Social Science Spectrum ISSN 2454-2806
Vol. 7, No. 1, Month 2021, pp. 1-15

Pattern and Determinants of Maternal Health Care Utilization among Muslim and Non-Muslim mothers in India

Madhumita Bango[1*], Gyan C. Kashyap[2], Ajinkya Kothavale[3], Somayyah Mohammad Hashmi[4]

Abstract

Despite progress in many fields, India is lagging behind to achieve Sustainable Development Goals by fulfilling maternal health and improvement in Maternal Mortality Rates, especially sections of the society which often facing social exclusion to access healthcare services. Muslim women suffer from patriarchy, stigma and low utilization of maternal and child health services. Keeping this in mind, our study explores the maternal healthcare services utilization in terms of ante natal care visits, place of delivery and professional assistance at the time of home birth. It also trying to understand the socio-economic determinants that restrict them to use the services compared with the mothers belonging to other religions. The data from the fourth round of National Family Health Survey has been studied. Bivariate technique, logistic regression and Oaxaca decomposition methods have been used. Muslim mothers are lower in terms of receiving ante natal care compared with the women belonging to other religion. But in terms of institutional births and availing professional assistance at the time of home birth, they lie slightly in a better position. A significant rural-urban difference has been observed in the case of institutional births. Maternal and child health services utilization steadily increased with education, employment, mass media exposure, partner's occupation and educational level. Redefined policy measures on maternal health would be a key step towards improving utilization of MCH services.

Keywords**:** Healthcare, Muslim, MCH, ANC, birth

I. Introduction

Redefining maternal health is one of the Sustainable Development Goals (SDGs), which explains good health and well-being (the third goal) (Gupta & Nilsson, 2017). In the last few decades, India has witnessed a remarkable improvement in public healthcare delivery system, especially in maternal and child healthcare (Vora et al., 2009). At the same time, inequality has been found in the utilization of Maternal and Child Healthcare (MCH) services, which varies across the class, caste and religion. According to Census of 2011, Muslims are the largest minority community in India with 173 million. The Sachar committee mentioned that the Muslims are poor in terms of many human development indicators in India, continuing their social, economic and political deprivations. More specifically, sometimes Muslim women live with restrictions and suffer from patriarchy, stigma, and social exclusion.

If we look at healthcare utilization through the supply-demand framework, along with the supply-side bottlenecks of healthcare, demand-side hindrances are various social, cultural and economic factors that limit the use of healthcare services among the mothers in India. Religion occupies a prominent position as it captures socio-cultural aspects of disadvantages. Cultural values and norms are associated with religion and sometimes they affect a person's behavioural pattern. This study aims to investigate

[1]*Research Scholar, School of Health Systems Studies, Tata Institute of Social Sciences, V.N. Purav Marg, Deonar, Mumbai 400088, India, Email: himadhu911@gmail.com (corresponding author)
[2]Assistant Professor, Institute of Health Management Research, 319, Near Thimmareddy Layout, Hulimangala, Electronic City Phase-1, Bengaluru-560105, India Email: statskashyap@gmai.com
[3]Research Scholar, International Institute for Population Sciences, Mumbai-400088, India; Email: aak.ajinkya@gmail.com
[4]PGDM Student, Institute of Health Management Research, 319, Near Thimmareddy Layout, Hulimangala Post Electronic City Phase-1, Bangalore-560105, India. Email: s.hashmi_90@yahoo.com
Acknowledgement: The authors thank the anonymous judges for their valuable comments and suggestions.

the utilization of maternal healthcare services through the lens of religion. It is also evident that along with religion, the mother's education, empowerment and employment status are also significant determinants of healthcare utilization.

The main objective of the study is to understand the pattern and determinants of maternal healthcare utilization among Muslim mothers in India. We have hypothesized that there are no differentials in maternal health care utilization across the religions.

Previous research reveals that usage of Antenatal Care (ANC) services is relatively low among Muslim mothers compared with mothers from other religions. The mothers are more likely to use maternal healthcare services with improvement in education level and standard of living, media exposure and husband's income. Recent studies on maternal health care utilization documented that Muslim women often experience poor quality health care based on their low status, high fertility and delayed care-seeking. However, impolite attitude of staff in a tertiary government hospital towards low-status women, especially Muslim, for not following medical advice. Discrimination and abuse ultimately impact women's experiences and opinions of care. Disrespectful care is also an important factor in women's decisions to resist or delay care-seeking or avoid institutional delivery. Women give birth at home because of concerns about their treatment at a facility based on their class and social status (Alcock, 2019; Das et al., 2016). Substantial inequality exists at the regional, geographic, economic and social levels. Various socioeconomic factors contribute to a significant share in inequality in the utilization of maternal health care in India. The study revealed that the gap across socioeconomic groups in the utilization of maternal health care has significantly reduced in rural India during 2005–16. (Ali & Chauhan, 2020). Muslim women belonging to the Southern States utilized more maternal health care services than their counterpart in the Northern States. Muslim populous states like Assam, Bihar, Jharkhand, Uttar Pradesh and West Bengal achieved the MDG-15 target of the utilization of 100 per cent skilled birth attendants in 2015 and at the same time women who are more impoverished, illiterate, and Muslim are less likely to have their pregnancies registered in Uttar Pradesh. (Mondal et al., 2020; Dey et al., 2018). However, a cross-country analysis shows that Muslim women in India were more likely to have at least four or more ANC visits than the women in Bangladesh and Pakistan. Also, India performed better in extending medically facilitated delivery care than Bangladesh (Rai, 2015).

A critical gap in current knowledge is a detailed understanding of the root causes of disparities in maternal health care and, in particular, how gender, class, caste and religion influence policy formulation and the design and delivery of maternal health care services. This research will provide theoretical advances to enhance understanding of the power dynamics of gender and class that may underlie the poor women's marginalization from health care systems in India. It will also provide empirical evidence to support formulation of maternal health care policies and health care system practices aimed at reducing disparities in maternal healthcare. Lastly, it will enhance inter-disciplinary research capacity in the emerging field of social exclusion and maternal health and help reduce social inequities and achieve the Millennium Development Goal. However, little is known about the maternal healthcare utilization within Muslims in India. This highlights a research gap as studies across religious groups may obscure significant variations within Muslim women (Krishna, 2017). Most of the severe issues regarding maternal health among Muslim mothers remained either conjectured or overlooked by previous research. This study would significantly contribute to the growing call for paying attention to the socially excluded group's health and provide a comprehensive picture of the utilization pattern and determinants of using MCH services in India.

Why Muslim women?

