Patterns of Utilisation of Material Healthcare Services In Haryana, India

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Abstract

Background: Despite being a relatively smaller state, Haryana's per capita Gross State Domestic Product (GSDP) is high. The statistical data on the status of women has a different story to share.

Objective: This study analyzes the maternal healthcare situation in Haryana to examine the differential in utilization of maternal health care service i.e. antenatal care on the basis of socio economic and socio demographic indicators such as Women's age at Birth, Birth order, Education, Residence, Religion, Wealth index and Caste.

Methodology: The present study uses the third round of the National Family Health Survey (NFHS) data which is similar to the Demographic and Health Surveys (DHS). DHS collects, disseminates national data on health and population in developing countries.

Findings: indicate that economic status, husband's education and caste have effect on the utilization of antenatal care services.

Conclusion: The present study demonstrates several socio economic and demographic factors affecting the utilization of antenatal care services in Haryana. Efforts need to be taken at community and household level to improve utilization.

Abbreviations: NFHS- National Family Health Survey; DHS- Demographic and Health Surveys; MDG- Millennium Development Goals; SC/ST-Scheduled caste/Scheduled tribe; WHO-World Health Organization; MOHFW- Ministry of Health and Family Welfare; ANM – Auxiliary Nurse Midwife; VIF – Variance Inflation Factor; OBC- Other Backward Classes; ANC- Antenatal Care; TBA – Trained Birth Attendant.

Keywords: Maternal Health, Antenatal care, Health Indicators, socio-economic status, Accessibility, Haryana, India.

Introduction

One of the eight Millennium Development Goals (MDGs) set by United Nations in 2000 is to improve the maternal health targeting at reducing the maternal mortality ratio by three quarters between 1990 and 2015 and to achieve universal access to reproductive health by 2015. Maternal mortality is unacceptably high about 800 women die per lakh live births from pregnancy or child birth related complications around the world every day. In 2013, 2, 89,000 women died during and after pregnancy and childbirth. Ninety nine percent of these deaths occur in developing countries. [1]

India has taken several steps in this regard since independence in the form of five-year plans to promote the goal of universal health. But finally in 1983 it came up with a National Health Policy which aimed at Health for all by 2000 through universal comprehensive primary health services. But it failed to achieve it because of lack of financial resources and public health administrative capacity. In 2002, it attempted a new policy framework as the National Health Policy 2002 which primarily aimed at achievement of health goals keeping in mind the prevailing socio-economic conditions. [2-6]

Though National Health Policy has set objectives keeping in mind everyone's health needs, but maternal health care needs a special attention as women are considered as the most vulnerable group in society. [7] Health and socio-economic development of any country are interdependent. Levels of maternal mortality tell us about the risk attributable to pregnancy and child birth as well as the performance of health systems in terms of access to health care and quality of care provided. Yet the economic development in India has gained momentum over the last decade, but the public health system is lagging behind. In Haryana, rural population accounts for 71 percent of the state's population. Haryana's per capita income is amongst the highest and fastest growing in the country. But the Anthropological Survey of India reports that the position of women in Haryana continues to be bad. Women have lagged behind in all the sectors. Haryana is the second richest state in India in per capita income but sex ratio in Haryana continues to be highly unfavourable to females. [8-9]

Significance of Study

The study of maternal health care use in Haryana is timely because maternal mortality and morbidity still remain high in this state in spite of all the efforts made to address the healthcare needs of women of reproductive age. Secondly, not many studies have focused on Haryana State per se and not much literature is available despite unfavorable sex ratio.

Objective of the study

The main objective of this study is to examine the differentials in utilization of maternal healthcare service i.e. antenatal services in Haryana on the basis of various socioeconomic and Sociodemographic factors.

Anderson's Behavioural Theory [10] is used as a conceptual framework for the analysis of maternal health care use based on the socio-economic characteristics as potential correlates. The Anderson behavioral model postulates that the use of maternal healthcare services is influenced by three sets of individual characteristics (a) Predisposing characteristics (i.e. age, parity, woman's education, her husband's education, woman's autonomy); (b) Enabling characteristics (i.e. household wealth, place of residence, woman's employment); (c) Need

characteristics (i.e. antenatal care, delivery care, postnatal care).

