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Inequalities in Utilization of Maternal Health Care Services by Wealth Quintiles in India

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ABSTRACT:
Maternal health care services that a woman uses are full antenatal care, institutional delivery, delivery assisted by the skilled birth attendant, and postnatal care check-up within 48 hours of delivery both for mothers and newborns. It is one of the important determinants of the health status of mothers and children as well as Neonatal, Infant, Under-five, and Maternal mortality rates. The present study attempts to analyze the inequalities in the Utilization of Maternal Health Care Services, by the female population in the reproductive age of 15-49 years, belonging to different wealth quintiles in India on the basis of Secondary data from the National Family Health Survey-4, 2015-16. The study identifies considerable differences in the utilization of maternal health care services by wealth quintiles, with just 15% coverage of full antenatal care services, 59.6% coverage of institutional deliveries, 64% of the deliveries assisted by a skilled birth attendant, 48% of postnatal check-up of mothers, in the lowest wealth quintiles whereas with 39.9% coverage of full antenatal care services, 95.3% coverage of institutional deliveries, 96% of the deliveries assisted by a skilled birth attendant, and 80% of mothers had a postnatal check-up, in the highest wealth quintile.
Keywords: Utilization, Maternal Health Care, Antenatal Care, Institutional delivery, Postnatal Care, Wealth Quintiles

I. INTRODUCTION:

Better Maternal and Child Health is the measure of Socio-economic development of any country. Improving maternal health is one of the targets of the third Sustainable Development Goals (SDGs), Good Health and Wellbeing, adopted by the international community [1]. It aims to reduce the global maternal mortality ratio to less than 70 per 100,000 live births by 2030 and end preventable deaths of newborns and children under five years of age with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under-five mortality to at least as low as 25 per 1,000 live births[2]. Maternal mortality remains a health problem to be addressed at the global level with an estimate of 810 maternal deaths per day at the global level, according to 2017 estimates, with an incidence as high as 94 percent in low-income countries[3]. The Maternal Mortality Ratio in low-income countries is as high as 462 per 100,000 live births whereas in high-income countries it is only 11 per 100,000 live births [4]. Full utilization of maternal health services which includes full antenatal care, institutional delivery, delivery with a skilled birth attendant, and postnatal care within 48 hours of delivery for both mothers and newborns, can reduce most of the preventable causes of maternal and neonatal deaths improving their health and well being and achieve the stated targets of the Sustainable Development Goal (SDG) [5,6]. In India the Neonatal mortality rate is 30, the Infant mortality rate is 41, the Under-five mortality rate is 50 per thousand live births and the Maternal mortality rate is 113 per 100,000 live births which is much above the stated targets of sustainable development goals. Maternal mortality rates have a higher incidence in low per capita income states such as 215 in Assam, 197 in Uttar Pradesh, 173 in Madhya Pradesh, 164 in Rajasthan, 159 in Chhattisgarh, 150 in Orissa, and 149 in Bihar. In contrast, South Subtotal is 67 including Andhra Pradesh, Telangana, Karnataka, Kerala, and Tamil Nadu and other states subtotal is 83[7]

While India is one of the fastest-growing economies in the world, it is marked by widening and glaring inequalities in the income and wealth distribution. The rich are getting richer at a much faster pace while the poor are still struggling to earn a minimum wage and access quality education and healthcare services. These widening gaps and rising inequalities affect women and children the most[8].

Therefore the present study attempts to analyze the inequalities in the Utilization of Maternal Health Care Services, by the female population in the reproductive age of 15-49 years, belonging to different wealth quintiles in India.

STUDY AREA:

India is the 7th largest country in the world, with 28 States and 8 Union Territories, and is bounded by the Great Himalayas in the north. The Country is surrounded by the Bay of Bengal in the east, the Arabian Sea in the west, and the Indian Ocean to the south. Lying entirely in the Northern Hemisphere, the Country is generally between 8° 4' and 37° 6' latitudes north of the Equator, and 68° 7' and 97° 25' longitudes east of it. with an area of 3.3 Million sq. km. surrounded by Afghanistan and Pakistan in the north-west; China, Bhutan, and Nepal in the north; Myanmar and Bangladesh in the east and Sri Lanka in the south.