Social scientists have long recognised that religion influence social behaviour, and within social demography, religion is cited as an important part of explanation of group variation in reproductive

attitude and behaviour. Muslim population in India is considered as a minority (according to the NFHS-4 report, 14% Indian women aged 15-49 years are Muslim). The minority hypothesis (Alagarajan, 2003) says that being a minority could boost fertility towards becoming a majority or reduce fertility so as to improve social status; and the fertility behaviour for a woman is strongly related to the maternal healthcare services. Compared with Hindu and Christian women, the utilization of maternal healthcare services among Muslim women is relatively poor, which is also documented in the Sachar Committee report on the social, economic and educational status of the Muslim community. Secondly, fertility differentials by religion have been observed in developing countries like India. From this perspective, the high total fertility rate (TFR) among Muslims raises concerns. So, the dynamics of maternal and child healthcare utilization among Muslims is not clear and very few studies have explored this issue. This study seeks to present a comprehensive picture of how maternal healthcare utilization is associated with socio-economic and demographic factors.

II. Data and Methods

The study is underpinned by the Health Care Utilization Model originally propounded by Anderson and Newman. Over the years, the model has gone through modifications. For example, in 2000 Gelberg et al. modified the theory to include some challenges that impede healthcare access of vulnerable populations. The Andersen healthcare utilization model is a conceptual model aimed at demonstrating the factors that lead to the use of health services. According to the model, utilization of health services is determined by three dynamics: predisposing factors, enabling factors, and need. Predisposing factors can be demographic characteristics, social structural variables, and an individual's basic beliefs, attitudes and knowledge pertaining to health services. Examples of enabling factors could be family support, access to health insurance, one's community, etc. Need represents both perceived and the actual need for health care services.

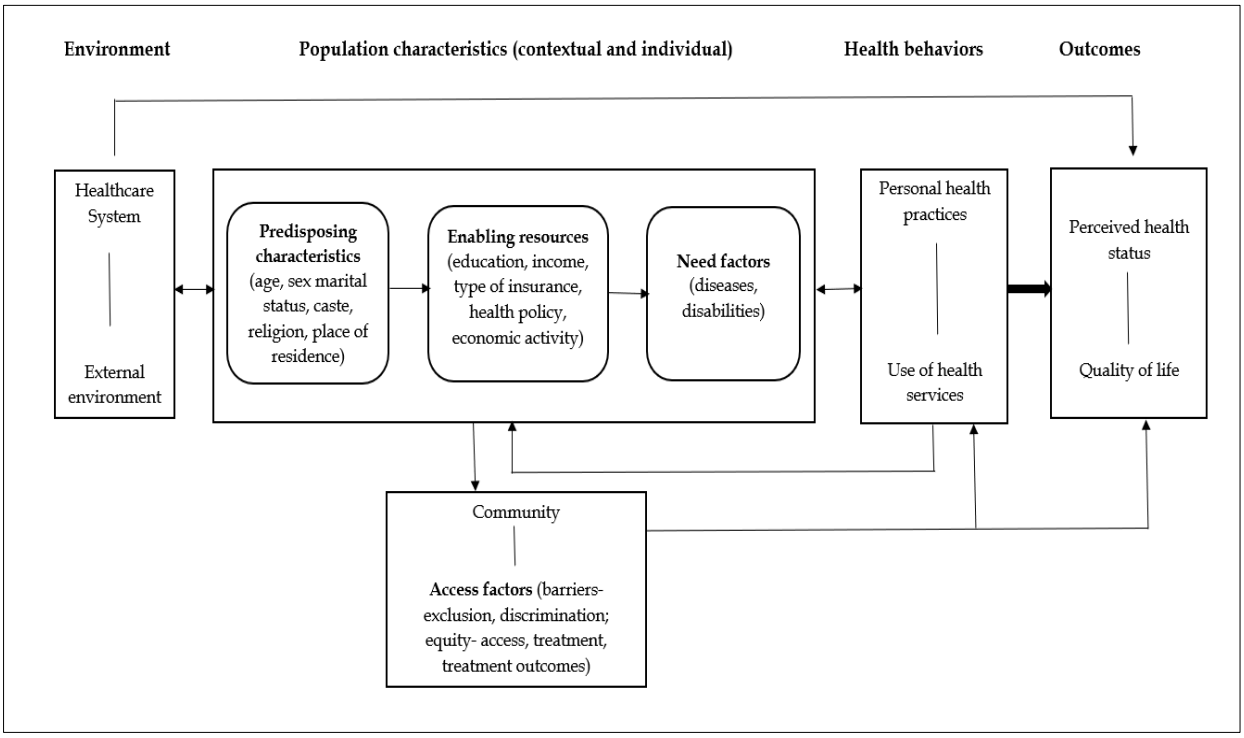
Hence, this study examines the predisposing, enabling and need factors that determine the maternal and child health-services-utilization practices with the aforementioned Andersen model as the theoretical framework.

Data

We have utilized the unit-level data from a cross-sectional study that provides vital information about the health and family welfare in India and each state and union territories. The fourth round of National Family Health Survey (NFHS-4) is a nationally representative survey, and it was conducted in 2015-16 by the International Institute for Population Sciences under the supervision of the Ministry of Health & Family Welfare, Government of India. All four survey questionnaires (Household Questionnaire, Woman's Questionnaire, Man's Questionnaire and Biomarker Questionnaire) were canvassed using Computer Assisted Personal Interviewing (CAPI). The NFHS-4 survey adopted a stratified two-stage sample design to reach out to the surveyed households.

The women's file of the NFHS-4 data has been used for the present study. In all, 699,686 women aged 15–49 years were included for the study. In NFHS-4, 601,509 households were interviewed. Information related to the use of ANC, delivery care and post-natal care (PNC) for the most recent live births was considered. The woman's questionnaire was used to collect the information on most aspects of maternal and child health from all eligible women for an interview. This sampling procedure yielded 699,463 eligible women. The analysis was restricted to ever-married women. Therefore, in this study, we limited our analysis to 259,627 women in the age group of 15–49 years. Data of MCH care practices for unmarried women has not been collected.

Conceptual framework: Andersen model of healthcare utilization



Source: Adapted from Andersen (2014).

Outcome variables:

The study was done using three dependent variables, i.e., the prevalence of ANC (Adequate ANC), place of delivery (home birth, institutional birth) and professional assistance during home birth (yes, no) and women ANC checked by ANC.

Predictor variables

The predictors consist of household's and women's characteristics (including maternal characteristics) for the present study. Household characteristics include religion (Hindu, Muslim and others), caste (Scheduled Caste/ Scheduled Tribe [SC/ST], Other Backward Classes (OBCs) and others), place of residence (urban/rural), wealth status (poorest, poorer, middle, richer and richest) and mass media. Mother's characteristics include mother's education, age, age at marriage, age at first delivery, children ever born and pregnancy complications, mass media exposure, parity of mother, household head sex, age of the household head, household size and husband's schooling.

