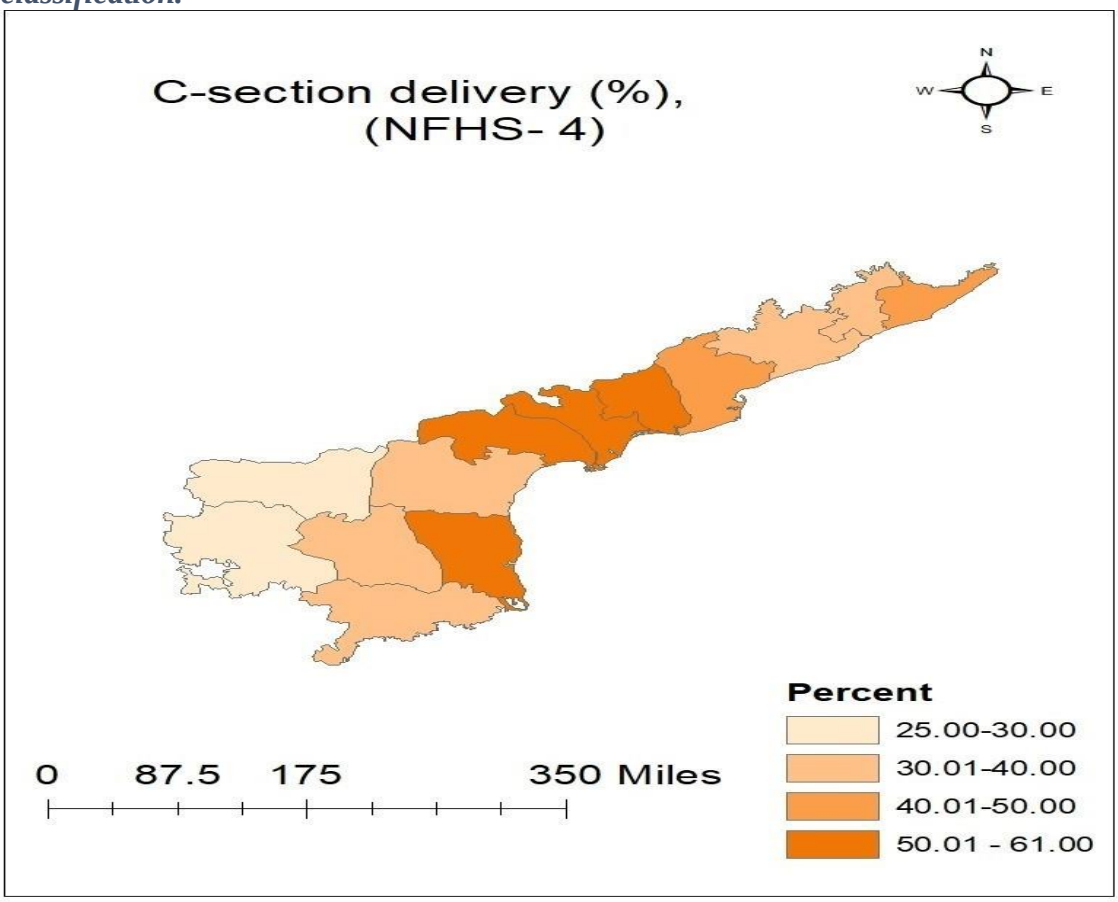


Table 3.1: District-wise prevalence of C-section deliveries in Andhra Pradesh, India, NFHS-4(2015-16)

District	Delivery by caesarean section (%)	Frequency
Srikakulam	41.39	70
Vizianagaram	34.9	55
Visakhapatnam	35.5	83
East Godavari	44.56	141
West Godavari	60.79	122
Krishna	50.76	132
Guntur	51.11	136
Prakasam	38.35	95
Sri Potti Sriramulu Nellore	51.32	106
Y.S.R.	30.19	63
Kurnool	27.58	97
Anantapur	27.61	68
Chittoor	32.93	87
Total	**40.1**	**1254**

Table shows the prevalence of caesarean section deliveries in various districts of the state of Andhra Pradesh in India. The results showed wide variations in the prevalence estimate of caesarean section deliveries across different districts in the state, ranging from 27 percent to 61 percent. Out of all districts, Kurnool (27 percent) and Anantapur (28 percent) showed the lowest prevalence of c-section deliveries. West Godavari district recorded the highest cases of c-section deliveries with a prevalence estimate of 61 percent followed by Sri Potti Sriramulu Nellore (51 percent), Guntur (51%) and Krishna (51%) in Andhra Pradesh.

