Child Delivery through Caesarean Section in India: The Case of Repeated CS

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INTRODUCTION

Sustaining the largest population in the world, India has face critical issues of poverty and over-population affecting the socio-economic growth and developmental disposition of its population. One of the issues worth to analyse is the maternal health and therefore child delivery through CS and repeated CS is of significance to the study. Although Caesarean Section (CS) is not an encouraging method for child delivery, there is observed a rising trend in most countries in recent times. What could have triggered this increasing trend is of utmost importance considering the health of mothers. Could it be the health complications arising out of changing work cultures and dietary habits? Could it be because of lesser pain involved in CS than Vaginal delivery? Could it be a covert operation of population control because not more than two births are recommended if both the births are through CS? Could it be because of profit-driven motive of private institution in order to earn more incentives? These are some of the questions that could have presumably exaggerated the rate of CS in recent times. While the first two is attributed to individual's behaviour, the latter two raised concern on medical ethics regarding delivery option.

The second question supposedly provides insight into the choice of delivery without any medical compulsion. This is widely known as "elective CS" which is done at a pre-arranged time during pregnancy to ensure the best quality of obstetric care, anaesthesia, neonatal resuscitation and nursing services as opposed to "emergency CS" which is done due to an acute obstetric emergency resulting in endangering to lives of mother and child (Mukherjee, 2006). The study by Patil et al (2017) indeed reported the ever increasing percentage of elective CS in recent times.

Considering the grave situation of CS the World Health Organization (1985) recommended 10-15 percent deliveries through CS. The WHO recommends that they should be done based on medical need and in many cases, they are life saving for the mother and baby. But many countries have cross the set limit having reach to 40 and 37 percent in Chile and Brazil respectively (Sreevidya, 2003). CS delivery is also increasing in India as the data indicate above the maximum limit recommended by WHO.

DATA AND METHODS:

Data for this study were drawn from four rounds of National Family Health Survey (NFHS) 5 which is a nationally representative survey carried out during 2019-20 provides enormous information on the demographic, health and social indicators. More specifically, this survey provides information on fertility, contraception, reproductive health and so on. NFHS-5 covered a representative sample of 636,699 households and 724,115 women aged 15-49 years. The sample survey collects details of information from women about all the deliveries that they have in the five years preceding the survey. This helped us to study the repeated deliveries through caesarian section in India. To find out how prevalence varies across the background characteristics, a set of background characteristics has been considered. These are age of women at first birth, place of residence, educational level, caste, religion, wealth index and region. The age of women at first birth has been divided into three categories, i.e., less than 20, 20-29 and 30-49. The place of residence has been categorized as rural and urban. Educational level of women has been divided into four categories, viz., no education, primary, secondary and higher. Religion has been grouped into seven categories, viz., Hindu, Muslim, Christian and Others. Caste has been divided into four categories, namely, Scheduled Castes (SCs), Scheduled Tribes (STs), Other Backward Classes (OBCs) and Others. The Wealth Index has been categorized as poorest, poor, middle, richer, and richest. The place of residence has been categorized as rural and urban. India has been divided into six geographical regions viz. north, south, east, west, central and north-east. Northern region includes the states namely Chandigarh, Delhi, Haryana, Himachal Pradesh, Jammu and Kashmir, Punjab, Rajasthan and Uttaranchal. Central India includes three states such as Chhattisgarh, Madhya Pradesh and Uttar Pradesh. Similarly, eastern region comprises of four states (Bihar, Jharkhand, Odisha and West Bengal). When it comes to the north-eastern region, it includes eight states i.e., Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura. The western region covers Dadra and Nagar Haveli, Daman and Diu, Goa, Gujarat and Maharashtra. The southern states, on the other hand, include four states (Andaman and Nicobar Islands, Andhra Pradesh, Karnataka, Kerala, Lakshadweep, Puducherry, Tamil Nadu and Telangana. The bivariate and multivariate (binary logistic regression) analyses have been used to find out the factors responsible for subsequent delivery through C section in India.