Statistical analysis

STATA version 14.0 (Stata Corp Inc. TX, USA) have been used for data analysis. Descriptive statistics of selected predictor variables along with multiple logistic regression to estimate odds ratios (OR) and 95% confidence intervals (CI) for the relationship between maternal health care utilization and place of residence, caste, religion, mother's education, mother's age, age at marriage, mass media exposure and along with the mother's maternal characteristics (ever used family planning method, pregnancy complications, children ever born and age at first delivery) have been used. All the estimates estimated in the present study are derived by applying appropriate sampling weights provided by NFHS-4 survey data. NFHS-4 Survey considered the multi-stage sampling design to make the estimates

representative of the sample. Further, we fit the Oaxaca decomposition to identify the contribution of different factors in the utilization of maternal health care services among Muslim and non-Muslim mothers.

Oaxaca Decomposition

Oaxaca (1973) developed a regression-based decomposition method to measure the inequality between the groups. The Oaxaca decomposition partitions the variation in an outcome into two parts. The Oaxaca decomposition technique is a useful method to explain the between-group differentials in outcome variables using a set of predictors. Initially this technique was used to decompose the labour market outcomes among different groups such as sex and race. But the same method can also be used to study group differences in any outcome variable.

The conventional Oaxaca decomposition is based on two linear regression models that are fitted separately for the groups M and NM: (M=Muslim and NM=Non-Muslim)

$$Y_M = X_M \beta_M + e_M$$

and

$$Y_{NM} = X_{NM} \beta_{NM} + e_{NM}$$

For these models, Blinder and Oaxaca propose the decomposition equations

$$y_M - y_{NM} = (x_M - x_{NM}) \beta_M + x_{NM} (\beta_M - \beta_B)$$

and

$$y_M - y_{NM} = (x_M - x_{NM}) \beta_{NM} + x_M (\beta_M - \beta_{NM})$$

Where, yM – yNM is the mean outcome difference, and xM and xNM are mean vectors of the estimated coefficient vectors βM and βNM for the two independent groups. Further, in both the equations, the first term displays the difference in the outcome variable between the two groups due to differences in observable characteristics, while the second term shows the differential that is due to differences in coefficient estimates. A decomposition similar to these equations is not appropriate in the nonlinear case because the conditional expectations, E(Y|X), can differ from X*β. For that reason, the decomposition of the conditional mean difference of Y between the two groups has to be considered:

$$y_M - y_{NM} = \{E\beta_M(Y_M|X_M) - E\beta_M(Y_{NM}|X_{NM})\} + \{E\beta_M(Y_{NM}|X_{NM}) - E\beta_{NM}(Y_{NM}|X_{NM})\}$$

and

$$y_M - y_{NM} = \{E\beta_{NM}(Y_M|X_{NM}) - E\beta_{NM}(Y_{NM}|X_{NM})\} + \{E\beta_M(Y_M|X_M) - E\beta_{NM}(Y_M|X_M)\}$$

In both equations, the first term on the right-hand side again displays the part of the differential in the outcome variable between the two groups that is due to differences in the covariates X, and the second term displays the part of the differential in Y that is due to differences in coefficients. In this analysis, we focus on only explained and unexplained effects, and due to the negligible effect of interaction, we did not consider the interaction effect.

III. Results

Prevalence and odds ratio of adequate ANC visits (4+ ANC visits), place of delivery and professional assistance at-home delivery is presented in Table 1. Results reveal significant differences in service delivery among rural and urban women; only 53 per cent of the rural women received adequate ANC, 82 per cent delivered a baby in a health facility, and 24 per cent received professional assistance during a home delivery. Odds ratio also reveals the statistically significant differences in an urban and rural setting for all three service deliveries: rural women are less likely to receive adequate ANC (OR=0.719; p>0.001), institutional delivery (OR=0.655; p>0.001) and professional assistance at home delivery (OR=0.678; p>0.001) than the women living in the urban areas. Muslim women are least likely

to deliver a baby in a health facility (OR=0.585; p>0.001) and less likely to receive professional assistance during the home delivery (OR=0.757; p>0.001) than women belong to other religious communities. Educational attainment played an essential role in availing the service deliveries, prevalence, odds ratios for adequate ANC visits, place of delivery and professional assistance at-home delivery pointed out that service delivery is escalating along with the educational attainments. Further, predictors such as having mass media exposure, ever used family planning methods and experience of pregnancy complications show statistically significant associations with all the three service deliveries: adequate ANC visits, place of delivery and professional assistance at-home delivery. Again, with the increase of number of children, the utilization of MCH services decreases. Mothers having four and more children were 0.5 times less likely to utilize adequate ANC compared with those having one child.

When looked at the utilization of ANC services from the social fabric lens, it is alarming to note that only 13 per cent women received full ANC services, while the percentage among Hindus was around 80 per cent and the same trend is found for the institutional delivery and delivery by a skilled professional. Again, among the social groups (SCs and STs) poor utilization of ANC (27%) and the lower proportion of institutional births (30%) have been recognized, but at the same time the percentages were better than for the Muslim women (Table 2).

A better picture of maternal and child healthcare utilization can be seen among Muslim mothers in the urban places compared with the rural pockets, while caste was not having much impact. Utilization of ANC (2.8 times more likely for those having higher education attainment) and institutional birth (4.2 times more likely compared with those having no education) increases sharply with the increase in education among Muslim mothers. Again, age of mother and professional assistance have an inverse relation. With the increase of age, mothers were 0.8 times less likely to get professional help at the time of home birth. Mass media exposure was also an influencing factor for utilization of MCH services. Around 68 per cent of Muslim mothers utilized adequate ANC services compared with the 40 per cent having no media exposure, followed by institutional delivery (87%) (Table 3).

Table 1: Prevalence and odds of maternal and child healthcare utilization by Indian mothers