Table 3.2: Prevalence estimates of C-section deliveries by selected background characteristics inAndhra Pradesh, India, NFHS-4 (2015-16).

Background characteristics	Prevalence
Place of residence	
Urban	48.36
Rural	37.06
Religion	
Hindu	39.92
Muslim	39.76
Christian	42.38
Caste	
Schedule caste	35.42
Schedule tribe	27.04
OBC	40.53
Others	49.06
Wealth Index	
poorest	19.61
poorer	26.89
middle	37.47
richer	46.65
richest	57.12
Education level of mother	
no education	28.72
primary	33.07
secondary	42.83

higher	58.3
Place of delivery	
Public Private	26
Others	57.4
	0
Birth order	
1	44.72
2	40.8
3 and above	23.28
Multiple Births	
Single Child	39.9
More than 1 child	50.67
Complications during delivery	
No	45.53
Yes	34.59
ANC visits	
less than 4	40.12
4 and above	38.2
Size of child at birth	
Low	39.31
Medium	40.75
High	46.71
Don't know	9.05
Total	**40.1**

Table exhibits the prevalence estimates of C-section deliveries by selected background characteristics in Andhra Pradesh. The prevalence of c-section deliveries was highest among urban (48 percent), Christian (42 percent) and other caste category (49 percent) women. Around 47 to 57 percent of the women from the richer and richest wealth quintile had undergone c- section delivery. As the level of education and wealth quintile increased, the prevalence estimates for c-section deliveries also increased. More than half women in Andhra Pradesh chose private healthcare institutions as their place of delivery. Forty-five percent women with a birth order of 1 and 41 percent with a birth order of 2 had experienced c-section delivery in the past. C-section was commonly observed among women having more than one child (51 percent), less than 4 ANC visits (40 percent) and a high size of child at birth (47 percent). Around 45 percent women underwent c-section among those who did not face any complications during delivery as compared to 35 percent who did face complications during delivery.

Table 3.3: Logistic regression estimates of c-section delivery by background characteristics among women in Andhra Pradesh, India, NFHS-4 (2015-16)

Background characteristics	OR	CI
Place of residence		
Urban®Rural	0.852	[0.696,1.042]
Religion		
Hindu®Muslim		
Christian	0.734*	[0.563,0.957]
	1.531*	[1.081,2.169]
Caste		
schedule caste®schedule tribe		
Obc	1.076	[0.711,1.626]
	1.072	[0.849,1.354]

Others	1.1	[0.827,1.463]
Wealth Index		
poorest®poorer middle richer		
richest	1.204	[0.730,1.986]
	1.494	[0.923,2.418]
	1.598	[0.968,2.638]
	1.809*	[1.046,3.127]
Education level of mother		
no education®primary secondary		
higher	1.128	[0.843,1.509]
	1.041	[0.825,1.314]
	1.275	[0.913,1.779]
Place of delivery		
Public®		
PrivateOthers	3.523***	[2.963,4.190]
	1	[1,1]
Birth order		
1®		
2	1.078	[0.905,1.283]
3 and above	0.608***	[0.461,0.803]
Multiple Births		
Single Child®		
More than 1 child	1.385	[0.740,2.594]
Complications during delivery		
No®		
Yes	0.670***	[0.569,0.789]
ANC visits		
less than 4®		
4 and above	0.622	[0.237,1.633]

