MULTIDIMENSIONAL SOCIOECONOMIC DEPRIVATIONS OF MATERNAL HEALTH CARE SERVICES UTILISATION: EVIDENCE FROM BANGLADESH

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Abstract

This paper examines the combined effect of three socioeconomic deprivations: education, wealth, and health on the utilisation of maternal health care services (MHCSs) among Bangladeshi women using the data of Bangladesh Demographic and Health Survey 2014. Both bivariate and multivariate statistical analyses were employed in this study. Multivariable logistic regression analysis is used to examine the effect of the multidimensional socioeconomic deprivations on the use of MHCSs. Of the women who had given at least one live birth in the three years preceding the survey, 43% were non-deprived by any dimension; 31%

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were deprived in one, 20% in two and 6% in all three dimensions. The prevalence of receiving four or more antenatal care (ANC) services was 31%; 38% used facility-based delivery (FBD) and 42% sought skilled birth assistance (SBA). When education and wealth deprivations were combined, women were significantly (*P*<0.01) least likely to seek assistance from SBA (OR=0.18, 95% CI: 0.14-0.24) and FBD (OR=0.17, 95% CI: 0.12-0.22); and when all three deprivations were combined women were less likely to receive ANC at least once (OR=0.16, 95% CI: 0.12-0.22) than those who were not deprived. Programmes should be undertaken to expand maternal health voucher schemes in more sub-districts and quality of care should be ensured for equal accessibility and availability of MHCSs targeting deprived and disadvantaged areas and women to ensure safe motherhood practices in Bangladesh. Our findings show that the situation of maternal health care in Bangladesh is not satisfactory.

Keywords

Antenatal care, Bangladesh, maternal health care services, skilled birth assistant, socioeconomic deprivations

Introduction

Each year millions of women suffer from pregnancy-related life-threatening complications, particularly in developing countries. Compared to other reproductive health consequences, pregnancy-related complications are associated with more deaths and disabilities (Okedo-Alex 2019). Although the maternal mortality ratio (MMR) –measured by the number of deaths per 100,000 live births, declined by 38% from 342 in 2000 to 211 in 2017, a total of 295,000 women died in 2017. South Asia and Sub-Saharan Africa accounted for 86% of the global burden of maternal deaths. In the least developing countries, MMR was more than 40% higher than that of Europe (WHO et al. 2019). Although Sustainable Development Goals 3.1 (SDGs 3.1) set a target to narrow the inequality of MMR by reducing it to less than 70, with no country having MMR greater than 140 deaths per 100,000 by 2030 (WHO 2015), the utilisation of maternal health care services (MHCSs) in the low- and middle-income countries (LMICs) is still inadequate (Bassani 2009; Ritchiea et. al. 2016).

Irrespective of socioeconomic status, every pregnant woman needs equal access to MHCSs. Despite this aim, the affordability of health care costs creates substantial barriers to supply and demand in the poor and rich. While there exist inadequate facilities and

skilled personnel in the LMICs on the supply side, lack of knowledge about service availability, high costs of services, and traditional beliefs are important obstacles on the demand side. Many researchers argue that although the availability of quality care is essential, the supply is not enough to increase the usage of skilled MHCSs. Community-level interventions, which have been started in many LMICS, were found to be a more effective strategy to increase the accessibility of obstetrics care (Quayyum et al. 2013). Although the utilization of MHCSs is a complex behavioural phenomenon, previous studies have often found that it is related to the availability, quality and cost of services, health beliefs, social structure, and individual's personal characteristics (Chakraborty et al., 2003). In a patriarchal society where males are the supreme authority in the decision-making process, the involvement of the husband and the couple's joint decision-making increases the utilisation of MHCSs in such social settings as Bangladesh (Story and Burgard 2012).