Background characteristics	Adequate ANC visits (N=145,722)		Institutional delivery (N=145,722)		Professional assistance at home delivery (N= 24,458)	
	%	OR [95% CI]	%	OR [95% CI]	%	OR [95% CI]
Place of residence						
Urban	71.3	Ref. cat.	93.0	Ref. cat.	32.1	Ref. cat.
Rural	52.8	0.719*** [0.699,0.741]	82.4	0.655*** [0.626,0.687]	24.5	0.678*** [0.618,0.743]
Caste						
SCs/STs	55.0	Ref. cat.	81.9	Ref. cat.	23.9	Ref. cat.
OBCs	56.7	0.922*** [0.896,0.949]	87.4	1.414*** [1.358,1.472]	26.0	1.225*** [1.127,1.332]
Others	66.4	1.079*** [1.042,1.118]	88.8	1.192*** [1.132,1.254]	29.0	1.038 [0.932,1.156]
Religion						
Hindu	58.1	Ref. cat.	87.1	Ref. cat.	26.0	Ref. cat.
Muslim	58.2	1.092*** [1.050,1.136]	78.4	0.585*** [0.556,0.617]	23.7	0.757*** [0.679,0.844]
Others	69.6	1.098*** [1.056,1.142]	87.1	0.600*** [0.570,0.630]	30.3	1.041 [0.941,1.150]
Educational attainment						
No education	37.2	Ref. cat.	70.8	Ref. cat.	20.9	Ref. cat.
Incomplete primary	54.3	1.336*** [1.266,1.410]	76.0	1.021 [0.959,1.087]	24.5	0.981 [0.864,1.115]
Completed primary	50.6	1.160*** [1.104,1.219]	81.4	1.253*** [1.178,1.332]	25.7	1.108 [0.978,1.255]
Incompleted secondary	64.3	1.664*** [1.609,1.720]	90.0	1.961*** [1.879,2.047]	30.3	1.267*** [1.161,1.383]
Completed secondary	68.8	1.868*** [1.780,1.960]	94.7	2.764*** [2.558,2.986]	40.8	1.916*** [1.646,2.230]
Higher	75.1	2.167*** [2.065,2.273]	97.3	4.185*** [3.822,4.582]	40.3	1.958*** [1.637,2.341]
Mother's age (years)						
Less than 18	59.1	Ref. cat.	85.9	Ref. cat.	16.0	Ref. cat.
19-34	59.5	1.000 [0.822,1.217]	86.5	0.937 [0.716,1.225]	26.5	1.865 [0.949,3.665]
35 & above	51.3	0.994 [0.814,1.214]	79.2	0.794 [0.605,1.042]	20.8	1.640 [0.829,3.244]
Mass media exposure						
No	35.5	Ref. cat.	71.8	Ref. cat.	20.6	Ref. cat.
Yes	67.1	1.811*** [1.758,1.865]	90.9	1.648*** [1.588,1.711]	31.3	1.436*** [1.331,1.549]
Ever used FP method						
No	52.0	Ref. cat.	84.9	Ref. cat.	24.5	Ref. cat.
Yes	63.8	1.212*** [1.183,1.242]	86.5	0.980 [0.948,1.014]	26.6	0.991 [0.924,1.063]
Pregnancy complications						
No	55.1	Ref. cat.	84.5	Ref. cat.	22.4	Ref. cat.
Yes	70.5	1.657*** [1.616,1.698]	89.6	1.451*** [1.402,1.501]	31.8	1.428*** [1.332,1.531]
Age at marriage (years)						
Never married	51.7	Ref. cat.	76.9	Ref. cat.	21.0	Ref. cat.
Child marriage	52.4	0.903* [0.833,0.980]	81.0	1.255*** [1.147,1.373]	24.8	1.243* [1.024,1.509]
19-34	65.2	1.256*** [1.158,1.362]	90.8	1.545*** [1.410,1.692]	27.8	1.345** [1.105,1.637]
Above 35	73.7	1.707*** [1.271,2.293]	94.7	1.729* [1.105,2.705]	11.5	0.844 [0.280,2.549]
Children ever born						
1 child	66.7	Ref. cat.	93.0	Ref. cat.	30.5	Ref. cat.
2-3 children	58.9	0.861*** [0.840,0.883]	85.1	0.543*** [0.523,0.565]	27.7	0.904* [0.832,0.981]
4+ children	34.3	0.536*** [0.515,0.557]	67.4	0.314*** [0.299,0.330]	18.6	0.643*** [0.579,0.714]
Age at delivery (years)						
Less than 19	60.9	Ref. cat.	86.4	Ref. cat.	26.0	Ref. cat.
19-34	59.1	1.022 [0.969,1.079]	86.2	1.237*** [1.147,1.333]	26.2	1.248** [1.060,1.470]
Above 35	47.5	1.052 [0.968,1.142]	75.7	1.122* [1.011,1.246]	18.5	1.209 [0.967,1.512]

Note: *p<0.05, **p<0.01, ***p<0.001; Ref. cat.: reference category.

Table 2: Maternal healthcare utilization by religious groups

Maternal healthcare indicators	Hindu	Muslim	Others	SCs/STs (Non-Muslims)
Adequate ANC	79.4	13.3	7.3	27.3
Institutional delivery	80.9	13.5	5.6	29.6
Woman ANC check-up by doctor	78.8	15.1	6.1	27.9
Skilled professional	73.3	20.8	6.0	36.6

Table 3: Prevalence and odds of maternal and child healthcare utilization by the Indian Muslim mothers

Background characteristics	Adequate ANC visits (N=20,443)		Institutional delivery (N=20,443)		Professional assistance at home delivery (N= 4,425)	
	%	OR [95% CI]	%	OR [95% CI]	%	OR [95% CI]
Place of residence						
Urban	67.3	Ref. cat.	87.3	Ref. cat.	29.2	Ref. cat.
Rural	50.9	0.804*** [0.745,0.868]	71.2	0.732*** [0.662,0.810]	21.7	0.767* [0.623,0.943]
Caste						
SCs/STs	44.8	Ref. cat.	78.7	Ref. cat.	26.2	Ref. cat.
OBCs	55.0	0.551*** [0.485,0.627]	80.4	0.859 [0.730,1.011]	23.5	0.969 [0.694,1.353]
Others	59.3	0.652*** [0.571,0.743]	76.1	0.670*** [0.568,0.790]	23.8	0.649* [0.460,0.914]
Educational attainment						
No education	37.9	Ref. cat.	63.0	Ref. cat.	20.0	Ref. cat.
Incomplete primary	50.9	1.218** [1.053,1.409]	63.4	1.003 [0.852,1.180]	21.4	1.209 [0.878,1.664]
Completed primary	54.6	1.259*** [1.103,1.437]	76.4	1.271** [1.086,1.488]	25.4	1.179 [0.860,1.617]
Incomplete secondary	66.7	1.990*** [1.819,2.177]	85.7	2.016*** [1.804,2.253]	26.2	1.120 [0.887,1.413]
Completed secondary	71.6	2.386*** [2.062,2.761]	91.4	2.791*** [2.243,3.473]	56.0	2.102*** [1.371,3.222]
Higher	80.3	2.813*** [2.392,3.308]	95.9	4.222*** [3.137,5.681]	26.5	1.344 [0.715,2.525]
Mother's age (years)						
Less than 18	66.3	Ref. cat.	79.3	Ref. cat.	18.8	Ref. cat.
19-34	59.5	1.213 [0.740,1.989]	79.3	1.648 [0.936,2.902]	24.6	1.050 [0.341,3.234]
35 & above	48.4	1.088 [0.657,1.801]	71.2	1.509 [0.847,2.687]	19.0	0.769 [0.243,2.435]
Mass media exposure						
No	40.2	Ref. cat.	62.7	Ref. cat.	20.9	Ref. cat.
Yes	67.7	1.727*** [1.593,1.873]	86.7	1.978*** [1.793,2.182]	27.9	1.491*** [1.221,1.820]
Ever used FP method						
No	51.5	Ref. cat.	79.0	Ref. cat.	24.4	Ref. cat.
Yes	63.1	1.261*** [1.174,1.354]	77.9	0.775*** [0.707,0.849]	23.1	0.766** [0.635,0.925]
Pregnancy complications						
No	57.1	Ref. cat.	78.9	Ref. cat.	20.9	Ref. cat.
Yes	70.4	1.464*** [1.362,1.574]	82.2	1.230*** [1.124,1.346]	26.7	1.201 [0.995,1.449]

Note: *p<0.05, **p<0.01, ***p<0.001; Ref. cat.: reference category.