Considering the Anderson's Behavioral theory model predisposing factors are socio demographic that would predispose women to use maternal healthcare services, while the enabling factors are the socioeconomic factors that may make women prove to use healthcare services.

In this study the Aday and Anderson's model was not tested rather the association between explanatory variables (demographic and social) and utilization of maternal healthcare indicators were explored.

Review of Literature
Determinants or correlates of utilization can emanate from demand or supply side.

Demand side Determinants
Demand side determinants are individual and household level factors that affect the utilization of services.

The household socio-economic status and mother's education were the most important factors associated with the use of Antenatal Care and skilled attendance at delivery in Madhya Pradesh. [11]

Women's age at child birth appears to be a related factor to the use of maternal healthcare services. In a study based on India [12] found that mothers younger than 18 were less likely to use antenatal services compared to women above 18 years of age. While some studies such as [13] suggests that women's age can also indicate women's knowledge of healthcare services and can have a positive effect on utilization of maternal healthcare services

A study based on north-eastern states of India suggests that for better maternal health care utilization, policies should be directed towards the vulnerable group i.e. women representing the SC/ST background because high percentage of population belongs to scheduled tribes in the north-eastern states. The result showed that education of both the woman and her husband plays a vital role in utilization of maternal health care services. Other variables that can have significant impact on availing of the maternal health care services are media, autonomy enjoyed by women and their occupational status. [14]

A study based on Uttar Pradesh suggests that women's autonomy plays an equally important role in maternal health care utilization as women's educational status. The analyses show that women with greater freedom of movement are more likely to use safe delivery care and obtain higher levels of antenatal care. [15]

According to the study, [16] mother's educational level has a positive impact on utilization of maternal healthcare services. Visit of a health worker has a significant positive impact on the utilization of full antenatal and post natal care services among women. [17]

Pallikadavath [18] found that Muslim women utilized these services more than others whereas, there was low utilization of services among scheduled castes and scheduled tribes. A study observed that Muslim women give birth outside medical facilities more often than Hindu women. But nothing has clearly emerged in India on utilization of healthcare services based on religion.

Other factors such as economic status of

women of the household also affect the utilization of antenatal care services and delivery care. [19]

Supply Side Determinants

Utilization of healthcare services is possible only if healthcare services are available for access. Healthcare facilities in terms of proximity and providers of healthcare play an important role in utilization of services.

A study based on Andhra Pradesh, Karnataka, Kerala and Tamil Nadu found that variations in use of services were primarily related to availability and access. [20]

This literature review has highlighted the importance of individual, household and community level factors that affect the use of antenatal services.

Methods

Data Source

The present study uses the third round of the National Family Health Survey (NFHS) data which is similar to the Demographic and Health Surveys (DHS). DHS collects, disseminates national data on health and population in developing countries.

The NFHS is a large scale, multi round survey conducted in a representative sample of households throughout India. The NFHS-III was conducted in 2005-06 and is the third in the series of surveys done by Government of India. NFHS-III covers information on nationally representative sample of 1, 09,041 Households, 1, 24,385 (both married and unmarried) Women age 15-49 years and 74,369 Men (both married and unmarried) age 15-54 years from all 29 states.

Study Population and Sample Size

The present study examines the pattern of utilization of maternal health services among currently married women age (15-49) years in Haryana.

In Haryana, NFHS-III is based on a sample of 2,302 households that is representative at the state level and within state at the urban and rural levels. The study interviewed 2,790 women age 15-49 years from all sample households and 1,083 men age 15-54 from a sub sample of households for obtaining information related to population, health and nutrition in the state. The household response rate in the state as a whole was 99 percent and the individual response rates were 96 percent for eligible women and 85 percent for eligible men.