DEMOGRAPHIC PROFILE:

According to the India census 2011, India's population stood at 121 crores with 62.4 crores of males and 58.6 crores of females[9]. The average annual exponential growth rate stood at 1.64 percent from 2001 to 2011. The Crude Birth rate was 18.3 in 2009 and the Crude Death rate was 7.3 in 2009. The life expectancy rate was 65.8 years for Males and 68.1 years for Females in 2006-2011 with a sex ratio of 940 females per 1000 males. The neonatal mortality rate is 30, the Infant mortality rate is 41, the Under-five mortality rate is 50 per thousand live births and the Maternal mortality rate is 113 per 100,000 live births

Household Characteristics in India

Households in India with basic needs such as electricity, clean drinking water source, improved sanitation facility, access to clean cooking fuel though have improved marginally much more needs to be done as all of it has implications on the health status and accessibility to health care services and hence productivity.

TABLE 1

Household Characteristics in India	NFHS4 (2015-16)
Population living in households with electricity	88.2%
Population living in households with an improved drinking water source	89.9%
Population living in households that use an improved sanitation facility	48.4%
Households using clean fuel for cooking	43.8%
Households using iodized salt	93.1%
Households with any usual member covered under a health insurance	28.7%

Source: National Family Health Survey Fact Sheets, http://rchiips.org/

II. DATA AND METHODOLOGY:

The analysis is based majorly on the data available from the fourth round of the national family health survey carried out during 2015-16. The NFHS-4, 2015-16 provides information on the population, health, and nutrition of India and its every state and union territory. The Ministry of Health and Family Welfare Government of India designated the International Institute of Population Sciences Mumbai as the nodal agency to conduct NFHS-4. The survey for India was conducted from 20 January 2015 to 4 December 2016, which gathered information from 601,509 households, 699,686 women, and 103,525 men. The Study employs bivariate analysis methods to explore the inequalities in the Utilization of Maternal Health Care Services, by the female population in the reproductive age of 15-49 years, belonging to households categorized into five wealth quintiles as Lowest, Second, Middle, Fourth, and Highest wealth quintile. The study variables include full antenatal care, institutional delivery, delivery with a skilled birth attendant, and postnatal care within 48 hours of delivery for both mothers and newborns. On the other hand, the independent variable used in the analysis includes the wealth quintile of the households of the sample female respondents.

The wealth index is a composite measure of a household's cumulative living standard. The wealth index is calculated using easy-to-collect data on a household's ownership of selected assets, such as televisions and bicycles; materials used for housing construction; and types of water access and sanitation facilities. Households are given scores based on the number and kinds of consumer goods they own. These scores are derived using principal component analysis. National wealth quintiles are compiled by giving household scores to each usual household member, ranking each person in the household population by their score, and then dividing the distribution into five equal categories, each with 20 percent of the population [10]. The DHS wealth

index categorizes households into five wealth quintiles as Lowest, Second, Middle, Fourth, and Highest wealth quintiles [11].

III. ANALYSIS AND FINDINGS:

Percent distribution of the population by Wealth Quintiles

According to NFHS-4 2015-16, **the greatest differentials in population distribution by wealth quintiles in India are according to their place of residence, and region(states /union territory), and across social groups.**

In **Urban areas** of the country, 74.4 percent of the population is in the highest two wealth quintiles, 15.6 percent of the population is in the middle wealth quintile and 10.1 percent of the population is in the lower two wealth quintiles whereas **in rural areas** 22.9 percent of the population is the highest two wealth quintiles, 22.2 percent of the population is in the middle wealth quintile and 54.9 percent of the population is in the lower two wealth quintiles. Thus **the majority of the population in the urban areas of India is the highest two wealth quintiles whereas the majority of the population in rural areas of India are in the lowest two wealth quintiles.**

The Northern States/ Union Territories except Rajasthan have 60-90 percent of the population in the highest two wealth quintiles, 5-25 percent in the middle wealth quintile, and 3-25 percent in the lowest wealth quintile. The **majority of the population** in the Northern States of India, with the highest percentage in Chandigarh, Punjab, and Delhi, **are in the highest two wealth quintiles.**

In Western and Southern States/Union Territories of India except for Dadar and Nagar haveli 50-80 percent of the population is in the highest two wealth quintiles, 15-30 percent in the middle wealth quintile, and 2-20 percent in the lowest wealth quintile. The **majority of the population** in the Western and Southern States/Union Territories of India, with the highest percentage in Kerala and Lakshadweep, **is in the highest two wealth quintiles**.