Table 4 presents the results of decomposition analysis for proportional contributions of selected predictors. The socioeconomic and demographic predictors can explain almost 63 per cent of the total difference in birth places between Muslim and Non-Muslim women in India. The remaining 37 per cent constitute the unexplained residual component. The result also indicates the relative contribution of selected predictors by taking the total explained components (i.e., 63%) equivalent to 100 per cent. Birth order of a child and mothers' parity contributed 16 per cent and 19 per cent respectively to the difference in place of birth among Muslim and Non-Muslim women. Household size, mother's health care status and age of the household head contribute 7 per cent, 5 per cent and 3 per cent, respectively. Variables like sex of household head, mothers' mass media exposure and their age contribute a deficient percentage of the difference in place of birth of mother.

Table 4: Oaxaca decomposition: contribution of selected predictors to place of birth difference between Muslim and Non-Muslim Women

Summary of Oaxaca decomposition		
	Coef.	SE
Non-Muslim	0.778	0.0022
Muslim	0.715	0.0053
Difference	0.063	0.0058
Explained	0.040	0.0023
Unexplained	0.024	0.0054
% explained	62.698	
% unexplained	37.302	
Details of explained part.		
Predictors	% contribution to total difference	SE
Mother's age	1.79	0.0003
Husband's schooling	31.57	0.0010
Mother's schooling	39.13	0.0010
Mothers having any mass media exposure	0.53	0.0001
Husband's occupation	-0.03	0.0000
Mother's occupation	-1.09	0.0002
Place of residence	-23.47	0.0007
Parity of mother	19.67	0.0009
Birth order of a child	16.13	0.0009
Household head's sex	0.62	0.0001
Age of the household's head	3.06	0.0003
Household size	7.47	0.0005
Mother's health card status	4.63	0.0003
Total	100.00	

Table 5 describes the odds of institutional birth, antenatal visits and professional assistance at the time of birth at home for women by their religion. The result reveals that Muslim women (OR= 1.18; p>0.001) are less likely to get assisted at birth at home than Hindu women (OR=1.39; p>0.001). Again, the Hindu women are 2.19 times (p>0.001), significantly more likely to deliver birth at a health facility compared with their Muslim counterart (Muslim (OR=1.28; p>0.001) and others).

Table 5: Result of logistic regression of institutional delivery, antenatal visit and health professional assisted at home delivery with religion

Independent variable	Health professional assisted at home birth		Antenatal care visit		Place of birth	
	OR (C.I)	p-value	OR (C.I)	p-value	OR (C.I)	p-value
Constant	0.18 (0.16,0.18)	0.000	0.90 (0.88,0.93)	0.000	1.70 (1.66,1.74)	0.000
Religion						
Others®						
Hindu	1.39 (1.32,1.48)	0.000	0.96 (0.94,0.99)	0.000	2.19 (2.13,2.24)	0.000
Muslim	1.18 (1.10,1.27)	0.000	1.02 (0.98,1.05)	0.000	1.28 (1.25,1.33)	0.000
Pseudo R^2	0.0025		0.0001		0.0157	

Note: ® Reference category.

One significant observation by using religion as a dummy is that rural women were less likely to utilize MCH services than urban women. While mother's age and education show a positive impact on utilization of MCH care services (increasing the age and level of education women were more likely to receive adequate ANC, institutional births, and birth by a skilled professional), at the same time the mothers having a greater number of children and increasing age at delivery show a negative influence on the use of MCH services. Interestingly, looking at the religious category, Muslim mothers were 1.14

times more likely to receive adequate ANC, but less likely to give institutional births (0.7 times) or home birth by a skilled professional (0.8 times) (Table 6).

Table 6: Result of logistic regression of institutional delivery, antenatal visit and health professional assisted at home delivery with different independent variables

Background characteristics	Adequate ANC visits (N=145,722)		Institutional delivery (N=145,722)		Professional assistance at home delivery (N= 24,458)	
	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)
Place of residence						
Urban	Ref. cat.		Ref. cat.		Ref. cat.	
Rural	0.715***	[0.695 - 0.736]	0.704***	[0.673 - 0.738]	0.711***	[0.649 - 0.779]
Caste						
SCs/STs	Ref. cat.		Ref. cat.		Ref. cat.	
OBCs	0.918***	[0.894 - 0.943]	1.468***	[1.414 - 1.525]	1.141***	[1.056 - 1.232]
Others	1.071***	[1.035 - 1.108]	1.118***	[1.066 - 1.172]	0.916	[0.831 - 1.011]
Educational attainment						
No education	Ref. cat.		Ref. cat.		Ref. cat.	
Incomplete primary	1.310***	[1.242 - 1.383]	0.936*	[0.879 - 0.996]	0.982	[0.865 - 1.115]
Completed primary	1.110***	[1.056 - 1.166]	1.140***	[1.072 - 1.213]	1.076	[0.949 - 1.220]
Incomplete secondary	1.512***	[1.461 - 1.565]	1.617***	[1.548 - 1.689]	1.214***	[1.111 - 1.325]
Completed secondary	1.604***	[1.527 - 1.685]	2.081***	[1.923 - 2.251]	1.774***	[1.521 - 2.069]
Higher	1.766***	[1.680 - 1.856]	3.047***	[2.777 - 3.343]	1.779***	[1.483 - 2.133]
Mother's age (years)						
Less than 18	Ref. cat.		Ref. cat.		Ref. cat.	
19-34	1.104	[0.901 - 1.353]	1.199	[0.907 - 1.584]	1.698	[0.846 - 3.407]
35 & above	1.16	[0.943 - 1.428]	1.218	[0.917 - 1.618]	1.748	[0.863 - 3.539]
Religion						
Hindu	Ref. cat.		Ref. cat.		Ref. cat.	
Muslim	1.136***	[1.103 - 1.171]	0.636***	[0.612 - 0.660]	0.817***	[0.753 - 0.886]
Others	1.193***	[1.155 - 1.232]	0.606***	[0.583 - 0.631]	0.975***	[0.898 - 0.059]
Mass media						
No	Ref. cat.		Ref. cat.		Ref. cat.	
Yes	1.760***	[1.709 - 1.812]	1.598***	[1.539 - 1.659]	1.441***	[1.336 - 1.555]
Ever used FP method						
No	Ref. cat.		Ref. cat.		Ref. cat.	
Yes	1.272***	[1.241 - 1.304]	1.126***	[1.088 - 1.166]	1.025	[0.955 - 1.100]
Pregnancy complications						
No	Ref. cat.		Ref. cat.		Ref. cat.	
Yes	1.630***	[1.590 - 1.671]	1.423***	[1.375 - 1.472]	1.413***	[1.318 - 1.516]
Age at marriage (years)						
Never married	Ref. cat.		Ref. cat.		Ref. cat.	
Child marriage	0.742***	[0.674 - 0.817]	1.132*	[1.010 - 1.267]	1.072	[0.850 - 1.351]
19-34	0.906*	[0.823 - 0.998]	1.261***	[1.124 - 1.414]	1.117	[0.884 - 1.412]
Above 35	1.216	[0.868 - 1.703]	1.255	[0.740 - 2.127]	0.947	[0.299 - 3.001]
Children ever born						
1 child	Ref. cat.		Ref. cat.		Ref. cat.	
2-3 children	0.861***	[0.836 - 0.885]	0.551***	[0.526 - 0.576]	0.872**	[0.795 - 0.958]
4+ children	0.629***	[0.601 - 0.658]	0.371***	[0.350 - 0.393]	0.629***	[0.558 - 0.710]
Age at delivery (years)						
Less than 19	Ref. cat.		Ref. cat.		Ref. cat.	
19-34	0.919**	[0.864 - 0.977]	1.128**	[1.032 - 1.233]	1.306**	[1.080 - 1.579]
Above 35	0.998	[0.908 - 1.097]	1.073	[0.947 - 1.216]	1.292	[0.994 - 1.679]

