Trends and Correlates of Caesarean Section Births in Jammu and Kashmir

Cesarean section surgery, when medically indicated and performed by trained staff with the necessary equipment and supplies can be a life-saving procedure for the mother and baby, but this procedure can also lead to short-term and long-term health effects for women and children. World Health Organization has estimated the ideal population-level cesarean rate at 10-15%, but, unfortunately, the high and increasing levels of cesarean delivery rates around the world illustrate that the procedure is not always medically indicated. Like other parts of the world, C-section rates are also increasing in India but there are few States like Telengana and Jammu and Kashmir where more than 40% of births are delivered through C-section. Based on the National Family Health Survey Data of various rounds, the aim of this study is to study the trends and patterns of caesarean section in Jammu and Kashmir. The study will examine the role of various socio-economic and demographic factors in explaining the variation in caesarean section rates among various groups. An effort has also been made to estimate the excess of C-section and also estimate the potential cost savings if health facilities in the Jammu and Kashmir particularly private health facilities followed World Health Organization recommendation for cesarean deliveries.

Materials and Methods

The study is based on the National Family Health Survey-4 Data and the fact sheets of NFHS-5. The fourth round of the National Family and Health Survey (NFHS-4) in J&K collected information about 7693 live births born during the five year period before the survey. The survey provided additional demographic and health information as well as household socioeconomic status and individual social economic information and characteristics of delivery. A binary logistic regression model was constructed to estimate the increase in the likelihood of cesarean delivery by various background variables. The explanatory variables considered were the size of the child at birth, birth order of the child maternal age at the child's birth, maternal body mass index, maternal educational household wealth quintile, household religion and caste, area of residence, place of delivery, delivery complications, ANC utilization and planning of c-section. A scenario analysis was performed to estimate the economic burden of avoidable cesarean deliveries in the State by calculating the cesarean deliveries that could have been avoided if WHO recommendation of 15 percent C-section is followed and the potential cost savings that could have been achieved under various scenarios.

Findings

Jammu and Kashmir has registered an unprecedented increase in the proportion of C-section births during 2005-2016 as the C-section rate has increase from 13.5 in 2005-06 to 33.1 percent in 2015-16 and 42 percent in 2019-20. Though the C-section rates are very high in urban areas of J&K but between 2015-06 and 2019-20, most of the increase in C-section deliveries was observed in rural areas and consequently, the gap between the rural urban C-section rates which was 26 percent 2015-16 has declined to 17 percent in 2019-20. There are sharp regional variation in C-section rates across three geographic regions in J&K. Kashmir Valley has the highest C-section rates and according to NFHS-5 almost half of births in Kashmir Valley are delivered through C-section while as in Jammu division about 38 percent are C-section births and Ladakh has a C-section delivery rate of 30.

While looking at the place of C-section in J&K, higher proportion of C-sections are performed at private health facilities. The difference in C-section rates between the public and the private sector has widened over the last three decades. From a public-private difference of around 7 percent in NFHS-1, the gap has

jumped to 40 percent in NFHS-5. C-section rate by public private place also varies greatly by region of residence. In Kashmir division 76 percent of births in Private health institutions are C-section as compared to 55 percent in Jammu division.

Few socio-economic and birth characteristics are associated with high c-section rates in Jammu and Kashmir. Births of order 1 and older women, women with higher education, Muslim women and women who belong to highest wealth quintile have very C-section rates as compared to their counterparts. Similarly, births of less than average size, twins and births to obese and overweight women are also more likely to deliver by C-section. There is no significant relationship between various delivery complications and C-section; however, women with a breach presentation are more like to deliver through C-section.

Planned C-sections constitute two-third of all C-sections in J&K and this percentage is very high in Kashmir region (71 percent). Planned c-sections are also very high among births in a private health sector but even among births in a public health sector 66 percent c-sections are planned before on set of labour. Planned c-sections are higher among obese women as compared to women who have thin or have a normal BMI. Further women who had a previous C-section have a higher probability of having a planned C-section for the next birth. This percentage is similar whether a woman has delivery complications or not.