In this study data related to currently married women (15-49) years of age is examined and a total of 2134 currently married women from both rural and urban areas is included. [21-22]

Measurement

The study measures the outcome variables namely Antenatal care to explore inequities in utilization pattern of maternal healthcare services in Haryana. The selected indicator of maternal healthcare utilization and its components are examined on the basis of guidelines laid by the Ministry of Health and Family Welfare (MOHFW), Government of India and World Health Organization (WHO). The independent variables used in this study are socio-economic and socio-demographic. Predisposing Factors such as women's age at child birth, women's and their husband's education level, religion; caste, women's autonomy, mass media exposure and Enabling Factors such as place of residence, wealth index, met with ANM/community health worker and work status.

Statistical Methods

Univariate analytic techniques were used to provide a description of all variables used in the analysis. The NFHS -3 dataset was used to extract information and STATA 10 was used to correctly estimate population means, proportions and standard deviations. [23]

To identify factors associated with maternal healthcare utilization, bivariate and multivariate analyses were performed.

Multivariate analyses were performed to examine the nature of predictor variables and their relative contribution in explaining the dependent variables. Since both outcomes in this analysis are dichotomous in nature, logistic regression was used to predict the association between the dependent variables and the independent variables.

Before running the analysis, the models were checked for multicollinearity using the variance inflation factor (VIF). The VIF measures how much of the variance of the coefficient estimate is being by multicollinearity.

Analysis

Profile of the Respondents

Table 1(Appendix B) shows the percentage of women (15-49) years of age who had at least one live birth during the last five years preceding the survey by selected background characteristics. Majority of women were above 18 years of years. With regard to education, 46% of women had no education but 57% of Husband's were educated till secondary level. Most of the women 88% were Hindu. As per the social group most women were from other backward classes (OBCs), around 63% women enjoy high autonomy and 74% have exposure to any of the mass media. Most of the women are not working and residing in rural areas.

24% and 29% of women fall in middle and richer wealth index respectively. 92% of women had not met any health worker in the past three months.

Differentials in Utilization Pattern of Antenatal care Services

This section identifies the factors associated with the utilization of antenatal care, services; we examined the bi-variate differential of the selected socio economic and demographic characteristics. This was done by finding the association between predisposing and enabling factors and the use of antenatal services. Chi- square statistics are used for differences in distribution of predisposing and enabling factors among women (15-49) years of age who had at least one live birth in last five years utilizing antenatal care services

Table 2 (Appendix C) shows the percentage of women who utilized antenatal care services by selected background characteristics. The pattern of utilization of antenatal care is high for women who are above 18 years of age. Women who are not working and enjoy more autonomy and have any mass media exposure utilize antenatal care services more. On the other hand, women with no education utilize these services more. Rural women who have not met any health worker in past 3 months take more antenatal care. Women belonging to other social groups and richest wealth quintile utilize these services more than women belonging to other castes and lower wealth quintiles.

Determinants of Antenatal care Utilization

Table 3 (Appendix D) shows the results of multivariate analysis of antenatal care among women (15-49) years of age who had at least one live birth during the past five years. The significant determinants for antenatal care used in the analysis are woman's age at child

birth, woman's education level, her husband's education level, mass media exposure, autonomy, wealth, place of residence, meeting with a health worker, work status, religion and caste.

Women less than 18 years of age, women with no education, husbands with no education, women belonging to Hindu religion, women belonging to other social groups, women who are not working, women who have low autonomy, women who have no mass media exposure, women belonging to poorest wealth index, women residing in urban areas and women who have not met any health worker in past 3 months are taken as reference category.

Women who are not adolescents i.e. above 18 years of age tend to utilize antenatal care services two times   more than adolescent women. Woman's education level primary, secondary or higher did not show any significant increase in utilization of antenatal services in comparison to woman with no education. The odds of receiving antenatal care were high for women whose husbands had secondary or higher level of education in comparison to women whose husbands had no formal education. There was no significant difference in utilization of antenatal care services for Muslim women but odds for receiving services were higher for Sikh women. The odds of receiving antenatal care were highest for women belonging to other backward classes in comparison to women belonging to scheduled caste or scheduled tribes. Work status of women had positive effect on utilization of antenatal care services. Woman's autonomy did not have any significant effect on utilization of antenatal care services.