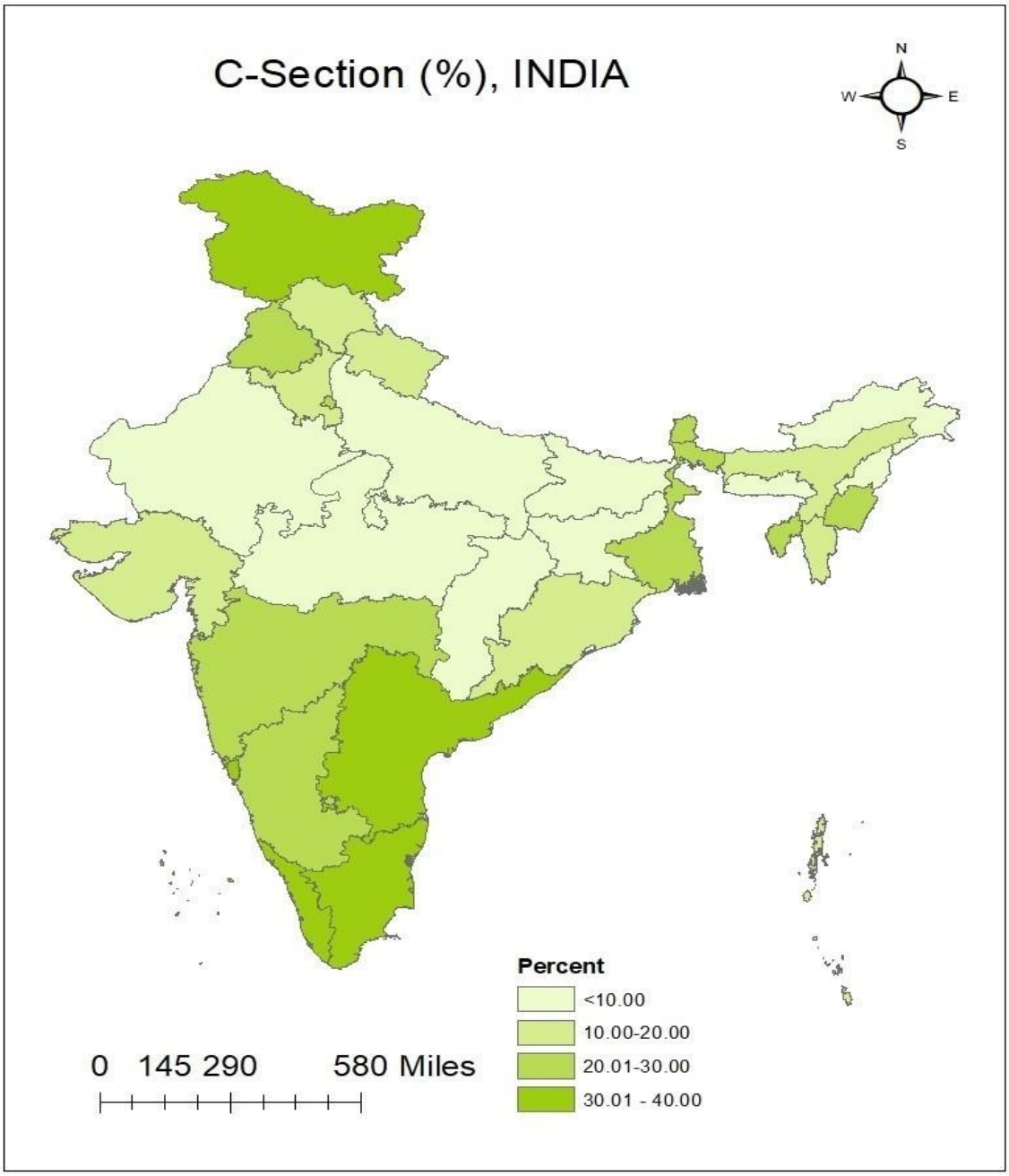
Size of child at birth		
Low® MediumHigh		
Don't know	0.984	[0.785,1.232]
	1.241	[0.934,1.649]
	0.403*	[0.199,0.816]

OR: Odds Ratio; CI: Confidence Interval; Ref.: Reference category; *, **, *** refers to <0.05, <0.01 and <0.001 level of significance

Table Provides estimates from the regression models evaluating the associations between c- section deliveries and the covariates for currently married women. The model comprising of women's background characteristics revealed that religion, wealth index, place of delivery, birth order, complications during delivery and size of child at birth was significantly associated with c-section delivery. The likelihood of women undergoing c-section was low among Muslim (AOR:0.734; CI:0.563,0.957), birth order 3 and above (AOR:0.608; CI: 0.461-0.803),

complications during pregnancy (AOR:0. 670; CI:0.569-0.789) and unknown size of child at birth (AOR:0.403; CI:0.199-0.816). Christian women (AOR:0.403; CI:0.199-0.816), private institution as place of delivery (AOR:0.403; CI:0.199-0.816) showed greater odds for c-section delivery.