Bangladesh is committed to achieving the SDGs, particularly SDG 3.1 which aimed to reduce the MMR. Although the country was on the right track to achieve Millennium Development Goal 5A (MDG 5A) to reduce MMR from 574 to 143 by 2015, the ratio was reduced only to 170 by 2017 (WHO et al. 2019). This ratio is one of the highest in the world. In Bangladesh, more than 6,000 women die every year and 53% of pregnant women suffer from pregnancy-related complications like pre-eclampsia, prolonged labour, excessive bleeding, and convulsion (NIPORT et al. 2016). Lower usage of MHCSs is documented as the main reason for high MMR and obstetric complications among women in the LMICs (WHO et al. 2019; Geleto et. al. 2020). Among others, prominent reasons for not receiving MHCSs in the women are service costs and accessibility (NIPORT et al. 2016), a typical reason associated with Multidimensional Social Deprivations (MSD).

The expansion of maternal health care facilities, even in remote zones, by ensuring the availability of trained personnel, equipment, supplies, and drugs failed to increase MHCS utilisation, particularly in the LMICs, including Bangladesh (Ahmed and Khan 2011). It became apparent to policymakers in the early 1990s that supply-side efforts alone were not enough to elevate MHCS utilisation, due to relatively high costs in both the public and private sectors. The challenge of reaching health-related facilities has led policymakers to search for new strategies aimed at prospective benefits for the poor (Ahmed and Khan 2011; Schmidt et al. 2011). With financial support provided by WHO, several LMICS, including Bangladesh, Bolivia, Cambodia, India, Kenya, Nicaragua, Pakistan, and Tanzania initiated demand-side financing (DSF), aiming to increase access to essential skilled MHCSS.

A maternal health voucher scheme (MHVS) for poor pregnant women (having a maximum household income of approximately US$ 30 per month) covers the costs of three antenatal contacts (ANC), safe delivery including C-section and complication

management, post-natal care (PNC), and cash benefits including a transport allowance and in-kind benefits (Angeles et al. 2019). Provider facilities and staff also receive a payment for each service provided to the scheme participants. In Bangladesh, initially, 21 sub-districts were selected under MHVS in 2006. The implementation began first in 2007 in two sub-districts and was later extended to the remainder. A further 12 sub-districts were added to the pilot in June 2007 (Schmidt et al., 2011), and the programme currently operates in 55 of the 556 sub-districts of the country (Angeles et al. 2019; GoB 2020).

Since more than 99% of maternal deaths occurred in developing countries, reducing maternal mortality is a global concern. Many maternal deaths are preventable through an early detection of complications by antenatal care (ANC). Skilled birth attendants (SBAs) are capable of reducing maternal and neonatal mortality by providing essential and emergency health care services. Thus, besides identifying socioeconomic determinants (Hajizadeh et al. 2014; Kazanga et. al. 2019), researchers have paid much attention to identifying socioeconomic disparities of the use of MHCSs (Hajizadeh et al. 2014; Kamal et. al. 2015; Pulok et al. 2020). Findings of these studies have uncovered significant inequalities of MHC utilisation in poor-rich (Hajizadeh et al. 2014; Liu and Yan 2014), rural-urban areas (Angeles et. al. 219; Shibre and Mekonnen 2019), and within and between countries (Vedom and Julia 2011). These studies are important in order to examine the social determinants and inequalities of MHCS utilisation. Although numerous studies have noted that household wealth is the key to MHCS utilisation (Kamal et al. 2015; Hajizadeh et al. 2014; Vedom and Julia 2011), little is known about the association between MSD and MHCS utilisation. Increasing the utilisation of skilled MHCSs and reducing the poor-rich gap is now a priority agenda of the Government for safe motherhood practices. The aim of this study is to examine the association of MSD with the usage of MHCS such as receiving ANC services, the use of facility-based delivery (FBD), and seeking assistance from SBA.