FINDINGS

Table 1 provides the prevalence of repeat CS in a subsequent delivery in India according to states. India as whole reported 91.3 percent of repeated CS. Northern states including Chandigarh, Delhi, Haryana, Jammu and Kashmir, and Punjab, reported above-average for repeated CS delivery. Out of the 16.2 percent who declared CS, 92 percent of those women in Central India undergo repeated CS. Madhya Pradesh and Uttar Pradesh reported an average of 79 percent associated with repeated CS. In the Eastern states of Bihar, Jharkhand, Odisha and West Bengal 86.0 percent undergo repeated CS delivery on an average. Out of 21.8 percent who had CS in Northeast India the small states of Manipur and Mizoram also reported a high figure of 90 percent for repeated CS. On the other hand Arunachal Pradesh registered the highest percent of CS but the lowest for repeated CS in Northeast India. Western region comprising of Dadra and Nagar Haveli, Daman and Diu, Goa, Gujarat and Maharashtra also reported an average of 89.4 percent associated with repeated CS. The Southern region is also not comforting as 43.5 percent reported any CS delivery and 95.8 percent undergo repeated CS.

Table 2 analyse the repeated CS delivery according to socio-economic and demographic characteristics. According to age of women at first birth, women whose first birth in the age group of 30 and above reported the highest percentage compared with younger age groups although the figure is extremely high for subsequent delivery. According to BMI of women, the overweight women reported the highest figure (93 percent) as opposed to thin (82 percent) and normal (87 percent) category for repeated CS delivery. The variable of interval (in months) between subsequent deliveries reported the highest figure of 96.7 percent among women whose interval between subsequent deliveries is 11 months and below. The figure decreases to 88, 87 and 86 percent among women whose interval between subsequent deliveries is 12-23 months, 24-35 months and 36-59 months respectively. With respect to the educational level of women, it is evident that there is a positive relation between the educational level of women with repeated CS delivery in five years preceding the survey i.e. as the educational level increases repeated CS delivery increases. The exposure to mass media is also an important determinant to analyse repeated CS. It is found that exposure to mass media has a higher percent (89.6 percent) undergoing repeated CS as against those women who are not exposed to mass media (73 percent).

According to the caste of women, it is evident that women belonging to Other Backward Classes have the highest 89 percent. This is closely followed by among women belonging to others category with 88.7 percent undergoing repeated CS delivery. Women belonging to

Schedule Tribe reported the lowest (78) percent going for to repeated CS delivery if the first one is CS. According to religion, Christian and others reported the highest percent as against Hindu and Muslim religion. There is a substantial variation in the prevalence of repeat CS delivery if the first delivery is through CS by wealth index of women. A woman belonging to poorest category, the repeat CS delivery is only 67.6 percent which increases to 81.5 percent, 89.1 percent, 92.1 and 92.7 percent among women belonging to poorer, middle, richer and richest category respectively. The prevalence of repeat CS delivery is higher among women who reside in urban areas (92 percent) than their rural counterparts (85 percent).

In table 3 we analysed the association of repeated C-Section on a set of background variables. The first model adjusts variables for age of women at first birth, CEB, BMI and interval between subsequent deliveries. However they are insignificant for further analysis in all the models. According to CEB with three and above, they are 20 percent less likely to go for subsequent deliveries compared with CEB of two and this is significant at 100 percent level of significance. However when adjusted in model two and three they become statistically insignificant. This explains that the influences of other variables are very strong. With regard to BMI it is analysed that there is a strong association with independent variables. BMI in the normal category are 50 percent more likely to undergo CS, but when adjusted with other independent variables the figure decreases to 30 percent suggesting that BMI is also determined by socio-economic variables. On the contrary overweight mothers are two times more likely to be delivered through CS indicating that other variables has little to explain the dependent variable. Therefore we can presume that BMI itself is a strong factor for CS delivery. With regard to interval between subsequent deliveries, they are less likely for CS delivery in all the three models as compared to the reference category. Educational level of mothers is an important determinant to undergo CS delivery. It is reported that with higher educational level of mothers there is an increasing likelihood to go for CS. The data suggest that educated mothers are two times more likely for CS delivery as compared to illiterate mothers and they are less affected by other confounding socio-economic variables. Exposure to media on the other hand is a poor factor to explain the rate of CS and they are more dependent on other variables although they are statistically insignificant. With regard to ethnicity it is reported that ST population are 30 percent less likely to go for CS in both model implying that they are less affected by other potential factors. In terms of religious affiliation Muslims are 30-40 percent likely for CS delivery implying that other variables have a profound effect on CS. On the contrary Christians and other religions are more likely to give birth through CS although they are statistically insignificant. The economy of the

household displayed a profound effect on CS. with increasing wealth index of mothers the rate of CS also increase. The middle, richer and richest categories are two to three times more likely to go for CS delivery and they are less explained by confounding variables included in the analysis. According to geographical regions in India the central region are less likely to go for CS delivery. However, the southern region is more likely to go for CS delivery compared to northern region.