The result indicates that women who had any exposure utilize these services more than women with no exposure. Wealth index showed a notable effect on the utilization of antenatal care services. Women from richer and richest index are nearly two and four times more likely to utilize these services respectively compared to women belonging to poorer and middle wealth quintile. Women residing in rural areas did not show any significant increase in utilization of services than women staying in urban areas. Women who have met with a health worker in last three months did not suggest any increase in utilization of antenatal care services in comparison to women who have not met with a health worker in last three months.

The analysis suggests that significant factors affecting utilization of antenatal care services among women 15-49 years of age who had at least one live birth in last five years are woman's age, wealth index, husband's education, media exposure, woman's work status, caste and religion.

Practice Implications
This study examined differentials in the use of maternal health care services namely antenatal care in Haryana on the basis of various socio-economic factors such as woman's age at child birth, woman's education level, her husband's education level, mass media exposure, autonomy, wealth, place of residence, meeting with a health worker, work status, religion and caste. The relationship between outcome variable and predisposing and enabling factors is based on Anderson's model. The data was analyzed to find the relationship between predisposing and enabling factors and the outcome.

Bivariate analysis of antenatal care utilization with predisposing and enabling factors show several patterns.

Women who are not adolescents i.e. above 18 years of age tend to utilize antenatal care services two times more than adolescent women i.e. below 18 years of age. A study based in rural north India [18] also explain that age at marriage was positively associated with access or attendance for ANC. Antenatal check-ups were more likely among women whose age at the time of marriage was 19 years or above as compared to those women who married at younger age.

The odds of receiving antenatal care were high for women whose husbands had secondary or higher level of education in comparison to women whose husband had no formal education. This also conforms to another study that shows husband's education was a statistically significant predictor in Andhra Pradesh but not in Karnataka. [20] The odds of receiving antenatal care were highest for women belonging to other backward classes in comparison to women belonging to scheduled castes or scheduled tribes. The low utilization of maternal health care among certain groups shows the lack of access to health care services among socially backward communities. This was demonstrated by another study based on rural Hindu women in Maitha, Uttar Pradesh which suggests that majority of Dais, untrained TBA's belong to the lower caste and trained TBA's belong to upper caste. Because of class discrimination and to avoid physical contact at the time of service with lower caste women Trained TBA's only cater to upper caste women. [24]

Women from richer and richest index are nearly two and four times more likely to utilize these services respectively compared to women belonging to poorer and middle wealth quintile. Household economic status has a positive impact on use of ANC. This is proved by a study that women with high economic status were more likely to receive adequate and early ANC than those with low economic status. [25]

Efforts need to be made at community as well as household level to improve maternal health care services.

At community level, there should be call for action to reduce financial barriers while increasing awareness about the maternal healthcare services, particularly among women belonging to low wealth quintile. Efforts should be put to educate the men about the importance of maternal health care services. There should be more schemes for scheduled castes, scheduled tribes and other backward classes. Not just the literacy, there should be overall development of women. They should be exposed to newspapers, radio, television etc. the most important indicator of maternal health care is antenatal care as delivery care and post natal care are linked to this indicator. So, more emphasis should be laid on improvement of antenatal care services. At Household level, husband and mother in law should be used as targets for messages. There should be pregnant women groups and some incentive-based competition among mothers to be model mother who can set an example for other mothers.

Health is a social phenomenon whose determinants cannot be separated from other social and economic determinants. Haryana has progressed at some fronts, but still large gaps persist between the need and provision of services. It will require monitoring and evaluation of ongoing programs and effective implementation.

Health services no matter how efficient cannot change the condition of the marginalized people unless they are helped to become self-reliant and the root problems are addressed. People who are poor and illiterate are like uncut gems hidden under the dirt and stone. Given the opportunity, they can reach their full potential and live as responsible, sensitive human beings, possessing self – reliance and the liberty to shed those old customs and traditions that impede health and development. [26]

Limitations of the study

The study had some limitations, which need to be considered while interpreting the results.