Methods
Data source and sample

Data used in this study were drawn from the Bangladesh Demographic and Health Survey (BDHS) conducted in 2014[2] as a part of the global DHS programme. The survey was designed to collect information from a nationally representative sample of 17,863 ever-married women on issues related to socio-demographic, maternal and child health care, nutrition, fertility, and fertility regulation. The details of the survey and sampling procedure are described in the survey report (NIPORT et al. 2016). Of the women, 5,659 had given at least one live birth in the three years preceding the survey. The survey did not

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[2] A preliminary report of the survey was published at the time of submission of this paper. Data and a full report of the 2017-18 BDHS were not released at that time.

gather information from all of these women; rather it recorded information regarding MHCSs utilisation from women who had given at least one live birth in the last three years. Thus, after excluding women with various types of missing information, we restricted our analysis to 4,595 women who had given at least one live birth in the three years preceding the survey.

Outcomes of interest

The outcomes of interest in this study are at least one ANC visit (no/yes), ≥4 ANC visits (no/yes), use of SBA (no/yes), and FBD (no/yes). All of the outcomes of interest in this study are binary in nature. For LMICs, the WHO recommended a minimum of four ANC visits during the pregnancy (WHO 2016). Skilled ANC services are those which are received from medically trained personnel such as doctor, nurse/midwife/paramedic, family welfare visitor, community skilled birth assistant and sub-assistant community medical officer. FBD is defined as giving birth at any medical institutions such as health centres, Government or non-Government hospitals and private clinics. Based on the definition of the WHO, SBAs are those who have received medical training to assist with deliveries, such as doctors, nurses or midwives (NIPORT et al. 2016).

Exposure variables

The main exposure variable of this study is MSD. Women living in a society may be suppressed by a variety of social deprivations, such as housing, income, education, and health, which together might have a greater effect on health and health care-seeking behaviour than any single type of deprivation. The United Nations Development Programme (UNDP) introduced the Multidimensional Poverty Index in 2010 (UNDP 2010), which measures poverty and inequality based on three key dimensions: education, household wealth, and health. Following this concept and other studies conducted elsewhere (Mohanty 2012), we adopt this concept in this study to construct MSD.

Construction of Multiple Social Deprivations (MSD)

According to Bossert et al. (2007), deprivation is mainly comprised of two basic determinants: the lack of identification with other members of society, and the aggregate alienation experienced by an agent concerning those having fewer functioning fail. Social deprivation is a comparison of an individual to other people of the society in terms of education, income, wealth, health status, social status, etc. Due to the paucity of data, we constructed social deprivations by number and specifically based on three indicators: (i) education; (ii) wealth; and (iii) health status of the respondents.

Several studies conducted previously have reported primary education having no significant effect on MHCS utilisation (Chakraborty et al. 2003; Mohanty 2012; Kamal 2015). In other words, women having primary education or no formal education do not make a significant difference in social advancement, compared to those who have attained at least secondary education. Hence, a woman is considered educationally deprived if she reported that both she and her husband had not completed primary education. This cut-off point has been used in this study for educational deprivation.

For deprivation in wealth, we used the wealth index which is provided in the 2014 BDHS. The 2014 BDHS did not gather information regarding household income and expenditure; rather, it collected data on household assets. The wealth index was constructed from data on household assets including ownership of durable goods (such as televisions and bicycles), and dwelling characteristics (such as the source of drinking water, sanitation facilities, and household construction materials). To create the wealth index, each asset was assigned a weight (factor score) generated through principal component analysis. The resulting asset scores were standardized to a normal distribution with a mean of 0 and a standard deviation of 1. An individual household was ranked based on the total score. The sample was then divided into quintiles from 1 (lowest) to 5 (highest).

Wealth quintiles are used as a background variable to assess demographic and health outcomes concerning socioeconomic status. The details of the construction of the wealth index are provided in the survey report (NIPORT et al. 2016). The first two groups, the poorest and poor, were considered as deprived in terms of wealth. The non-deprived women in terms of wealth were coded as 0. Concerning health deprivation, we used women's Body Mass Index (BMI). Based on the internationally used cut-off points, women were classified as underweight or thin (BMI<18.5 kg/m^2), normal (18.5-24.9 kg/m^2), and overweight or obese ($\geq$25.0 kg/m^2). Thin underweight women were considered to be health deprived because that category reflects a deficiency in chronic energy. The deprived women in each indicator were coded as 1 and non-deprived women were coded as 0.

