



## Original Research Article

# Increasing Trend of Caesarean Rates in India: Evidence from NFHS-4

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## Abstract

**Background:** *Caesarean section (CS) rate is increasing worldwide and India is also not excluded from this trend. We present the latest CS rates and trends over the last 23 years in India and its states.*

**Methods:** *The data for the present analysis comes from the four consecutive National Family Health Survey (NFHS).*

**Results:** *The changing trends in CS rates from 1992 to 2015 for India and different states along with calculating the average annual rate of increase (AARI) was also presented in the study. At all India level, the CS rate has increased from 2.9 percent of the childbirth in 1992-93 to 7.1 percent in 1998-99 and further rise to 8.5 percent in 2005-06 and a steady rise to 17.2 percent in 2015-16 and an AAIR of 8 percent. According to the recent NFHS 4, the average rate of C-section in India is 17.2 percent ranging from 5.8 percent in Nagaland to 58.0 percent in Telangana. The difference in C-section delivery from NFHS-1 to NFHS-4 shows that 7 states has CS rate that is more than 30%, eight states has CS rate in between 10 percent and 20 percent and nine states less than 10 percent.*

**Conclusions:** *There is an unprecedented level of rise in CS rates in India and interstate and regional variations in CS rates.*

**Keywords:** *Caesarean section rate, Trend, NFHS, India.*

## Introduction

The world is currently witnessing an increase in the rate of caesarean sections (CS) in both developed and developing countries. In 1985, World Health Organization (WHO) meeting held in Fortaleza, Brazil, stated that CS rates higher than 15 percent could hardly be justified from a medical standpoint<sup>1</sup>. Over the past three decades,

the overall caesarean delivery rates have been rising steadily worldwide<sup>2-4</sup>. A substantial proportion of this increase was due to unnecessary operations attributable to non-evidence-based indications, professional convenience, maternal request, and over-mediatization of childbirth<sup>5</sup>. This is an important issue for health systems in many parts of the world, not only because of the

additional short and long-term health risks it causes but also increased costs associated with caesarean births. Recent data from developed countries suggests that CS rates of around 15percent at the population level are possible, safe and compatible with optimum health outcomes for mothers and babies<sup>6</sup>. This surgical procedure in many developed countries are often been elected on choice of patient without any medical complication, mainly to avoid normal delivery pain. On the other hand, physicians are also been assailed for conducting C section without any medical justification for economic gains and time management. The concern for the caesarean rates is due to its rapid increase over the period. The level of CS is well above the WHO mentioned fifteen per cent mark for many of the countries, and it is increasing over the time<sup>1</sup>. According to the latest data<sup>7</sup> from 150 countries, currently 18.6 percent of all births occur by CS, ranging from 6 percent to 27.2 percent in the least and most developed regions, respectively. Latin America and the Caribbean region have the highest CS rates (40.5%), followed by Northern America (32.3%), Oceania (31.1%), Europe (25%), Asia (19.2%) and Africa (7.3 %). Based on the data from 121 countries, the trend analysis showed that between 1990 and 2014, the global average CS rate increased by 12.4 percent (from 6.7 percent to 19.1 percent with an average annual rate of increase of 4.4 percent). In some countries, caesarean section rates are up to 50percent, mainly in the private sector, including in Brazil, Iran, and Mexico, resulting in millions of women undergoing unnecessary surgery<sup>7</sup>.

In developing countries, improvement of maternal and perinatal health strongly depends on strengthening of health systems. While unnecessary overuses of surgical practices are being seen in some countries, millions of women in other countries who need these procedures do not have access to them, putting their and their children's lives at risk<sup>8</sup>. There are medical explanations for C session deliveries. Medical interventions are needed in certain circumstances

like dystocia, fetal distress, repeat section mal presentation, pregnancy induced due to hypertension, failed induction, ante-partum haemorrhage, medical causes, etc<sup>9</sup>.