1. The study used the data from a cross sectional survey and the association between explanatory variables and the indicator of the use of maternal health services was examined, could not draw conclusions about causality.

2. Some correlates of maternal health care utilization are missing from our analysis such as distance of health facilities from the locality of residence, and this could have influenced the patterns of utilization of maternal health services. Since data on this variable was not available in the survey.

Future Scope of Study

Further on, the other components of maternal healthcare services such as delivery care and postnatal care can be examined based on the various socioeconomic and Sociodemographic variables.

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Appendix A

Measurement

Dependent Variables

The study measures the outcome variables namely Antenatal care to explore inequities in utilization pattern of maternal healthcare services in Haryana. The selected indicator of maternal healthcare utilization and its components are examined on the basis of guidelines laid by the Ministry of Health and Family Welfare (MOHFW), Government of India and World Health Organization (WHO).

For this study, Antenatal care includes those women who had a minimum of three antenatal care visits. The MOHFW recommends that a woman should have at least three antenatal care visits during pregnancy and this standard was used to construct this dependent variable. In this study, **Antenatal care** was coded as a binary dependent variable, with a value of 1 if the woman had at least three antenatal visits and a value 0 if the woman had less than three antenatal care visits.

Independent Variables

The independent variables used in this study are socio-economic and socio-demographic.

Predisposing Factors

Women's age at child birth is defined as women's age in years. A variable was created (womanage). Womanage was coded as 0 **if women's age** was less than 18 years and was coded as 1 if women's age is greater than 18 years.

Women's and their Husband's education level are defined using highest education level. Variables Womeneduc and Husbandeduc were created and were categorized into 0,1,2,3. It was coded as 0 if they had no education, coded as 1 if the woman had studied till primary,

coded as 2 if till secondary and coded as 3 if till higher level of education.

Religion of the woman was categorized as Hindu, Muslim, and Sikh. Religion was coded as 0 if Hindu, coded as 1 if Muslim and coded as 2 if Sikh.

Caste is defined according to the social group that woman belongs to as per the categorization and identification done in NFHS-3 data. Variable caste is coded as 0 if women belong to none of them, coded as 1 if women belong to scheduled castes (SCs), coded as 2 if women belong to scheduled tribes (STs) and coded as 3 if women belong to other backward classes (OBCs).

Women's Autonomy was computed by taking into account decision making and women's mobility. Decision making was computed on the basis of decision about healthcare for yourself, decision about making major household purchases, decision about making purchases for daily household and decision about visits to your family or relatives. These four factors were combined and were coded as 0 if respondent and respondent plus husband take decisions and were coded 1 if someone else is taking decision on respondent's behalf. Women's mobility was computed by taking into account following factors whether women is allowed to go to market, allowed to go to health facility, allowed to visit places outside the village/community. These three factors were combined and were coded as 0 if women were allowed to go alone or with someone else and were coded as 1 if they were allowed to go anywhere. Both decision making and women mobility were combined to construct a variable wautonomy using information from NFHS-3 data. Wautonomy was coded as 0 if women were allowed to go out and were involved in decision making and was coded as 1 otherwise.

Mass media exposure was computed by taking into account how often respondents read magazine, listen to radio and watch television. They were coded as 0 if they don't read magazine, listen to radio and watch television and coded as 1 otherwise. All three factors were combined to create variable media and then from media we created media exposure and coded it as 0 if they had no exposure and coded as 1 if they had some exposure.

Enabling Factors

Place of residence is defined as the place of stay. It is coded as zero if the woman stays in urban area and is coded as 1 if woman stays in rural area.

Wealth index is defined as woman falls into which category (poorest, poorer, middle, richer and richest) and this categorization is taken from NFHS-3 data. Poorest is coded as 0, poorer as 1, middle as 2, richer as 3 and richest as 4.