The integration of the above mentioned three indicators of deprivation yields a total of eight dimensions of deprivation by specific manner: (i) none; (ii) education; (iii) wealth; (iv) health; (iv) education and wealth; (vi) education and health; (vii) wealth and health; and (viii) education, wealth and health. The first one is free of any deprivation; the second to fourth indicates single specific deprivation, while the fifth and the sixth have two-dimensional deprivations; and the last one is deprivation in all dimensions. Hence, the categories from fifth to eighth are considered as MSD. In addition, we categorized the integrating dimensions as none, one, two, and three. The other explanatory variables included in this study are maternal age (<20, 20-29 and 30-49 years), children ever born (<3 and $\geq$3), births in the last five years (one and two or more), birth order (first, second and

third or higher), child sex (male and female), working status of women (not working and working), women's involvement in their own health (no and yes), regions (Barisal, Chittagong, Dhaka, Khulna, Rajshahi, Rangpur and Sylhet), and religion (Islam and others).

Statistical analysis

Univariate, bivariate and multivariate statistical analyses were employed in this study. Bivariate analysis, namely chi-square tests, were conducted to examine the association between the outcomes of interest and the dimensions of deprivation. Finally, a series of multivariable binary logistic regression models were constructed to examine the effect of the dimensions of deprivation on the use of MHCSs in rural-urban areas as well as at the national level. The results of the logistic regression analyses are presented by odds ratios (ORs) with 95% confidence intervals (CIs). Before conducting the multivariable analysis, we checked multi-collinearity by variance inflation factors and found non-existence. The level of significance was set at 0.10. The statistical analyses were performed by IBM SPSS version 20 and figures were drawn by MS Excel.

Ethical considerations

This study used de-identified and publicly available data from the MEASURE DHS upon request. The MEASURE DHS followed all ethical procedures for all DHSs; surveys are approved by the ICF International and the USA, as well as the Institutional Review Board of the respective country. Hence, further ethical approval is not necessary for this study.

Results

Table 1 shows the percentage distribution of the women by their background characteristics and the number of deprivations. More than 29% of the women were adolescent mothers and over one-third had three or more children. Almost 42% of the women experienced motherhood for the first time. Of the children, 52% were male children, slightly less than one-fourth of the women were working and the majority were Muslim. More women were from Dhaka division and three-fourths were rural residents. Table 1 further shows that almost 43% of the respondents were non-deprived in any dimension, 31% were deprived in one dimension, 20% in two dimensions and 6% in all three dimensions. The estimated correlation coefficient for wealth and health, which was found somewhat weak (0.28), indicates that these two dimensions are not much overlapped (the correlation coefficients between the dimensions of deprivations are not shown in this Table).

Table 2 shows the percentage distribution of MHCSs utilisation by dimensions of deprivation. As shown, receiving at least one ANC service was lowest among women with all three dimensions of deprivation. This proportion rose to a peak at 81% among those who were not deprived in any dimension. Women deprived of both education and health, and also deprived of all dimensions, were least likely (13%) to visit ≥4 times to receive ANC services, compared with 20-31% among those deprived in one dimension. Among the women having no deprivation, 60% used FBD for childbirth as against of 31-50% of those having no deprivation, 15-25% among those with two dimensions of deprivation and 15% in the women with all indicators of deprivation. Only 12% of the women with all dimensions of deprivation delivered at FBD compared to 12-22% of those deprived in two dimensions, 25-44% of those deprived in one dimension and the highest at 55% among those who were non-deprived.