According to 2005 WHO survey<sup>10</sup> the high rates of elective caesarean section in Latin America reflect a complex social process, affected by clinical status, family and social pressures, the legal system, availability of technology, and women's role models. Highest rates of caesarean delivery are noted in private hospitals (51%, range 43–57). Institution specific rates of caesarean deliveries were affected by primiparity, previous caesarean delivery, and institutional complexity. Rate of caesarean delivery was positively associated with postpartum, antibiotic treatment and severe maternal morbidity and mortality, even after adjustment for risk factors. Increase in the rate of caesarean delivery was associated with an increase, in fetal mortality rates and higher numbers of babies admitted to intensive care for 7 days or longer even after adjustment for preterm delivery.

WHO Global Survey conducted in nine countries in Asia<sup>11</sup> revealed that, most common indication for CS are previous caesarean delivery (24.2%), cephalo-pelvic disproportion (22.6%), fetal distress (20.5%), breech and other abnormal presentation (12.5%). The survey also revealed that, all types of CS and operative vaginal delivery was associated significantly with increased risk of maternal mortality and morbidity as compared to spontaneous vaginal delivery. Intra partum CS (with or without indication) had higher risk of maternal mortality and morbidity than ante partum CS and CS without a medical indication is associated with increased risk of maternal mortality and morbidity. CS for breech presentation was associated with improved perinatal outcome. It was reported that 62 percent of the hospitals surveyed had financial incentives for doing the intervention. Other studies in East Asia with similarly higher rates of caesarean section have noted that physician factors were a paramount and that women generally have

favourable attitudes towards vaginal delivery compared with caesarean section. India is also not excluded from this trend. In India, the estimate of CS rates is 2.9 percent in the year 1992 has increased to 17.2 percent in 2015, which is one of the highest among the countries.

### Objectives

Keeping in view the above facts, the present paper explores the levels and trends of caesarean section delivery in India and its states.

### Data and Methodology

The data for the present analysis comes from the National Family Health Survey (NFHS) conducted during 1992–1993, 1998–1999, 2005–2006 and 2015–2016<sup>12-15</sup>. These surveys are nationally representative and cover more than 99 percent of the Indian population. The NFHS is an

Indian version of the Demographic and Health Survey (DHS) that provides consistent and reliable estimates of fertility, mortality, family planning, utilization of maternal and child health care services and other related indicators at the national, state and regional levels. The NFHS data for four consecutive terms is analyzed to explain the trends in caesarean delivery. The increase in CS rate per major states of India was described in the study. The change in CS rate from 1992 to 2015 for different states by calculating the average annual rate of increase (AARI) was also presented in the study. The average annual rate of increase (AARI) is the average of CS rates increased or decreased each year during the study period. The average annual rate of increase permits comparison of CS rates that have changed at a constant speed over the given period of time.

**Table 1:** Trends in caesarean section delivery Percentage of women, who had undergone caesarean section delivery by larger states, from NFHS-1(1992-93), NFHS-2 (1998-99), NFHS-3 (2005-06) and NFHS-4 (2015-16).

States/Country	Percentage of women who have caesarean delivery				Gap from NFHS-1	AARI
	NFHS-1	NFHS-2	NFHS-3	NFHS-4		
Andhra Pradesh	4.4	14.7	27.5	40.1	35.7	10.1
Assam	2.3	5.0	6.5	13.4	11.1	8.0
Bihar	1.1	3.0	4.1	6.2	5.1	7.8
Delhi	4.6	13.4	12.0	23.7	19.1	7.4
Gujarat	2.7	8.6	8.6	18.4	15.7	8.7
Goa	13.7	20.0	25.7	31.4	13.7	3.7
Haryana	2.3	4.2	5.0	11.7	9.4	7.3
Himachal Pradesh	1.6	6.8	13.1	16.7	15.1	10.7
Jammu & Kashmir	5.7	10.6	14.1	33.1	27.4	7.9
Karnataka	3.7	11.0	15.3	23.6	19.9	8.4
Kerala	13.2	29.8	30.1	35.8	22.6	4.4
Maharashtra	3.4	9.9	15.6	20.1	16.7	8.0
Madhya Pradesh	0.7	3.0	6.8	8.6	7.9	11.5
Odisha	1.5	5.2	6.1	13.8	12.3	10.1
Punjab	4.2	8.3	14.4	24.6	20.4	8.0
Rajasthan	0.7	3.0	4.2	8.6	7.9	11.5
Tamil Nadu	7.1	17.5	23.0	34.1	27.0	7.1
Telangana	na	na	na	58.0	na	11.9*
Utter Pradesh	0.6	2.7	5.9	9.4	8.8	12.7
West Bengal	3.3	13.5	15.0	28.3	25.0	9.8
India	2.9	7.1	10.6	17.2	14.3	8.0