Figure 3 State wise prevalence of Caesarean section rates, classified as per NFHS- 4 caesarean rates classification.



Distribution of caesarean deliveries across public and private facility

Table 4.1: District-wise prevalence of c-sectional delivery in accordance with place of delivery

District	Place of delivery	
	Public	Private
Srikakulam	34.5	65.5
Vizianagaram	33.16	66.84
Visakhapatnam	34.02	65.98
East Godavari	20.67	79.33
West Godavari	17.43	82.57
Krishna	22.17	77.83
Guntur	29.38	70.62
Prakasam	17.89	82.11
Potti Sriramulu Nellore	23.56	76.44
Y.S.R.	9.31	90.69
Kurnool	27.73	72.27
Anantapur	36.3	63.7
Chittoor	35.67	64.33
Total	25.56	74.44

Figure 4 District-wise prevalence of c-sectional delivery in accordance with place of delivery

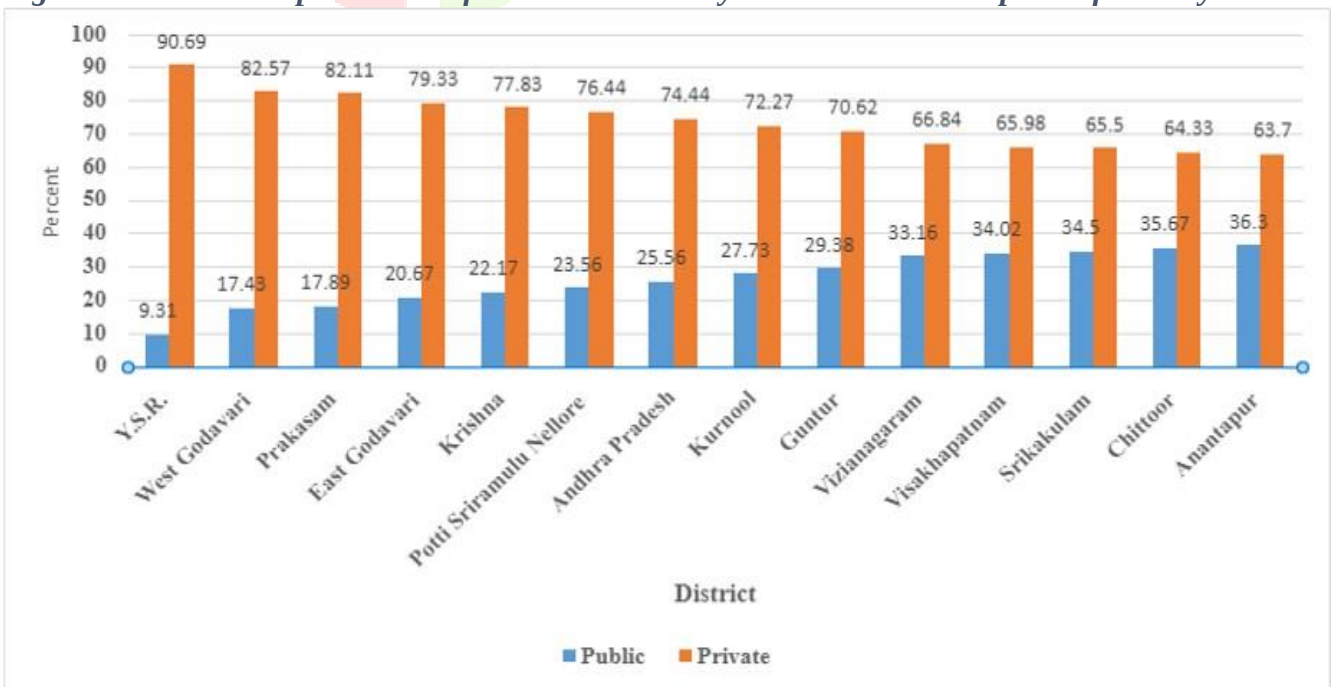


Figure 4. depicts that a district-wise prevalence of c-sectional deliveries by place of delivery as categorized through public and private healthcare institutions. Around 25 percent women were undergoing c-section in public institutions whereas the prevalence of women having c-section in private institution was as high as 74 percent. In case of women availing c-section service through public institutions, the prevalence is found to be highest in Anantapur (36 percent) and Chittoor (36 percent) followed by Srikakulam (34 percent), Visakhapatnam (34 percent) and Vizianagaram (33 percent). The prevalence of women going through c-section in a public health facility was lowest in Y.S.R (9 percent), West Godavari (17 percent) and Prakasam (18 percent). Whereas around 91 percent women from Y.S.R chose private health care institution followed by 82 percent in West Godavari and Prakasam. A substantial proportion of women in various districts of Andhra Pradesh chose private health care facility over public institutions for the performing c-section delivery.

Table 4.2: C-sectional delivery as assessed through public-private healthcare institutions by selected background characteristics in Andhra Pradesh, India, NFHS-4 (2015-16)

Background characteristics	Place of delivery	
	Public	Private
Place of residence		
Urban	23.8	76.2
Rural	26.4	73.6
Religion		
Hindu	23.85	76.15
Muslim Christian	27.8	72.2
	39.27	60.73
Caste		
schedule casteschedule tribeOBC	38.49	61.51
Others	34.78	65.22
	23.17	76.83
	18.28	81.72
Wealth Index		

poorestpoorer middlericher	41.02	58.98
richest	40.45	59.55
	32.93	67.07
	20.77	79.23
	10.27	89.73
Education level of mother		
no educationprimary secondary	36.03	63.97
higher	37.25	62.75
	23.45	76.55
	14.12	85.88
Birth order		
1	24.25	75.75
2	27.08	72.92
3 and above	25.48	74.52
Multiple Births		
Single Child	25.45	74.55
More than 1 child	29.93	70.07
Complications during delivery		
No	23.74	76.26
Yes	27.98	72.02
ANC visits		
less than 4	25.74	74.26
4 and above	0	100