Note: *p<0.05, **p<0.01, ***p<0.001; Ref. cat.: reference category.

Table 7 presents the results of decomposition analysis for proportional contributions of selected predictors. The socioeconomic and demographic predictors can explain almost 65 per cent of the total difference in full antenatal care among Muslim and Non-Muslim women in India. The remaining 35 per cent constitutes the unexplained residual component. Among all the explanatory factors, mother's schooling contributed 80 per cent of the difference in full antenatal care among Muslim and Non-Muslim

women, whereas household size, parity of mother and husband's schooling add 22 per cent, 19 per cent and 14 per cent of the differences respectively. Variables like age of the household head, mass media exposure of mother and sex of the household head contribute a very low percentage of the difference in full antenatal care of women.

Table 7: Oaxaca decomposition: contribution of selected predictors to full antenatal care difference between Muslim and Non-Muslim Women

Summary of Oaxaca decomposition		
	Coef.	Std. Err.
Non-Muslim	0.214	0.0024
Muslim	0.179	0.0052
Difference	0.035	0.0057
Explained	0.023	0.0020
Unexplained	0.012	0.0056
% Explained	65.210	
% Unexplained	34.790	
Details of explained part		
Predictors	% contribution to total difference	Std. Err.
Mother's age	-2.59	0.0003
Husband's schooling	13.56	0.0008
Mother's schooling	80.00	0.0012
Mothers having mass media exposure	1.18	0.0001
Place of residence	-39.97	0.0008
Parity of mother	19.14	0.0006
Household head's sex	0.45	0.0001
Age of the household head	6.05	0.0004
Household size	22.16	0.0006
Total	100.00	

IV. Discussion

The purpose of the study is to understand the pattern and determinants of maternal healthcare utilization between Muslim and Non-Muslims mothers in India with focus on Muslim mothers of the country. Fundamentally, the inequality in the healthcare utilization is directing towards the unequal healthcare services in the society. The results showed that around 25 per cent of the births were conducted at home out of which 20 per cent births were not assisted by any health professional. The socioeconomic and demographic predictors can explain almost 63 per cent of the total difference in birth places between Muslim and Non-Muslim women in India. Previous studies also stated about the obstacles in institutional deliveries. A study based in India pointed out that it is slightly moving forward as compared to mothers of other religions in terms of institutional birth (Das et al., 2016). Moreover, it is evident that extensive availability of obstetric services will not alone solve the problem of low institutional delivery rates (Kesterton et al., 2010). However, people indicated a willingness for institutional births, generally perceived to be safe births (Rai et al., 2011). On the contrary, a study raised a crucial apprehension that within a health delivery system there is concern that most of the time health intervention programmes are supply-oriented and ignore the social factors constraining the demand for, access to and effective use of health services (Ahmed et al., 2010).

Further, there was a gap (20%) in rural-urban differentiation in institutional birth. It is also evident that rural women are less likely to visit a health facility for ANC services. Women in rural India have limited access to health care resources (Bredesen, 2013). Another study reveals significant differences

in the use of skilled birth care among the urban and rural population in India. Women living in urban areas are more likely to seek assistance from skilled birth attendants (Chauhan and Rai, 2015; Hazarika, 2011). A study conducted in Nigeria highlights that in an urban residence, mothers professing Islam had higher odds of underutilization of ANC services. Place of residence, whether urban or rural, maternal and husband's education level, region of residence, wealth index and maternal age were significantly associated with ANC underuse (Adewuyi et al., 2018). But a study conducted in southern India reveals that no significant rural-urban gap has been identified in the case of antenatal care (Navaneetham & Dharmalingam, 2002).

One of the findings of the study indicated that around half of the Muslim women did not receive complete ANC and were at the bottom in availing the delivery facilities at institution in India. That also confirmed another study that the Muslim mothers are relatively at low status in terms of ANC compared with mothers of other religions, pointing out that the accessibility is a significant problem for the non-user in utilizing maternal healthcare (Das et al., 2016). The socioeconomic and demographic predictors can explain almost 65 per cent of the total difference in full antenatal care among Muslim and Non-Muslim women. The current study could not capture relevant information on accessibility of the healthcare facility.