\*Telangana is a newly formed state, which was the part of Andhra Pradesh and hence CS rate of Andhra Pradesh up to NFHS-3 has taken to analyse level and trend

**Table 2:** Percentage distribution of caesarean section delivery by place of residence, NFHS-4 (2015-16) - India and States

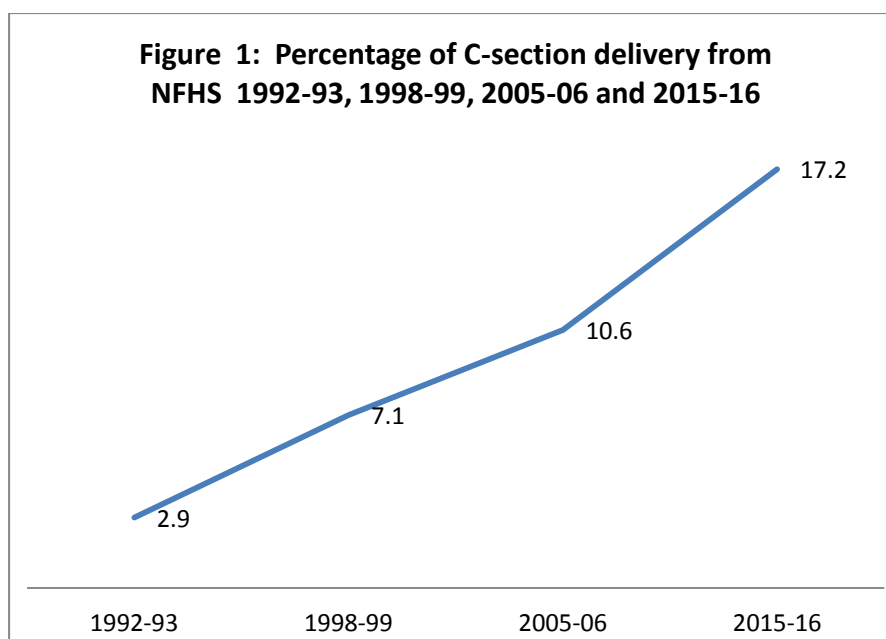
States/Country	Percentage of women who have caesarean delivery			Gap between Urban and Rural (U-R)
	Rural	Urban	Total	
Andhra Pradesh	37.1	48.4	40.1	11.3
Arunachal Pradesh	5.8	20.1	8.9	14.3
Assam	10.8	36.9	13.4	26.1
Bihar	5.4	13.9	6.2	8.5
Chhattisgarh	7.5	18.9	9.9	11.4
Delhi NCT	25.0	23.7	23.7	-1.3
Goa	27.7	33.5	31.4	5.8
Gujarat	12	27.8	18.4	15.8
Haryana	10.6	13.6	11.7	3.0
Himachal Pradesh	15.6	29.6	16.7	14.0
Jammu & Kashmir	26.9	53.1	33.1	26.2
Jharkhand	7.0	22.4	9.9	15.4
Karnataka	19.9	29.2	23.6	9.3
Kerala	34.6	37.1	35.8	2.5
Maharashtra	15.2	26.3	20.1	11.1
Madhya Pradesh	5.1	19.1	8.6	14.0
Manipur	15.2	33.0	21.1	17.8
Meghalaya	5.6	20.5	7.6	14.9
Mizoram	5.7	19.0	12.7	13.3
Nagaland	3.4	12.4	5.8	9.0
Odisha	12.1	24.1	13.8	12.0
Punjab	23.7	25.8	24.6	2.1
Pondicherry	30.9	39.8	33.6	8.9
Rajasthan	6.5	16.4	8.6	9.9
Sikkim	17.1	28.8	20.9	11.7
Tamil Nadu	32.3	36.1	34.1	3.8
Telangana	53.4	63.2	58.0	9.8
Tripura	12.2	45.8	20.5	33.6
Utter Pradesh	6.9	18.9	9.4	12.0
Uttarkhand	10.2	19.4	13.1	9.2
West Bengal	18.9	36.6	28.3	17.7
India	12.9	28.3	17.2	15.4