Size of Child at birth		
Low MediumHigh	28.9	71.1
Don't know	24.71	75.29
	26.23	73.77
	12.73	87.27
Total	25.56	74.44

Table Presents the bivariate estimates for c-sectional delivery categorized into public and private health facilities by certain background characteristics. A general observation is that c-section is predominantly performed at private health facilities as compared to public health facilities. While considering religion and place of delivery, Christian women preferred public health facilities whereas more Hindu women underwent c-section in private health facilities. Similarly, the prevalence of schedule caste women undergoing hysterectomy in a public health facility was as high as 38 percent whereas 81 percent of the other caste women sought to private health facilities for c-sectional deliveries. In terms of wealth index, women from the poorest wealth quintile (41 percent) underwent maximum c-section deliveries in public health facilities whereas women from the richest wealth quintile (90 percent) underwent maximum c-section deliveries in public health facilities. Fourteen percent of the women who have attained higher education underwent c-section in public health facilities whereas 86 percent got a c-section done from private health facilities. Around 28 percent women who had complications during delivery went for a c-section delivery in public health facilities and 72 percent chose private health facilities after facing complications.

Table 4.3: Summary statistics for women undergoing C-section in public and private healthcare facilities in Andhra Pradesh, India, NFHS-4 (2015-16)

Group	Observations	Mean	Std. Err.	Std. Dev.	[95% Conf. Interval]
1. Public	1,217	0.2498	0.012	0.43307	[0.225-0.274]
2. Private	1,631	0.5653	0.0122	0.49587	[0.541-0.589]
Combined	2,848	0.43048	0.009	0.49523	[0.412-0.448]
Difference		-0.3155	0.017		[-0.350--0.280]
Pr(|T| > |t|) = 0.0000					

Table shows the results of t test performed to compare the mean prevalence of women who had undergone caesarean delivery in private and public hospitals. Women who have undergone c- section in public health facilities their mean is around 0.247, standard deviation is 0.433 with 95% confidence interval [0.225-0.27]**.** In case of private health facility, the mean is around (0.56) standard deviation is (0.495) and 95% confidence interval is [0.541-0.589] for such deliveries. In case of the private place of the delivery the mean is around (0.43) standard deviation is (0.495) and 95% confidence interval is [0.412-0.448]. The mean difference of two types of facilities is (- 0.3155). The means are comparable and the test is significant hence, it can be affirmed that private facility has indeed higher prevalence of caesarean deliveries as compared those of the public

facilities.