Met with ANM/Community health worker is defined as whether in last 3 months woman has met any ANM/Community health worker. It is coded as 0 if not met and coded as 1 if otherwise.

Work status is defined whether the woman is working or not. If the woman is not working it is coded as 0 and 1 otherwise.

Appendix B

Table 1 Percentage of women (15-49) years who had at least one live birth during the last five years preceding the survey by background characteristics, NFHS-3(2005-06)-Haryana

Background characteristics	N (Number)	%(Percentage)
Woman's age		
Less than 18 years	31	1.45
Greater than 18 years	2,103	98.55
Woman's education		
No Education	966	45.27
Primary	278	13.03
Secondary	758	35.52
Higher	132	6.19
Husband's education		
No Education	442	20.74
Primary	223	10.46
Secondary	1,225	57.48
Higher	241	11.31

Religion		
Hindu	1891	88.78
Muslim	125	5.87
Sikh	114	5.35
Caste		
Others	1,181	55.39
Scheduled Castes(SC's)	488	22.89
Scheduled Tribes(ST's)	14	0.66
Other Backward Classes (OBCs)	449	21.06
Work Status		
Non- Working	1646	77.13
Working	488	22.87
Autonomy		
Low	794	37.21
High	1,340	62.79
Media Exposure		
No exposure	557	26.10
Any exposure	1,577	73.90
Wealth Index		
Poorest	72	3.37
Poorer	243	11.39
Middle	522	24.46
Richer	611	28.63
Richest	686	32.15
Place of residence		
Urban	553	25.91
Rural	1,581	74.09
Met with health worker in last 3 months		
No	1,948	91.28
Yes	186	8.72

Note: all N are unweighted.

Appendix C

Table 2: Percentage of women (15-49) years who had at least one live birth during the last five years preceding the survey by antenatal care utilization, NFHS-3(2005-06)-Haryana

Background characteristics	%(Percentage)
Woman's age	$(0.0005)^{ns}$
Less than 18 years	1.45
Greater than 18 years	98.55
Woman's education	$(19.5009)^{***}$
No Education	43.45
Primary	13.33
Secondary	36.33
Higher	6.86
Husband's education	$(41.9035)^{***}$
No Education	18.72
Primary	9.78
Secondary	59.27
Higher	12.23
Religion	$(130.1645)^{***}$
Hindu	90.83
Muslim	3.35
Sikh	5.81
Caste	$(5.4949)^{ns}$
Others	56.47
Scheduled Castes(SC's)	22.27
Scheduled Tribes(ST's)	0.61
Other Backward Classes (OBCs)	20.65
Work Status	$(0.4906)^{ns}$
Non- Working	76.85
Working	23.15
Autonomy	$(16.1469)^{***}$

Low	39.04
High	60.96
Media Exposure	(48.9195)***
No exposure	23.20
Any exposure	76.80
Wealth Index	(113.5240)***
Poorest	2.40
Poorer	9.54
Middle	23.20
Richer	29.39
Richest	35.47
Place of residence	(22.7386)***
Urban	22.89
Rural	72.11
Met with health worker in last 3 months	(11.6243)***
No	92.19
Yes	7.81

Note: Figures in parentheses are chi-square statistics; this test was applied for each variable
Level of significance: *p<.10; **p<.05;***p<.01; ns: not significant

Appendix D

Table 3: Logistic Regression showing odds ratio and 95 % confidence interval for receiving antenatal care among women (15-49) years who had at least one live birth during the last five years preceding the survey, NFHS-3(2005-06)-Haryana

Covariates	Odds ratio	95 % CI
Woman's age		
Less than 18 years*	1.000	
Greater than 18 years	2.960652	.8845427 – 9.909596
Woman's education		
No Education*	1.000	
Primary	.7815156	.5120718-1.192736
Secondary	.515813	.3600605-.7389399
Higher	.5653594	.2354061-1.357787
Husband's education		
No Education*	1.000	
Primary	0.9005271	.5834772- 1.389855
Secondary	1.220119	.8529871 – 1.745267
Higher	1.199789	.6283673 – 2.290846