**Table 3:** Percentage of women undergoing caesarean section delivery among institutionalised births by states, NFHS-3 and NFHS- 4

States/Country	NFHS-3 2005-06			NFHS-4 2015-16		
	Institutional births	C-Section Public	C-Section Private	Institutional births	C-Section Public	C-Section Private
Andhra Pradesh	na	na	na	91.6	25.5	57.0
Assam	22.4	21.0	26.7	70.6	12.9	53.3
Bihar	19.9	7.6	17.2	63.2	2.6	31.0
Chhattisgarh	14.3	24.9	32.7	70.2	5.7	46.6
Delhi NCT	59.0	18.0	28.8	84.4	21.0	42.9
Gujarat	52.7	13.8	18.0	88.7	10.8	26.6
Goa	92.3	17.9	36.7	96.9	19.9	51.3
Haryana	35.7	14.3	15.2	80.5	8.6	25.3
Himachal Pradesh	43.1	26.2	47.6	76.4	16.4	44.4
Jammu & Kashmir	50.2	24.9	35.8	85.7	35.1	75.5
Jharkhand	18.3	15.9	22.2	61.9	4.6	39.5
Karnataka	64.7	17.2	31.9	94.3	16.9	40.3
Kerala	99.3	26.0	32.7	99.9	31.4	38.6
Maharashtra	66.6	11.6	22.3	90.3	13.1	33.1
Madhya Pradesh	26.2	6.8	28.8	80.8	5.8	40.8
Odisha	35.6	10.0	32.4	85.4	11.5	53.7
Punjab	51.3	34.3	31.5	90.5	17.8	39.7
Rajasthan	29.6	11.7	14.9	84.0	6.1	23.2
Tamil Nadu	87.8	14.9	33.0	99.0	26.3	51.3
Thelangana	na	na	na	91.5	40.6	74.9
Utter Pradesh	20.6	11.6	26.0	67.8	4.7	31.3
Uttarakhand	32.6	22.2	27.5	68.6	9.3	36.4
West Bengal	42.0	16.6	47.6	75.2	18.8	70.9
India	38.7	15.2	27.7	78.9	11.9	40.9

**Table 4:** Trends in Caesarean Percentage distribution of caesarean section delivery to Institutional births in major states , from NFHS- 4 (2015-16)

States/Country	Percentage of women who have caesarean delivery		Gap between Private and Public Institutions
	Public Institutions	Private Institutions	
Andhra Pradesh	23.7	55.2	31.5
Assam	12.9	53.3	40.4
Bihar	2.6	31.0	28.4
Chhattisgarh	5.7	48.6	42.9
Delhi NCT	21.0	42.9	21.9
Gujarat	10.8	26.6	15.8
Haryana	8.6	25.3	16.7
Jammu & Kashmir	35.1	75.5	40.4
Jharkhand	4.6	39.5	34.9
Karnataka	16.9	40.3	23.4
Kerala	31.4	38.6	7.2
Maharashtra	13.1	33.1	20.0
Madhya Pradesh	5.8	40.8	35.0
Odisha	11.5	53.7	42.2
Punjab	17.8	39.7	21.9
Rajasthan	6.1	23.2	17.1
Tamil Nadu	26.3	51.3	25.0
Telangana	39.5	75.1	35.6
Utter Pradesh	4.9	31.3	26.4
Uttarakhand	9.3	36.4	27.1
West Bengal	18.8	70.9	52.1
India	11.9	40.9	29.0