Contextual Factors of Pre-planned and Emergency C-section delivery in AndhraParedsh

Table 5.1: District-wise prevalence by type of caesarean delivery as assessed through pre-plannedand emergency c-section in Andhra Pradesh, India, NFHS-4 (2015-16)

District	Type of caesarean delivery	
	Pre-planned	Emergency
Srikakulam	78.2	21.8
Vizianagaram	56.82	43.18
Visakhapatnam	39.18	60.82
East Godavari	67.57	32.43
West Godavari	53.93	46.07
Krishna	65.59	34.41
Guntur	68.35	31.65
Prakasam	61.84	38.16
Potti Sriramulu Nellore	67.5	32.5
Y.S.R.	71.15	28.85
Kurnool	61.86	38.14
Anantapur	65.88	34.12
Chittoor	70.23	29.77
Total	63.72	36.28

Table shows the district-wise prevalence of caesarean delivery by type of caesarean delivery as assessed through pre-planned and emergency c-section in Andhra Pradesh, India. As per the results, the overall prevalence of caesarean delivery by type of caesarean delivery in Andhra Pradesh was 64 percent when the pregnancy was pre-planned and 36 percent when there was some emergency, which signifies the prevalence was relatively higher for emergency cases than the pre-planned cases. The results showed wide variations in the prevalence estimate of caesarean delivery by type of caesarean delivery across various districts in the state. Out of all districts, delivery by c-section was the highest in Srikakulam (78 percent), Y.S.R. (71 percent) and Chittoor (70 percent) for pre-planned cases whereas it was the lowest in the same districts for emergency cases. Around 39 percent women in Visakhapatnam had undergone c-section after a pre-planned process

whereas the prevalence estimate for women undergoing c-section in Visakhapatnam under emergency conditions was as high as 61 percent.

Table 5.2: C-sectional delivery as assessed through type of caesarean delivery by selected background characteristics in Andhra Pradesh, India, NFHS-4 (2015-16)

Background characteristics	Pre-planned	Emergency
Place of residence		
Urban	61.69	38.31
Rural	64.7	35.3
Religion		
Hindu	64.53	35.47
Muslim	60.93	39.07
Christian	59.35	40.65
Caste		
schedule caste	64.89	35.11
schedule tribe	61.73	38.27
Obc Others	64.43	35.57
	61.47	38.53
Wealth Index		
poorest	62.95	37.05
poorer	57.91	42.09
middle	67.57	32.43
richer	61.93	38.07
richest	63.49	36.51
Education level of mother		
no education	60.82	39.18
primary	61.4	38.6
secondary	65.5	34.5

higher	61.75	38.25
Birth order		
1	59.46	40.54
2	67.65	32.35
3 and above	69.18	30.82
Multiple Births		
Single Child	63.62	36.38
More than 1 child	67.55	32.45
Complications during delivery		
No	65.09	34.91
Yes	61.9	38.1
ANC visits		
less than 4	63.67	36.33
4 and above	70.88	29.12
Size of Child at birth		
Low	61.14	38.86
Medium	63.75	36.25
High	66.27	33.73
Don't know	58.57	41.43
Total	63.72	36.28

Table shows the prevalence of C-sectional delivery as assessed through type of caesarean delivery by selected background characteristics in Andhra Pradesh. C-section was more common among rural women (65 percent) for a pre-planned pregnancy and more urban women (38 percent) underwent c-section in case of emergency. Around 63 percent women from the richest wealth quintile had a pre-planned c-section whereas 42 percent women from the poorer quintile had an emergency c-section. About 69 percent women who had a birth order of 3 and above underwent a pre-planned c-section and 40 percent women with a birth order of 1 underwent an emergency c-section. Sixty-five percent women who did not have complications during delivery underwent a pre-planned c-section and 38 percent women who faced complications during delivery had gone through an emergency c-section. In case of ANC visits, 70 percent women experienced c-section delivery even though

they had completed more than 4 ANC visits whereas 29 percent women who had more than 4 ANC visits underwent emergency c-section.