Table 4 tabulate the distribution of deliveries taking place in various health facilities. Of the total birth that took place in public. Govt./Municipal run hospitals, 62.4 percent of birth had its first deliveries through C-Section followed by normal deliveries. It is also reported that of the total first delivery that took place in Public.Govt. Dispensary 74.4 percent were C-Section for the first birth followed by normal second deliveries. It is also observed that there was 53 percent of C-Section for the first deliveries followed by normal deliveries in private hospitals/maternity home/ clinic. Of the total deliveries that occur in the last five years, there was 46 percent for first C-Section followed by second normal deliveries in private run health institution followed by 32 percent from public. Govt./municipal health care facilities.

It is further observed that there were 35.7 percent who had c-section for the first birth in public sub-center followed by normal delivery at home for the second birth.

Secondly an analysis of the table also suggests that c-section for first and second births are very high in public Govt. hospitals. Of the total birth reported from public Govt. hospitals, 84 percent were through c-section for both deliveries. On the other hand private hospitals and maternity home/clinics reported a high figure of 85 percent c-section deliveries for both birth. In totality private health institution reported a very high figure of 82 percent that had c-section for at least a delivery.

In Table 5 the timing of decision to have a CS in first and second deliveries is analysed. It is observed that 34.7 percent decides “after onset of labour” (26.9) as opposed to “before onset of labour”.

DISCUSSION

With the growing rate of caesarean delivery world-wide, women should be counselled that repeat CS are bound with surgical difficulties and complications. While India reported a high percent of repeated delivery on an average, this varies across states. Although the slogan “Once CS always CS” is refuted the wide perception that once CS will be always CS still continues on a large scale in India. The data suggests that only a small population who undergoes CS for the earlier birth discontinues for the later birth. However, states like Bihar reported a whopping 25 percent that discontinues CS for the subsequent deliveries. Uttar

Pradesh and Rajasthan also reported a figure of 23 and 21 percent respectively that discontinues CS in subsequent deliveries. Although repeated CS is associated with various ailments the data however suggests that there is an enormous figure that undergoes CS in subsequent deliveries in India. There are several factors that determine the rate of CS such as voluntary acceptance, economy, private/public hospital etc. Voluntary CS is the patient request for CS without any health problem. This they did so because CS is less painful and less time consuming. This raises question on the voluntarily choosing of CS without health problems. Attitude concerning acceptance of CS also reveal that CS is very bad. However, on the contrary there is also a sizeable population considering CS as good (Qudsia Qazi et.al. 2013). Patients request and decision of physicians also play a major role in increasing CS. CS which is an operative surgical procedure is rising in many countries. Despite the level suggested by WHO (15%), many rich countries such as Australia, Europe, and USA is above the level. In addition India, Pakistan and China also has crossed the level in recent times. However on the contrary poor countries reported less CS which of course can be attributed to factors like inadequate facilities and medicine. This also suggests the financial situation as another potential factor explaining CS rate. In our analyses we also confirm that higher wealth index is supposedly followed by higher acceptance of CS. Differences between private and public institution is also well noted. It is also believed that although mothers can go for vaginal delivery, many private institutions suggested for CS as higher incentives could be earned. The Indian Institute of Management-Ahmedabad points out that there were as many as nine lakh preventable unplanned CS deliveries out of 70 lakh in private hospitals in India in one year, driven mainly by “financial incentives” (Arrieta., A., 2011). Qudsia Qazi (2013) also reported that the fear of death during procedure, fear of error during surgery, fear of subsequent infertility and postoperative pain are other potential factors of CS delivery.