Table 3 presents the differentials of MHCS utilisation in rural-urban areas as well as at the national level by a number of deprivations. At the national level, with the prevalence of at least one ANC visit, ≥4 ANC visits, seeking assistance from SBA and FBD was 64%, 31%, 42%, and 38% respectively. The table depicts significant (*P*<0.10) inequalities of the usage of MHCSs between rural and urban areas. The use rate of all indicators of MHCSs was higher in urban women than among their rural counterparts. For instance, receiving at least one ANC among women was 79% in urban areas as against 59% in rural areas. The rate of at least four visits of ANC was 45% in the urban women, compared to 26% in the rural residents. Seeking assistance from SBA and FBD in urban-rural areas were 61% vs. 36% and 57% vs. 31% respectively. Although urban women exhibit some fluctuations in receiving at least one ANC and usage of FBD according to the number of dimensions, the use rate of all indicators of MHCS utilisation decreases consistently with the increase of the number of dimensions in rural areas as well as at the national level.

To improve our understanding of inequality in the use of MHCSs across deprivation groups, ratios were calculated to compare women having no deprivation with those deprived in one, two or three dimensions. The closer the ratio is to 1.0, the lower the inequality between the groups. A close inspection of Table 3 suggests that inequalities persist for the utilisation of SBA and FBD between the non-deprived and deprived women. Results further indicate broader inequalities between rural and urban areas as well as at the national level. When the place of residence was disaggregated in urban-rural areas, higher inequalities were observed between non-deprived and among those deprived in one, two, and three dimensions for receiving ≥4 ANC services and SBA. However, the trend was found inconsistent for at least one ANC visit and FBD. Besides, at the national level and for rural areas, the estimated ratios between non-deprivation and one, two, and three deprivations indicate that substantial inequalities prevail in the utilisation of MHCSs.

The results of multivariate analysis of the use of MHCSs by the number of deprivations are presented in Figure I. Models constructed for all indicators of MHCSs for rural areas as well as for the national level consistently show that the higher the number of deprivations the lower the likelihood of MHCSs utilisation. The same was found in the model constructed for urban areas regarding seeking assistance from SBA. We hypothesized that the higher the number of deprivations, the lower the odds of use of MHCSs. However, this hypothesis was not true for urban women receiving ANC services and FBD. Urban women with two deprivations were less likely to go for at least one ANC visit, four or more ANC visits, or use FBD, compared to those with none, one, and three deprivations.

When deprivations were disaggregated in a specific manner, results of the multivariate analysis revealed that the combined effect of education and wealth deprivation was more pronounced than other categories of deprivations, particularly for seeking assistance from SBA and use of FBD (Figure II). For instance, when education and wealth deprivations were combined, women were less likely to seek assistance from SBA (OR=0.18, 95% CI: 0.14-0.24) or use FBD (OR=0.17, 95% CI: 0.12-0.22) than those having other forms of deprivation. Furthermore, when education, wealth, and health deprivations were combined, women were less likely to receive at least one ANC services (OR=0.16, 95% CI: 0.12-0.22) than those with other dimensions of deprivation. A close inspection of Figure II depicts that when the effect of education, wealth and health are individually compared for the utilisation of MHCSs, the effect was more pronounced for wealth, followed by education and health.

Discussion

The large data set of 2014 BDHS provided a unique opportunity to improve understanding of the inequalities of MHCSs utilisation across MSD. Although prior studies in Bangladesh have identified that socioeconomic determinants such as maternal education, household wealth, place of residence, religion, and region are key factors of MHCS utilisation among the women of developing countries (Hossain 2010; Kamal et al. 2015; Kabir et al. 2015; Hasan et al. 2019; Novignon et al. 2019; Khan et al. 2020), little effort has been made to examine inequality of MHCS utilisation across MSD. This study aimed to fill in that gap.