## Results and Discussion

Too many women in India are undergoing caesarean sections. A study by the Indian Council of Medical Research (ICMR) in 33 tertiary care institutions noted that the average CS rate increased from 21.8 per cent in 1993-1994 to 25.4 per cent in 1998-1999<sup>9</sup>. As per NFHS-3, C-sections were limited to 8.5 percent of all deliveries in the country, just below the recommended level of 5-15 percent. The WHO guidelines take into account the number of C-

sections needed for complicated births and curbing maternal mortality rates. But as per the latest NFHS-4 report, the numbers have escalated in many parts of the country-reaching as high as 58 percent C- section deliveries in Telangna, 40.1 percent in Andhra Pradesh, 35.8 percent in Kerala, and 34.1 percent in Tamil Nadu<sup>12</sup>. And it's happening across both urban and rural areas.

The caesarean section rates have been increasing steadily over the last 23 years in India and there is also a wide variation in the rates across the



different states in the country. The trend of C-section deliveries analyzed from 1992-93 to 2015-16 shows that there has been an upward trend in C-section rates in India which is shown in figure-1. At all India level, the CS rate has increased from 2.9 percent of the childbirth in 1992-93 to 7.1 percent in 1998-99 and further rise to 8.5 percent in 2005-06 and a steady rise to 17.2 percent in 2015-16 and an AARI of 8 percent. The trends in C-section deliveries in India for the periods 1992-93 to 2015-16 is presented in Table 1.

According to the most recent NFHS 4, the average rate of C-section in India is 17.2 percent ranging from 5.8 percent in Nagaland to 58.0 percent in Telangana. The difference in C-section delivery from NFHS-1 to NFHS-4 shows that 7 states have CS rate that is relatively high (more than 30 percent) in states like Telangana (58%), Andhra Pradesh (40.1%), Kerala (35.8%), Tamil Nadu (34.1%), Pondicherry (33.6%) Jammu & Kashmir (33.1%) and Goa (31.4%). Eight states have CS rate in between 10 percent and 20 percent and nine states less than 10 percent.

With a high rate of CS in 1992 (13.2 percent) Kerala is having the largest number of CS rate in 2015 (35.8 percent). The rate of CS in Telangana is higher than Brazil<sup>16</sup> (55.6 percent), the country with the highest CS rate in the world. Table 1 shows the emerging pattern of caesarean births in India and the states. The CS rates of many of the Indian states are comparable to Egypt (51.8 percent) in Africa, Italy (38.1 percent) in Europe, USA (32.8 percent) and New Zealand (33.4 percent). C-section rate is in the range of 15 percent to 30 percent in the state of West Bengal (28.3 percent), Punjab (24.6 percent), Delhi (23.7 percent), Karnataka (23.6 percent), Manipur (21.1 percent), Sikkim (20.9 percent), Tripura (20.5 percent), Arunachal Pradesh (21.1 percent) and Himachal Pradesh (16.7 percent). All other states in the country have C-section rate below 15 percent. It shows the higher inter regional variations of C-sections in India. What has been alarming in the case of India is the wide heterogeneity in the incidence of C-section across

states and regions. Over the last 23 years, the increase in C-section delivery has been substantial in many states in the country. Interestingly, all the southern states in India recorded C-section delivery as high as that of recorded in countries with highest level of C-section in the world. The rates recorded in Telangana, Andhra Pradesh, Kerala and Tamil Nadu are alarming. The data indicate that, states with marked demographic transition also records high incidence of C-section rate, although, the real cause of such increase would be different.