Research has further demonstrated that religion has a profound effect on people's health care beliefs and behaviours (Solanke et al., 2015). Most of the time, a mother's education plays a significant role in receiving ANC care and her choice of place of delivery. Mothers having a higher degree of education are more likely to receive full ANC, institutional birth, and undergo home birth with professional assistance where home births are unavoidable. Findings from a study also confirm in the same direction that maternal healthcare utilization has increased steadily with education, standard of living, mass media exposure and husband's education status (Das et al., 2016). Besides, an Indian study surmises that Muslim women and women with lower levels of education are also less likely to access skilled delivery services. The use of skilled care depended significantly on the place of birth (Bredesen, 2013). The theoretical framework represented by Thaddeus and Maine (1994) also referred to socioeconomic/cultural factors like women's status in household and society, educational and economic status of women, etc. (Singh et al., 2012). Moreover, this study suggests that the mother's level of education, use of ANC and household socioeconomic status were the most influential factors associated with the use of skilled attendance at birth (Jat et al., 2011). Differing to this, a Nigerian study says that there were no significant religious influences identified among barriers to maternal service uptake, and barriers to uptake of maternal health services appear to be minimally influenced by religion (Al-Mujtaba, 2016). However, few studies also highlighted the crucial predictors for non-utilization of health care services; lack of educational resources, distance, and cost and transportation, cultural and religious barriers, and family influences all had an impact on women's non-utilization of healthcare services. Hence, understanding women's perspectives can help reduce the barriers to health care services during pregnancy and childbirth (Bredesen, 2013).

Age at the time of birth also has nexus with the utilization of healthcare facilities. Results also indicate that older Muslim women showed poorer adherence to complete ANC and child births in healthcare facilities while the younger Muslim mothers have a better compliance rate. However, higher age at marriage (35 years and above) poses a positive relationship with institutional births. Yet, a woman having received at least one ANC during pregnancy had 3.52 times higher odds of having skilled attendants at birth than women who did not receive any ANC (Jat et al., 2011). A study supports the fact that women with a history of antenatal visits were more likely to have skilled attendants at birth and many other factors such as several financial, social, regional and cultural barriers promote birth attendants use in India (Hazarika, 2011). For instance, the likelihood of getting maternal healthcare increases with education, mass media exposure and husband's educational status.

The gap in maternal care utilization across socioeconomic classes has decreased over time. Factors such as urban residence, education and belonging to SCs/STs certainly impacted inequality. (Ali et al., 2020). A qualitative study found the reasons for not using family planning and modern contraception in the Muslim community in Pakistan which comprised incomplete family size, negative perceptions, in-laws' disapproval, religious concerns, side-effects and lack of access to quality services **(**Mustafa, 2015**)**.

The study explored the predictors of social and living standards that influence household decision-making on women's uptake of maternal health services. Results stated that women's decision-making power has a significant positive correlation with maternal health services uptake and that prominent males' decision-making power has an adverse effect after controlling for socioeconomic indicators and supply-side conditions (Hou & Ma, 2013). Previous studies also revealed that women having greater access to step out of their residence obtained higher levels of antenatal care and were more likely to use institutional birth care. The impact of women's autonomy on the utilization of MCH services appears to be as crucial as other known determinants like education (Bloom et al., 2001). The disparity in the healthcare services could be accountable for the morbidity and mortality. Hence, the government is promoting universal health coverage platform for all the people irrespective of gender, caste, class, religion, economic condition and place of residence (Bosomprah et al., 2014; Ganle, 2015). The issues related to Muslim mothers' fertility are discussed widely by many scholars, but the associated problems remain untouched. The Muslim community is often criticized for its rigidity in the value system towards women. Reaching out to rural and underprivileged groups and applying a participatory approach are the issues that the programme officials are required to delve into (Singh et al., 2014).

Muslim women were less likely to receive maternity care services than Hindu women (Mondal, 2020). Utilization of maternal health care services was sub-optimal, and indicators such as socio-demographic factors like education of women, religion and parity were significantly associated with maternal health care utilization and those who belonged to the SCs and STs and were unexposed to mass media were less likely to use maternal health care services (Deepak et al., 2018; Singh et al., 2021). Orthodox beliefs and a low level of literacy among Muslim families contribute to several superstitions and traditional beliefs amongst the pregnant females, where the eldest female of the family usually governs the decisions of seeking antenatal care services. Sometimes pregnancy is not considered a condition that requires clinical care rather a natural physiological state. It is also believed that a pregnant woman should not go out of the house unless necessary, as it might bring lousy omen on the child. All such beliefs too contribute to the under-utilization of the MCH services. Sometimes social exclusion or discrimination leads to under-utilization of MCH services by the Muslim women. To achieve effective results, optimize and improve the utilization of MCH services. Both scholars and clinicians consider social complexity and diversity, and the possibilities of individuals to negotiate Islamic beliefs and laws in this regard.

V. Conclusions

To conclude, lower educational attainment, place of residence, mother's age, partner's occupation and household wealth have a serious impact on the under- or non-utilization by the Muslim mothers. Unfortunately, they are lagging behind compared with women from other religions. In terms of socioeconomic status and the utilization of the health care delivery system, this has serious social implications for the country and warrants immediate policy interventions. Though the overall usage of maternal health care services in India has improved over time, the level of use is still low among the mothers belong to the deprived sections of the society.

At present, India's strategy largely focuses on supply-side interventions through free maternal health care in a public health facility under national health mission. For it to succeed, there is a need to improve maternal health utilisation among women. However, lack of education, knowledge and out of

pocket expenditure are the main hurdles in maternal care utilisation among Muslim women in India. Therefore, addressing inequality contributed by education and wealth, the government should focus on education, especially among deprived castes and lower strata Muslims. Training for healthcare providers must be conducted to match the cultural and religious matching to meet the healthcare needs of Muslim women. The programmes and policies formulated by the Government for improving maternal healthcare utilization need to be redefined for the mothers who are in a greater need.

References

Adewuyi, E. O., Auta, A., Khanal, V., Bamidele, O. D., Akuoko, C. P., Adefemi, K., Tapshak, SJ., & Zhao, Y. (2018). Prevalence and factors associated with underutilization of antenatal care services in Nigeria: A comparative study of rural and urban residences based on the 2013 Nigeria demographic and health survey. *PloS one*, *13*(5), e0197324.

Ahmed, S., Creanga, A. A., Gillespie, D. G., & Tsui, A. O. (2010). Economic status, education and empowerment: implications for maternal health service utilization in developing countries. *PloS one*, *5*(6), e11190.

Alagarajan M (2003). An analysis of fertility differentials by religion in Kerala state: A test of the interaction hypothesis. *Popul Res Policy*, Rev 22:557-574.

Alcock, G. (2019). *Maternal health care utilisation in urban informal settlements: a grounded theory of manoeuvring* (Doctoral dissertation, UCL (University College London).

Ali, B., & Chauhan, S. (2020). Inequalities in the utilisation of maternal health care in rural India: Evidence from national family health survey III & IV. *BMC Public Health*, *20*(1), 1-13.

Ali, B., Dhillon, P., & Mohanty, S. K. (2020). Inequalities in the utilization of maternal health care in the pre-and post-National Health Mission periods in India. *Journal of biosocial science*, *52*(2), 198-212.