When we classify according to socio-economic and demographic background it reveals that there is positive relationship with educational level suggesting that educated mother may be assumed to prefer CS in subsequent deliveries because of emergency or elective CS. Religion and Caste identity plays a crucial in resolving intricacies of issues in India. Christianity reported the highest 90 percent of repeated CS compared to Hindu and Muslim who score below 90 percent. According to media exposure it is reported that those who are exposed reveal a played higher percent of CS in subsequent deliveries. We also uncover that richer and richest groups reported a higher CS as compare with poorer population. Urban areas also reported higher CS subsequent deliveries as against its counterpart. The logistic odds also

suggest that higher educational level doubles its rate as compared to the reference category (illiterate population) even after controlling all the variables (model 3) in the analysis. These suggest that educational level explained away the odds with little influence of other background variables.

This only suggests that mothers who are educated and are richer prefer CS in subsequent deliveries. This can be assume that richer and educated mothers prefers CS because of receiving proper health care and to escape from VBAC because of the pain involved in vaginal delivery for the subsequent birth. However although VBAC is most recommended than CS there are number of scholars who identify various health implications. Mascarello (2017) states that "despite the practice of repeated CS in subsequent deliveries they are marked with various ailments. His concern is that after VBAC in subsequent deliveries, previous CS is at greater risk of uterine rapture during labour and delivery (Rossi etal 2017).

Religious affiliation with regard to repeated CS is also well documented. In our analysis we observed that Muslim and Christians are less likely to go for repeated CS as compared to the Hindus. However 'other religions' are more likely to go for repeated CS compared to those three major religions in India. B A., Olofinbiyi et al (2015) also noted that religious belief was the commonest reason given by respondents for not accepting repeated CS.

Regional variation also suggest that southern region which is economically more developed as compared to north and eastern region double the likelihood for repeated CS. However we notice that there are other factors that define the variable religion with regard to repeated CS, observing that religion alone cannot explain but are the joint effect of the various socio-economic variables. Gillian E. et al. (2010) indeed report that there are substantial regional variations in the use of CS.

CONCLUSION

The analyses of repeated CS rate indeed are profoundly determined by various socio-economic and demographic factors. A close examination of the data processed and literature reviewed, we observed that women with better economic background, urbanisation, weaken traditional practices and higher caste received a higher rate of repeated CS as compared to poor wealth index and Scheduled Tribe population. This indeed revealed that the prime factors mentioned could be summarized in just one explanation i.e. economy or wealth index since urbanisation, higher caste, higher educational level, richer states, etc. are the product of higher wealth index.

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Table 1: Prevalence of Caesarean Section and Repeated CS in a subsequent delivery by States/UTs, India, NFHS 5 (2019)

State/UTs	No. of women who had CS	CS	Repeated CS
North	28759	19.8	88.0
Chandigarh	233	31.3	94.0
Delhi	2634	23.6	94.0
Haryana	4272	19.5	87.9
Himachal Pradesh	2177	21	86.6
Jammu and Kashmir	9606	41.7	93.4
Punjab	2656	12.2	90.3
Rajasthan	4471	10.4	86.5
Uttarakhand	2709	20.4	95.0
Central	27526	16.2	91.8
Chhattisgarh	8910	31.3	82.3
Madhya Pradesh	5858	12.1	85.3
Uttar Pradesh	12758	13.7	78.4
East	**20374**	**17.2**	**86.1**
Bihar	4121	9.7	74.6
Jharkhand	3232	12.2	83.3
Odisha	6042	21.6	83.3
West Bengal	6979	32.6	89.1
Northeast	22566	21.8	79.1
Arunachal Pradesh	8341	42.2	50.0
Assam	6331	18.1	75.0
Manipur	2059	25.6	90.9
Meghalaya	1073	8.2	75.0
Mizoram	786	10.8	91.7
Nagaland	504	5.2	68.7
Sikkim	1073	32.8	73.2
Tripura	2399	25.1	78.8
West	16999	23.7	89.4
Dadra and Nagar Haveli	621	22.9	100.0
Goa	802	39.5	96.0
Gujarat	7002	21	89.6
Maharashtra	8574	25.4	88.0
South	49147	43.5	95.8
Andaman and Nicobar Islands	717	29.9	100.0
Andhra Pradesh	4631	42.2	95.4
Karnataka	9593	31.5	87.9
Kerala	4267	38.9	97.1
Lakshadweep	386	31.3	97.2
Puducherry	1332	36.3	94.7
Tamil Nadu	11517	44.9	93.9
Telangana	16703	60.7	94.0
Total	155178	21.5	91.3

Source: Computed from NFHS 5 data file.