In North-Eastern States/Union Territories of India except Mizoram and Sikkim 20-30 percent of the population is in the highest two wealth quintiles, 20-30 percent in the middle wealth quintile, and 40-60 percent in the lowest wealth quintile. **The majority of the population** in the North Eastern States/Union Territories of India, **are in the lowest two wealth quintiles** except that in Mizoram and Sikkim with only 16 and 13 percent of the population in the lowest two wealth quintiles.

The Central and Eastern States/union territories of India comprising Chhattisgarh, Madhya Pradesh, Uttar Pradesh, Bihar, Jharkhand, Orissa, and West Bengal have only 20-30 percent of the population in the highest two wealth quintiles, 15-20 percent in the middle wealth quintile, and 50-70 percent population in the lowest two wealth quintiles.**The majority of the population** in the Central and Eastern States of India **are in the lowest two wealth quintiles**.

Across social groups **In Scheduled Castes and Scheduled tribes** 15-28 percent of the population in the highest two wealth quintiles, 15-22 percent in the middle wealth quintile, and 50-70 percent population in the lowest two wealth quintiles whereas in Other Backward Class and Others 45-55 percent of the population in the highest two wealth quintiles, 18-22 percent in middle wealth quintile, and 25-35 percent population in the lowest two wealth quintiles. Thus the majority of the population in the Other Backward Class and Others are in the highest two wealth quintiles whereas **the majority of the population** in the Scheduled Castes and Scheduled tribes **are in the lowest two wealth quintiles.**

Out of 699,686 women, aged 15 to 49 years interviewed,

494,951 women resided in rural areas and 204,735 women resided in urban areas of the country.

140,792 women resided in northern states/ union territories of India, 3,11883 women resided in central and eastern states/ union territories of India, 98,702 women resided in Northeastern states/ union territories of India and 148,309 women resided in West and Southern states/ union territories of India.

42 percent of the women respondents were in the highest two wealth quintiles, 20.6 percent in the middle wealth quintile, and 37.4 percent in the lowest two wealth quintiles. On average there was approximately 20 percent of respondents in each of the five wealth quintiles are in the reproductive age group of 15-49 years of age.

Full Antenatal Care:

Full Antenatal Care is an important measure of utilization of maternal health care services. Antenatal care reduces the health risks for mothers and their babies by monitoring pregnancies and screening for complications. Among mothers who gave birth in the five years preceding the survey, 79 percent received at least one antenatal care (ANC) for the last birth from a skilled health professional(doctors, auxiliary nurse midwives, nurses, lady health visitors). One in five women 16 % did not receive any antenatal care.

Full antenatal care includes having received at least four antenatal care visits during pregnancy, having received at least one tetanus toxoid (TT) injection, and having taken iron-folic acid(IFA) tablets for 100 or more days.

The full antenatal care services for pregnant women have continuously increased in consecutive health surveys across the country but the coverage is still very low, recognizing its impact on maternal and child health the gap needs to be addressed by the government.

Mothers who had received full antenatal care for their last live birth in the five years preceding the survey are still just 21% according to NFHS-4 a little better than 11.6 percent in NFHS-3. But still, the coverage is very low.