The average annual rate of increase (AARI) of India is 8 percent, which is higher than the global AARI of caesarean rate (4.4 percent) during the period. The Telangana is a newly formed state, which was the part of Andhra Pradesh and hence CS rate of Andhra Pradesh up to NFHS-3 has taken to analyse level and trend of Telangana. At the state level, the largest AARI (average percentage by which CS rates increased every year) is found in Uttar Pradesh (12.7%) followed by Telangana (11.9%) and the third is Madhya Pradesh (11.5%). The lowest AARI is found in Goa (3.7%), Kerala (4.4%) and Tamil Nadu (7.1%) during 1992 to 2015. The AARI of other major states like Gujarat, Karnataka, Maharashtra, Punjab and Assam are in the range of 8.7 % to 8.0%. The higher rate of AARI in states like UP, Telangana and MP shows that the health care facilities of such states are improving steadily. It also shows the better utilization of maternal and child health facilities by the people in such states. Kerala and Goa have the lowest rates of AARI, 3.7 percent and 4.4 percent respectively, but both the states have a very high prevalence of CS rate in the country now. It is because these states have a very high rate of CS from 1992 onwards, because of higher accessibility for health care and other socio economic factors. The latest data shows that one in six women in India and one in every three women in Telangana, Andhra Pradesh, Kerala, Tamil Nadu now give birth by CS. But in Bihar only one in every sixteen women gives birth by CS. High rate of AARI of CS rate in most

northern backward states shows that, the women backward in healthcare facilities in India moves to obtain health care facilities for maternal health care.

Another striking feature of the NFHS 4 data points towards a marked rural-urban difference in case of C-section births in almost all the states. Table 2 presents percentage of birth by C section for rural and urban areas. It reflects from the table that the percentage of birth by C-section by urban rural gap is much higher in states like Tripura, Jammu Kashmir, Assam, Manipur, West Bengal, Gujarat and Jharkhand. The percentage of birth by C-section is higher in urban areas than in rural areas and in states like Telangana, Jammu & Kashmir, Andhra Pradesh, Tripura, Pondicherry and Kerala over 30 percent of the delivery in urban areas takes place through C-section. It is interesting to see that there is a large difference between rural and urban C-section rates in Tripura, with rural area accounts for only 12.2 percent by C-section against the urban rate of above 45.8 percent. Higher rates in urban areas may be a reflection of a combination of factors such as advanced health facilities to take care of risk factors, higher levels of women's choice and wide prevalence of private sectors and its competition for profit. Moreover, referral hospitals are usually located in urban areas and they are more likely to deal with pregnancy complications which include both rural as well as urban patients.

The rural urban difference is very low in the states like Delhi, Punjab, Kerala, Haryana, Tamil Nadu and Goa, where the accessibility of healthcare institutions are available in rural areas also. It is noted that, in Telangana, Andhra Pradesh, Kerala, Tamil Nadu, Pondicherry, Goa and Jammu & Kashmir even in rural areas, CS rates are much higher than WHO recommended standards of 15 percent. The trend in institutional delivery is shown in Table 3.

The rates of the institutional deliveries show an increase in most of the state from 2005-06 to 2015-16. Steady increase in institutionalised

deliveries has been reported even in the backward states like Chhattisgarh, Madhya Pradesh, Rajasthan, Odisha, Assam, Utter Pradesh and Maharashtra. NFHS 4 shows that above 70 percent of deliveries in 19 major states were institutional and more than 80 percent deliveries in 15 major states were also institutional. Institutional deliveries increased on an average by 7 percent points between NFHS 2 and NFHS 3 with 20 states recorded an increase in institutional deliveries in between above 32 percent and 15percent points. Institutional deliveries increased on an average by 32 percent points between NFHS 3 and NFHS 4 with 23 states having increase in institutional deliveries by more than 59 percent points to more than 23 percent points. The healthcare facilities and coverage have received a boost with proper and strict implementation of various schemes like JSSK (Janani Shishu Suraksha Karyakram), National Ambulance services, and Mother-Child tracking system under the National Rural Health Mission. Evidently, these government schemes has increased awareness about the health facilities as well as strengthening of primary health centers with ease of referral and better transport facilities, which helped to rise institutional deliveries all over India. The south Indian states like Kerala, Tamil Nadu, Telangana, Andhra Pradesh, Karnataka and other states like Goa, Jammu and Kashmir have already reported high number of institutional deliveries. The positive correlation between institutional deliveries and the rate of C section has been well documented<sup>16</sup>. Institutional deliveries provide quality care in maternal and child health and avoid complications during child birth. It is evident from the table that, the rate of C session is more in the states where high number of institutionalised deliveries are taken place. The proportion of CS is high in private healthcare institutions than public, which shows the over medicalization of delivery and privatization of health sector.