Al-Mujtaba, M., Cornelius, L. J., Galadanci, H., Erekaha, S., Okundaye, J. N., Adeyemi, O. A., & Sam-Agudu, N. A. (2016). Evaluating religious influences on the utilization of maternal health services among Muslim and Christian women in North-Central Nigeria. *BioMed research international*, *2016*.

Andersen, R., Newman, JF. (2014). Societal and individual determinants of medical care utilization in the United States. *Milbank Mem Fund Q Health Soc*, 51:95–124.

Blinder, A. S. (1973). Wage discrimination: reduced form and structural estimates. *Journal of Human Resources*, 436-455.

Bloom, S. S., Wypij, D., & Gupta, M. D. (2001). Dimensions of women's autonomy and the influence on maternal health care utilization in a north Indian city. *Demography*, *38*(1), 67-78.

Bosomprah, S., Aryeetey, G. C., Nonvignon, J., & Adanu, R. M. (2014). A decomposition analysis of change in skilled birth attendants, 2003 to 2008, Ghana demographic and health surveys. *BMC pregnancy and childbirth*, *14*(1), 1-7.

Bredesen, J. A. (2013). Women's use of healthcare services and their perspective on healthcare utilization during pregnancy and childbirth in a small village in Northern India. *American International Journal of Contemporary Research*, *3*(6), 1-9.

Chauhan, B. G., & Rai, A. K. (2015). Skilled Birth Attendance across Geographical Regions in India: Rural-Urban Differentials, 1992-2006. *Social Science Spectrum*, *1*(2), 114-126.

Das, A., Mohanty, P. C., & Haque, M. M. (2016). Case on Indian Muslim Mother's Healthcare Utilisation: Its Patterns, Trends and Comparison. *Asia-Pacific Journal of Management Research and Innovation*, *12*(1), 56-66.

Deepak, C., Jauhari, N., & Dhungana, H. (2018). A study on utilization of maternal health services and factors influencing the utilization in urban slums of Lucknow. *International Journal of Medicine and Public Health*, *8*(2).

Dey, A., Hay, K., Afroz, B., Chandurkar, D., Singh, K., Dehingia, N., Raj, A., & Silverman, J. G. (2018). Understanding intersections of social determinants of maternal healthcare utilization in Uttar Pradesh, India. *PLoS One*, *13*(10), e0204810.

Ganle, J. K. (2015). Why Muslim women in Northern Ghana do not use skilled maternal healthcare services at health facilities: a qualitative study. *BMC international health and human rights*, *15*(1), 1-16.

Gelberg, L., Andersen, RM., Leake, BD. (2000). The Behavioral model for vulnerable populations: application to medical care use and outcomes for homeless people. *Health Serv Res*., 34:1273–85.

Gupta, J., & Nilsson, M. (2017). Towards a Multi-Level Action Framework for Sustainable Development Goals. *Governing through goals: Sustainable Development Goals as governance innovation*, 275.

Hazarika, I. (2011). Factors that determine the use of skilled care during delivery in India: implications for achievement of MDG-5 targets. *Maternal and Child Health Journal*, *15*(8), 1381-1388.

Hou, X., & Ma, N. (2013). The effect of women's decision-making power on maternal health services uptake: evidence from Pakistan. *Health Policy and Planning*, *28*(2), 176-184.

Jat, T. R., Ng, N., & San Sebastian, M. (2011). Factors affecting the use of maternal health services in Madhya Pradesh state of India: a multilevel analysis. *International Journal for Equity in Health*, *10*(1), 1-11.

Kesterton, A. J., Cleland, J., Sloggett, A., & Ronsmans, C. (2010). Institutional delivery in rural India: the relative importance of accessibility and economic status. *BMC Pregnancy and Childbirth*, *10*(1), 1-9.

Krishnan, R. J. (2017). Maternal Healthcare Utilization Among Muslim Mothers from India, Pakistan, and Bangladesh: Is There Equity?

Mondal, D., Karmakar, S., & Banerjee, A. (2020). Women's autonomy and utilization of maternal healthcare in India: Evidence from a recent national survey. *PLoS One*, *15*(12), e0243553.

Mondal, N. A., Ali, B., & Sk, M. I. K. (2020). Has Muslim got benefited from the national health mission? A situational analysis of maternal health services in India. *Ethiopian Journal of Health Sciences*, *30*(5).

Mustafa, G., Azmat, S. K., Hameed, W., Ali, S., Ishaque, M., Hussain, W., ... & Munroe, E. (2015). Family planning knowledge, attitudes, and practices among married men and women in rural areas of Pakistan: Findings from a qualitative need assessment study. International journal of reproductive medicine, 2015.

National Family Health Survey-4. (2017). International Institute for Population Sciences and MoHFHW. Government of India, New Delhi.

Navaneetham, K., & Dharmalingam, A. (2002). Utilization of maternal health care services in Southern India. *Social Science & Medicine*, *55*(10), 1849-1869.

Rai, R. K. (2015). Utilization of maternal health-care services by Muslim women in India, Bangladesh, and Pakistan, 2005–2007. *Journal of Public Health*, *23*(1), 37-48.

Rai, S., Dasgupta, R., Das, M., Singh, S., Devi, R., & Arora, N. (2011). Determinants of utilization of services under MMJSSA scheme in Jharkhand′ Client Perspective′: A qualitative study in a low performing state of India. *Indian Journal of Public Health*, *55*(4), 252-259.

Register General of India. (2011). Census of India. Primary Census Abstract, Government of India, New Delhi.

Sachar Committee Report. Social, economic and educational status of the Muslim community of India (Prime Minister's High-Level Committee, Cabinet Secretary). 2006.

Singh, P. K., Kumar, C., Rai, R. K., & Singh, L. (2014). Factors associated with maternal healthcare services utilization in nine high focus states in India: A multilevel analysis based on 14 385 communities in 292 districts. *Health Policy and Planning*, 29(5), 542-559.

Singh, P. K., Rai, R. K., Alagarajan, M., & Singh, L. (2012). Determinants of maternity care services utilization among married adolescents in rural India. *PloS one*, *7*(2), e31666.

Singh, P., Singh, K. K., & Singh, P. (2021). Maternal health care service utilization among young married women in India, 1992–2016: Trends and determinants. *BMC Pregnancy and Childbirth*, *21*(1), 1-13.

Solanke, B. L., Oladosu, O. A., Akinlo, A., & Olanisebe, S. O. (2015). Religion as a social determinant of maternal health care service utilisation in Nigeria. *African Population Studies*, *29*(2).

Vora, K. S., Mavalankar, D. V., Ramani, K. V., Upadhyaya, M., Sharma, B., Iyengar, S., Gupta, V., & Iyengar, K. (2009). Maternal health situation in India: A case study. *Journal of Health, Population, and Nutrition*, *27*(2), 184.