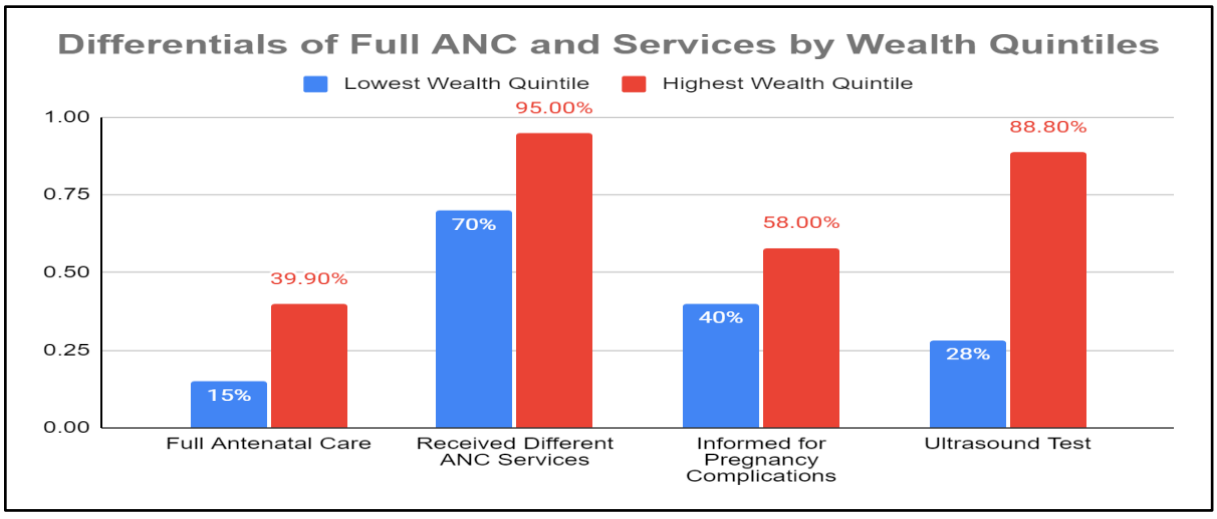
The wealth quintile is one of the dominant determinants of utilization of the full antenatal care services in the country. The differentials for the coverage of full antenatal care services by wealth quintiles are high. Coverage of full antenatal care services for the most recent birth five years preceding the survey in the highest wealth quintile is 39.9% whereas in the lowest wealth quintile it is only 15%.

Even when women receive antenatal care, sometimes they do not receive all the services to monitor their pregnancy. Approximately 90% of women who received antenatal care for their last birth received each of the services needed to monitor their pregnancy; having their weight taken, their blood pressure measured, and a blood sample taken(89% each), having a urine sample taken (89%), and having their abdomen examined(90%). The differentials by wealth quintiles are dominant in reference to receiving various antenatal care services as only an average of 70 percent of the women in the lowest wealth quintile whereas on an average more than 95 percent of the women in the highest wealth quintile received the above stated antenatal care services.

Approximately 50% of the women received information on specific signs of pregnancy complications such as vaginal bleeding, convulsions, prolonged labour, severe abdominal pain, and high blood pressure. 68% of the women were informed where to go if they experienced any pregnancy complications. The differentials by wealth quintiles are dominant in reference to the receiving information on the specific signs of pregnancy complications as stated above as only on an average 40 percent of the women in the lowest wealth quintile whereas 58 percent of the women in the highest wealth quintile were informed about the probable pregnancy complications.

An ultrasound test was performed during 61% of pregnancies in the five years preceding the survey with the wealth quintile as one of the important determinants, as 28.3 percent of the women in the lowest wealth quintile and 88.8 percent of the women in the highest wealth quintile had an ultrasound test done during pregnancy.

FIGURE 1



Institutional deliveries

Institutional deliveries are one of the parameters to assess the utilization of maternal health care services. Institutional delivery or delivery at health facilities, with skilled personnel and in hygienic conditions, reduces the risk of complications and infections during labour and delivery and hence results in reducing maternal and neonatal mortality.