Table 2: Prevalence of Repeat Caesarean Section in a subsequent delivery by Background Characteristics, India, NFHS 5

Background Characteristics	No	Yes
Age of women at first birth		
<=19	11.4	88.6
20-29	12.0	88.0
30+	7.2	92.8
CEB		
Two	10.9	89.1
Three and above	11.9	88.1
BMI of Women		
<18.5 (Thin)	17.7	82.3
18.5-24.9 (Normal)	12.7	87.3
>=25 (Overweight)	7.2	92.8
Interval (in months) between subsequent delivery		
<=11	3.3	96.7
12-23	12.2	87.8
24-35	12.7	87.3
36-59	14.3	85.7
Educational Level		
Illiterate	26.1	73.9
Primary	13.5	86.5
Secondary	10.4	89.6
Higher	5.8	94.2
Exposure to Mass Media		
Not Exposed	27.0	73.0
Exposed	10.4	89.6
Caste		
SC	12.7	87.3
ST	20.3	79.7
OBC	11.0	89.0
Others	11.3	88.7
Religion		
Hindu	11.5	88.5
Muslim	14.5	85.5
Christian	10.0	90.0
Others	9.7	90.3
Wealth Index		
Poorest	32.4	67.6
Poorer	18.5	81.5
Middle	10.9	89.1
Richer	7.9	92.1
Richest	7.3	92.7
Residence		
Urban	8.1	91.9
Rural	13.6	86.4
Total	**9.90**	**91.3**

Source: Computed from NFHS 5 data file.

Table 3: Odds Ratio showing the effect of background variables on Repeat Caesarean Section in a subsequent delivery, India, NFHS 5

Background Characteristics	Model 1	Model 2	Model 3
Age of women at first birth			
<=19®			
20-29	0.943	0.839**	0.89
30+	1.429	1.288	1.382
CEB			
Two®			
Three and above	0.799**	1.027	1.113
BMI of Women			
Thin®			
Normal	1.508***	1.325***	1.319***
Overweight	2.742***	1.947***	1.865***
Interval (in months) between subsequent delivery			
<=11®			
12-23	0.208***	0.201***	0.192***
24-35	0.199***	0.200***	0.195***
36-59	0.170***	0.169***	0.170***
Educational Level			
Illiterate®			
Primary	-	2.027***	1.941***
Secondary	-	1.929***	1.873***
Higher	-	2.763***	2.637***
Exposure to Mass Media			
Not Exposed®			
Exposed	-	1.182	0.928
Caste			
SC®			
ST	-	0.733*	0.703**
OBC	-	1.08	1.06
Others	-	0.881	1.025
Religion			
Hindu®			
Muslim	-	0.759**	0.784**
Christian	-	1.055	0.768
Others	-	1.029	1.267
Wealth Index			
Poorest®			
Poorer	-	1.753***	1.596***
Middle	-	2.816***	2.374***
Richer	-	3.483***	2.842***
Richest	-	3.114***	2.778***
Residence			
Urban®			
Rural	-	-	0.831*
Region			
North®			
Central	-	-	0.663***
East	-	-	1.058
Northeast	-	-	0.810
West	-	-	1.030
South	-	-	2.334***
Constant	23.050***	5.827***	7.241***

Note: ®: Reference Category; ***, **, *: <1%, 5% and 10% level of significance respectively
Source: Computed from NFHS 5 data file

Table 4: Percent distribution of deliveries happened in different health facilities in five years