Table 5.3: Logistic regression estimates of type of c-section delivery by various background characteristics among women in Andhra Pradesh, India, NFHS-4 (2015-16)

Background Characteristics	Model 1	Model 2	Model 3	Model 4
	AOR (95% CI)	AOR (95% CI)	AOR (95% CI)	AOR (95% CI)
Birth order				
1 ®				
2	0.70***[0.55-0 .90]			0.65***[0.55-0 .90]
3 and above	0.65*[0.41-1.01]			0.92 [0.57-1.48]
Maternal age during delivery				
20 Years and below ®				
21 to 30 years		0.87 [0.66-1.14]		1.01 [0.59-1.73]
31 years and above		0.61* [0.34-1.08]		0.74 [0.32-1.69]
Birth spacing				
Less than 2 years ®				
2 to 3 years			1.03 [0.67-1.58]	1.05 [0.68-1.62]
More than 3 years			1.43* [0 .94-2.16]	1.49* [0.97-2.31]
Constant	0.68 [0.57-0 .79]	0.64 [0.50-0.79]	0.41 [0 .30-0 .54]	0.41 [0.25-0.68]

NOTE-OR: Odds Ratio; CI: Confidence Interval; Ref.: Reference category; *, **, *** refers to <0.05, <0.01 and <0.001 level of significance

Table shows the results of logistic regression estimates for type of caesarean section delivery by selected background characteristics. The factors such as birth order, maternal age during delivery and birth spacing are individually quite significant predictor of type of deliveries, whether it was preplanned or emergency caesarean delivery. In model 1, as compared to women having birth order 1, the women who had 2 as their

birth order, their odds of going for an emergency caesarean delivery was 30 percent less [OR=0.70, CI= 0.55-0 .90], the same for the women who had birth order of 3 and above, they were 35 percent less likely to have emergency caesarean delivery of their child. In Model 2, as compared to the women who were less than 20 years at the time of delivery, the women 31 and above age group were 39 percent less likely to have emergency caesarean delivery. In Model 3, as compared to women who had birth spacing of less than 2 years, the women who had 2-3 years of spacing, their odds of going for emergency caesarean section was 1.4 times more. In Model 4 when all the three background characteristics were taken, it was found that only one subgroup was significant. The model overall was notreally significant.

Discussion

The increase in the rates of cesarean section delivery is one of the major health problems in women that are taking place in various countries as well as in India and it is burden on health system. Unnecessary cesarean delivery also put strain on family and may complicate maternal and child health. Among all other factors, perhaps place of delivery (private or public medical institution) is becoming the strongest one influencing C-section. Researchers have found a strong correlation between increasing caesarean section delivery and socio-economic and cultural factors. C-section in private hospitals as the prime driver of this high trend. The prevalence of women from poorest wealth quintile, going for C-section delivery in public hospitals have decreased in the past decade, the public- private gap in caesarean section has been much wider than ever-before. The gap in proportion of C-section deliveries has increased drastically among younger as well as old ages age mothers. Poor-rich gap is also seen to be increasing in overall caesarean section as well as voluntary. The economic status also seemed to be one of the major factors in increasing prevalence of C- section births.

Recommendation: -

Complications among C-section deliveries are more than normal deliveries; women going for voluntary caesarean section deliveries should be discouraged. Unless medical necessity is there, it should not be performed. The number of C-sections continues to be high in Andhra Pradesh and Telangana as there are issues of Muhurtham, unwillingness to go for labour and also IVF complications which make normal birthing a difficult process. Despite counselling and also telling them that they have to wait for normal labour pain, many of them are not willing. IVF cases are also C-section deliveries as the families want the baby to be born safely. In Andhra Pradesh women come with the mindset that they will not bear the pain and want a surgical delivery only. With this new trend, it is becoming very difficult to convince them to opt for labour.

Caesarean section deliveries should have special provision of maternity benefits, further improvement in the service delivery of JSY is highly recommended. There should be extra financial support given to those who are below poverty line. Hospitals should be regulated with rules to promote Normal vaginal deliveries and Prevent

Unnecessary C-section deliveries. Hospital records should be regularly Checked for the number of deliveries and C-section the reasons for performing C-section delivers should be thoroughly inspected. Government should reward or help the people who have undergone Normal vaginal delivery.

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