NFHS 4 shows that in Assam, Chhattisgarh, Haryana, Jammu and Kashmir, Madhya Pradesh,

Odisha, Punjab, West Bengal and south Indian states like Tamil Nadu and Karnataka have a high number of institutionalised deliveries in public healthcare institutions. Better diagnosis and early referral due to increased health care coverage have simultaneously increased the rate of caesarean deliveries at tertiary-care hospitals of India. Table 4 analyses the recent trend in the institutional deliveries in major states of the country.

But in states like Kerala, Gujarat, Andhra Pradesh and Telangana high number of institutional deliveries are reported in private healthcare institutions. The gap between the CS deliveries in private health institutions is higher than public health institutions in West Bengal, Odisha, Chhattisgarh, Jammu and Kashmir, Madhya Pradesh, Andhra Pradesh, Telangana and Bihar. In Bihar, the CS rate is very low may be because the poor sections of the women were not going for maternal care in public health institutions. The gap between the utilization of private health institutions for CS is very low in states like Assam, Jharkhand, Kerala, Gujarat and Haryana. A population based cross sectional study in Madras<sup>17</sup> concluded that high percentage of births by caesarean section in the private sector is alarming and could implicate private sector care as the main contributing factor behind the high population caesarean section rates. Different rates of c-section in public and private hospitals suggest that non-medical factors, such as economic gain and pressures of private practice, may motivate doctors to perform surgical deliveries<sup>18</sup>. Public sector health financing is decreasing in India and the private sector is likely to dominate in healthcare in India in future. The private sector accounts for about 50 percent of inpatient care and 60–70 percent of outpatient care<sup>19</sup>Caesarean section is one of the most common major surgical procedures, filling beds and operating rooms and is a major revenue generator. The economic incentive is the most important driving force behind increasing the rates of caesarean sections in private hospitals and public mix private practice. The proportion of caesarean births is

more in private health facilities than in public ones which may be the reflection of privatization and profit motive in healthcare facilities in recent times.

The complexities and many inter connected factors have contributed for increasing the CS rate. That, non medical factors may also contribute for the high rate of CS in India is well documented<sup>20-25</sup>. The CS is often been elected on choice of the patient without any medical complication, mainly to avoid normal delivery pain. On the other hand, physicians are also been assailed for conducting C section without any medical justification and only for economic gains and time management. Other determinants include socio-cultural, demographic and economic profile of the patients. Caesarean deliveries are significantly higher among women with younger age, first pregnancy, who have received antenatal care during pregnancy, ever terminated pregnancy and resident of urban area<sup>26</sup>. Opposite to this finding, another study found older mother, highly educated woman and Islamic women are more likely to give birth by C section<sup>27</sup>.

### Conclusions and Recommendations

Caesarean rates of all the states in India have increased significantly. The analysis shows that there is a significant increase in the CS rate in states like Telengana, Andhra Pradesh, Kerala, Tamil Nadu, and Goa, which indicates the overuse of medical technology for childbirth. The average annual rate of CS has increased in all states, which indicates the need for expansion of health care delivery system and to promote institutional deliveries in public sector in India.

Increasing number of CS is an epidemic in India and CS delivery should be monitored. As suggested by professionals, experienced hands with high quality midwifery led team for delivery is an effective way to reduce C sections. Awareness building, effective antenatal care and healthcare management also help to reduce the high rate of CS. The improvement in quality of care in public health institutions will attract the



women to seek for maternal health care in public health institutions. Private practice in public health institutions is a profit making mechanism for professionals in health sector which is an unethical practice and it should be prevented to reduce CS for non medical reasons. Interventionist attitudes are detrimental to the health and economic wellbeing of the society and should be addressed urgently. Decisions from the part of medical practitioners to prevent increasing trend of unethical C-section deliveries are highly essential. Caesarean section without medical indication should not be encouraged and both public and continuing medical education should emphasise the risks of unnecessary caesarean delivery. Finance for maternal health care should be enhanced and incentives for vaginal deliveries should be promoted. Health education activates for vaginal deliveries also should be promoted. A well audit system should be formulated to monitor the CS in both private and public health care institutions.

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