preceding the survey, India, NFHS 5 2019

First Delivery	Second Delivery									
	Home	Public: Govt./ Munic. Hospital	Public: Govt. Dispensary	Public: UHC/ UHP/ UFWC	Public: CHC/ Rural Hospital/ Block PHC	Public: PHC/ Additional PHC	Public: Sub-Centre and other Public	Private: Hospital/ Maternity Home/Clinic	Other Private Sector Health Facility	NG Ho /Cl and
Public: Govt./Munic. Hospital	14.0	62.4	1.8	0.0	6.6	2.2	3.0	8.5	0.4	
Public: Govt. Dispensary	7.1	3.6	71.4	7.1	3.6	3.6	0.0	3.6	0.0	
Public: UHC/ UHP/UFWC	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	
Public: CHC/ Rural Hospital/ Block PHC	17.6	9.4	2.4	0.0	58.8	3.5	0.0	8.2	0.0	
Public: PHC/ Additional PHC	17.6	14.7	0.0	5.9	5.9	52.9	2.9	0.0	0.0	
Public: Sub-Centre and other Public	35.7	14.3	0.0	0.0	0.0	0.0	42.9	7.1	0.0	
Private: Hospital/ Maternity Home/Clinic	17.0	13.4	2.8	0.5	8.5	4.6	1.0	51.2	0.8	
Other Private Sector Health Facility	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	
NGO or Trust Hospital/ Clinic and others	9.1	9.1	9.1	0.0	9.1	0.0	0.0	27.3	0.0	
Total	15.8	28.3	4.6	1.7	12.5	5.5	2.3	27.8	0.6	
N	133	238	39	14	105	46	19	234	5	
Public: Govt./ Munic. Hospital	0.0	84.0	1.0	0.1	0.7	0.4	0.3	13.0	0.4	
Public: Govt. Dispensary	0.0	11.0	65.3	0.8	0.0	0.8	0.0	13.6	0.8	
Public: UHC/ UHP/UFWC	0.0	5.5	1.4	65.8	4.1	1.4	0.0	21.9	0.0	
Public: CHC/Rural Hospital/Block PHC	0.0	8.3	0.0	5.7	61.5	6.8	0.0	16.1	1.6	
Public: PHC/ Additional PHC	0.0	8.5	0.8	0.8	3.4	73.7	0.0	12.7	0.0	
Public: Sub-Centre and other Public	0.0	0.0	3.8	0.0	7.7	0.0	73.1	15.4	0.0	
Private: Hospital/ MaternityHome/Clinic	0.0	9.2	0.9	1.1	2.0	0.7	0.2	85.3	0.2	
Other Private Sector Health Facility	0.0	6.5	2.6	0.0	0.0	0.0	1.3	15.6	74.0	
NGO or Trust Hospital/ Clinic and others	0.0	3.6	0.0	0.0	3.6	0.0	0.0	42.9	0.0	
Total	0.0	27.9	2.1	1.7	3.6	2.2	0.5	59.7	1.2	
Public: Govt./ Munic. Hospital	2.1	80.8	1.1	0.1	1.6	0.7	0.6	12.4	0.4	
Public: Govt. Dispensary	1.4	9.6	66.4	2.1	0.7	1.4	0.0	11.6	0.7	
Public: UHC/ UHP/UFWC	0.0	4.9	1.2	69.5	3.7	1.2	0.0	19.5	0.0	
Public: CHC/Rural Hospital/Block PHC	5.4	8.7	0.7	4.0	60.6	5.8	0.0	13.7	1.1	
Public: PHC/ Additional PHC	3.9	9.9	0.7	2.0	3.9	69.1	0.7	9.9	0.0	
Public: Sub-Centre and other Public	12.8	5.1	2.6	0.0	5.1	0.0	64.1	10.3	0.0	
Private: Hospital/ MaternityHome/Clinic	1.5	9.6	1.0	1.1	2.6	1.1	0.3	82.2	0.3	
Other Private Sector Health Facility	0.0	6.4	2.6	0.0	0.0	0.0	1.3	15.4	74.4	
NGO or Trust Hospital/ Clinic and others	1.1	3.3	1.1	0.0	4.3	0.0	0.0	41.3	0.0	
Total	1.9	27.9	2.4	1.7	4.6	2.6	0.7	55.9	1.2	

Source: Computed from NFHS 5 data file.

Table 5: Timing of decision to have a Caesarean section in First and Second Delivery in five

years preceding the survey, India, NFHS 5

First Delivery	Second Delivery			Total
	Before Onset of Labour	After Onset of Labour	Don't know	
Before Onset of Labour	48.1	7.6	0.1	55.8
After Onset of Labour	16.6	26.9	0.2	43.7
Don't know	0.1	0.1	0.3	0.5
Total	64.8	34.7	0.6	100.0

Source: Computed from NFHS 5 data file.