The number of live births as per the SRS CBR and HMIS is almost 1.95 lacs in the State. With a C-section rate of 41.7 percent, a total number 81476 C-sections are taking place annually in the State and according to the WHO threshold of 15 percent; the state should report only 29308 C-section births annually. Thus, it is estimated that J&K is recording an annual excess of 52.1 thousand cesarean births from 2015 through 2020, concentrated mostly in Valley of Kashmir. The average out-of-pocket cost for a normal institutional delivery was Rs. 3586 and the average cost of a C-section delivery in the State was Rs. 9046 as compared to 3586 in case of a normal institutional delivery. Thus the difference in cost between a normal and c-section birth is Rs. 5460. Assuming the State followed the WHO recommended threshold of 15 percent cesarean delivery rate, potential cost savings would be Rs. 28.50 crores annually.

Discussion

The age at marriage in Jammu and Kashmir particularly in Kashmir Valley has increased during the last 20 years. As per NFHS-5, 35 percent of women age 15-49 in the State are unmarried which is one of the highest in India. With delayed marriages, the chances of conception decrease and consequently, even the very first pregnancy becomes precious. The whole family, relatives and the couple see the C-Section to be the sole solutions to ensure that baby is born alive and mother is also safe. So far as higher C-section rates among older women with first parity is concerned, women who marry late have to conceive late But with increasing age, older women have higher probability of having comorbidities like hypertension, diabetes, hypothyroidism and other medical complications increase, and these problems get murkier during pregnancy and for these women the CS becomes the ultimate option to save both the mother and the baby.

During earlier phase of militancy when the female sterilization facility was not available in Kashmir based public health facilities, women had to go to Jammu and outside State for female sterilization. However as the years passed a new trend for post partum sterilization emerged in Kashmir. Now as the ideal family size is less than 2 and Total Fertility Rate has sharply declined women opt for post partum sterilizations. Although, female sterilizations services were restarted in Kashmir after 2000, but women

found postpartum sterilization more convenient due to the social stigma/insecurity associated with female sterilization and it also has helped in increasing the demand for a C-section births in Kashmir.

The role of public facilities is crucial because 86 percent of all institutional deliveries occurred in government hospitals during 2015 to 2016, compared with 41 percent 10 years earlier (NFHS-3). However, while in the country the cesarean birth rates remained appropriate in government facilities at 12 percent in 2015 to 2016, but in J&K, C-section rates in public health facilities increased from 18 percent in 2005-06 to 43 percent in 2019-20. In contrast, the cesarean rate in private clinics grew from 30 percent to percent 82 percent during the same period. Therefore, the last 14 years witnessed a complex transition affecting both the places and modes of delivery: many poor women gained access for the first time to safer childbirth in public facilities, but women belonging to higher socio economic class are opting to deliver through C-section both in public as well as private health facilities. Our analysis further shows that the diffusion of cesarean deliveries appears closely associated with socioeconomic status, with a variation in cesarean rates from 9 percent to 50 percent as women move up the social ladder. While the educated, urban and wealthier women do themselves decide the type of delivery they opt but same is not the case with poor and middle class women. These women apart from receiving antenatal care from a public health facility also keep on visiting a private clinic/doctor for ANC services. As these women are not aware about the benefits of a normal delivery and they also do not have the power to decide the place and mode of delivery and in such cases, physicians play a crucial role in deciding whether it should be a vaginal delivery or CS. This opportunity gives physicians a window to convert vaginal delivery to CS, as a CS procedure enhance the physicians' income or time spent in patient care.

Our findings, call for a need to monitor the further progression of cesarean rates in J&K. The drivers of the current enthusiasm for surgical deliveries in J&K are not yet well understood. They may include changes in lifestyles, commercial pressure, and cultural factors, but this emerging situation calls for further investigation. In urban areas and among the middle class, cesarean rates have already reached levels consistently higher than what is considered medically justified. Effective interventions and policies targeted at women and health care professionals to reduce unnecessary cesarean deliveries will be required to avoid growing inequalities in access to cesarean and unnecessary procedures.