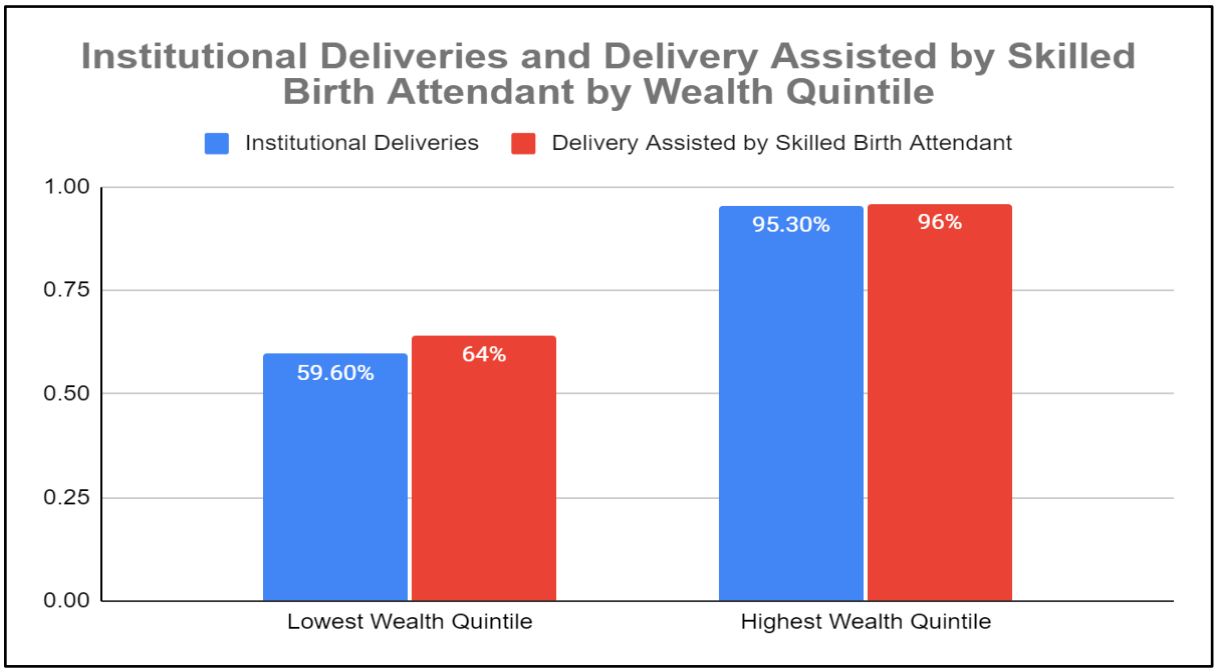
The percentage of live births in the five years preceding the survey delivered in a health facility is on a rising trend in the consecutive health surveys. 78.9 percent of deliveries were institutional deliveries doubled from 38.7 percent in NFHS-3.

The wealth Quintile is one of the dominant differentials of institutional deliveries as 59.6 percent of the women in the lowest wealth quintile whereas 95.3 percent of the women in the highest wealth quintile had institutional deliveries.

Skilled birth attendant

There has been a remarkable increase in birth assisted by a skilled attendant, such as doctor/nurse//LHV/ANM/Other, approximately thrice from 46.6% in NFHS-3 to 81.4% in NFHS-4. Wealth Quintiles is one of the dominant differentials of institutional deliveries and skilled birth attendant in terms of accessibility and affordability to maternal health care services. Birth assisted by skilled health personnel for mothers in the lowest wealth quintile was 64% whereas for mothers in the highest wealth quintile was 96%.

FIGURE 2

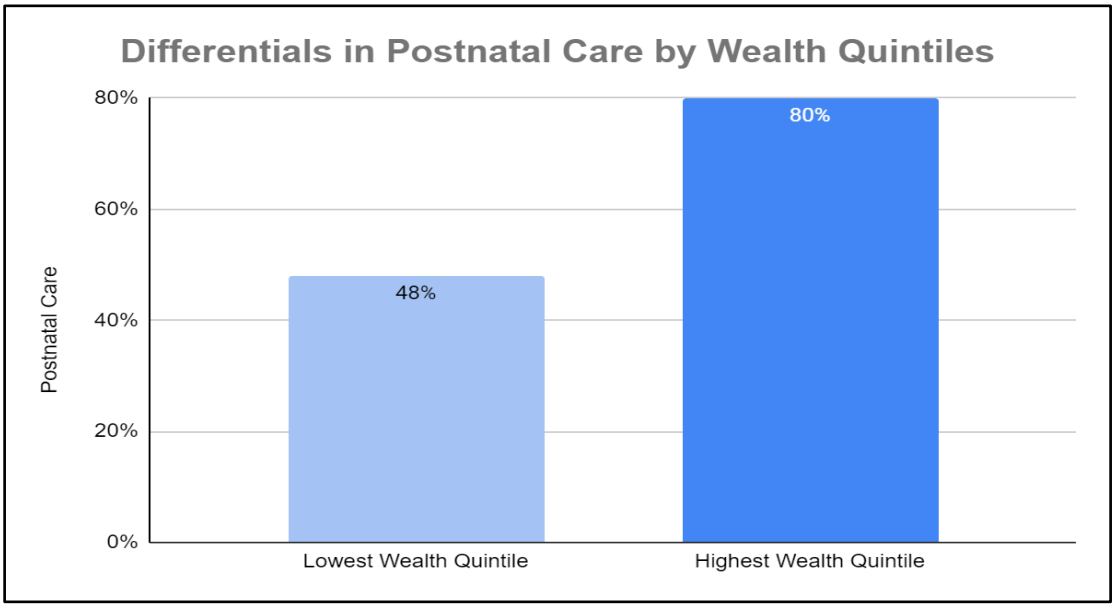


Postnatal Care

Postnatal care is one of the important measures of utilization of maternal health care services. Postnatal care is an essential component of maternal and child health care. It refers to maternal and newborn check-ups within 42 hours of delivery. Postnatal care is a vulnerable period because most maternal and newborn deaths occur during this period, especially, immediately after delivery. Postnatal care can prevent the majority of these deaths(Sharma et al, 2014). There is evidence to suggest that effective care during pregnancy and at the time of delivery can lead to effective postnatal care. There is also socio-economic Inequality in access to postnatal care. The coverage of essential postnatal care is inadequate, especially for women belonging to economically disadvantaged households (Singh et al,2012).

Only 62% of the mothers received postnatal care check-ups from health personnel within two days of delivery. That means still more than 38% of mothers did not have any Postnatal check-ups. However, the percentage of mothers receiving postnatal care is five times as compared to 13% who had a check-up within two days of the birth in NFHS-3. Postnatal care is most common following births in a health facility; however, 22% of the mothers in health facilities were not followed by a postnatal check-up. Only 29.2% of home births were followed by a postnatal check-up of the mother. The differential for postnatal care by wealth quintile is dominant as 80% of the mothers from the highest wealth quintile whereas only 48% from the lowest wealth quintile had a postnatal check-up.

FIGURE 3



In the case of a **postnatal health check-up of the newborn,** the situation appears to be very poor as only 27.5% of the children did receive any postnatal health check-up within the first two days of their life when the probability of the death is the highest. Early neonatal mortality is a serious concern but this concern did not appear to have received adequate attention yet.

IV. CONCLUSION:

The gaps in almost all components of the utilization of maternal health care services are prominent, so as to achieve the targets set up by the sustainable development goals, with just 21 percent coverage of full antenatal care services, 78.9 percent coverage of institutional deliveries, 81.4% of the deliveries assisted by the skilled birth attendant, 62 percent of postnatal check-up of mothers and only 27.5 percent postnatal check-up for newborns.

We observed considerable differences in the utilization of maternal health care services by wealth quintiles, with just 15% coverage of full antenatal care services, 59.6% coverage of institutional deliveries, 64% of the deliveries assisted by a skilled birth attendant, 48% of postnatal check-up of mothers, in the lowest wealth quintiles whereas with 39.9% coverage of full antenatal care services, 95.3% coverage of institutional deliveries, 96% of the deliveries assisted by a skilled birth attendant, and 80% of mothers had a postnatal check-up, in the highest wealth quintile. Thus the central, eastern, and northeastern states, the rural areas, and scheduled caste scheduled tribes, which have the majority of the population in the lowest two wealth quintiles, have a higher incidence of lesser utilization of the maternal health care services either due to accessibility or affordability need to be addressed for better maternal and child health, the decline in mortality rates, socio-economic development of the country and quality of life.

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