Bangladesh, the most densely populated country on the globe, has made remarkable progress in recent decades in terms of education, health, and economy. The total fertility rate has dropped dramatically from 6.5 births per woman in the mid-1970s to 2.3 births per woman in 2014, the modern contraceptive prevalence rate has increased from a low level of 5% in 1975 to 54% at this time, and neonatal mortality has been

reduced to 28 per 1,00 live births in 2014 (NIPORT et al., 2016). Despite this improvement, 20.5% of the people lived below the poverty line (2122kcal/per day) in 2019. Per capita health expenditure has increased from US $16 in 2007 to US $37 in 2015, where out-of-pocket expenditure is 67% (GoB 2020).

The Government has been pursuing progress through certain activities for the overall improvement of the reproductive health status of women, awareness about access to contraceptive methods, antenatal care, promotion of safe delivery practices, and post-natal care. (GoB 2020). Despite various efforts and strategies taken by the Government, our findings and previous studies suggest that inequalities persist in receiving health care (Hajizadeh et al. 2014). The MHVS, which covered 10% of the sub-districts in Bangladesh, is not considered enough to eliminate inequities in the utilisation of MHCSs, although the use rate of maternity care has been increased by this strategy. However, many women are not aware of this opportunity provided by the Government, and the quality of the services remains questionable (Schmidt et al., 2010). More importantly, the sub-districts in which the project has been introduced are generally areas where there is little incentive to develop a substantive, independent private sector capacity (Schmidt et al. 2010).

This study contributes to the existing literature regarding social deprivations and use of MHCSs. First, we constructed MSD, which shows that the usage of MHCSs, such as at least one ANC visit, ≥4 ANC visits, and the use of SBA and FBD are strongly negatively associated with the number and dimensions of deprivation. Our findings are consistent with those conducted in India (Mohanty 2012). Overall, the use of the MHCSs was found lowest in the women having all deprivations, followed by those with two deprivations, one deprivation, and no deprivation. Second, based on findings from national-level analyses, household wealth appeared as the most significant influential factor for the use of MHCSs, followed by education and health. For at least one ANC, SBA, and FBD, the combined effect of 'education and wealth' was found to have a greater effect than those of 'education and health' or 'wealth and health' and even that of education, wealth and health. Plausibly, better knowledge of the adverse effect of non-use of MHCSs among educated women and affordability of service costs by wealthier women might influence greater use of MHCSs. Third, unequal utilisation of MHCSs in rural-urban areas is related to the availability and affordability of services. By and large, the differences between women with multiple deprivations and those with none appeared to be highest in rural areas as service coverage is very low in rural Bangladesh.

Strengths and limitations

This study is the first-ever attempt at constructing MSD to examine their effects on MHCS utilisation in Bangladesh by using a nationally representative data set. Furthermore, this

nationwide analysis may serve as a benchmark to study related issues further. Moreover, cross-sectional data are not sufficient to establish causality. Besides, self-reporting and retrospective information provided by the respondents might have recalled a tendency to bias which could affect the level of MHCSs utilisation in this study. Another important limitation is that we used the wealth index as a proxy of economic deprivation which might have underestimated the findings.

Conclusion

This study has explored social deprivations and their effects on the use of MHCSs. The findings reveal that inequality in the usage of MHCSs is significantly associated with MSD; the higher the deprivations, the lower the use of MHCSs. Rural women as compared to their urban counterparts are more deprived. ANC visits and seeking assistance from SBA and FBD are more favoured by urban women than by their rural counterparts. These findings may be helpful to guide stakeholders in the health care system addressing inequality in the utilisation of MHCSs. As a part of universal access to health care, and to reduce inequality, appropriate programmes and policies should be undertaken to enhance the utilisation of MHCSs, especially aiming at deprived and disadvantaged women. Community-level interventions may increase the usage of MHCSs. The Government should expand the MHVS programme with quality services and implement strategies to cover both the supply and demand-side interventions with easy accessibility, targeting the deprived and those living in hard-to-reach remote areas, with adequate resources to ensure safe motherhood practices for the women of Bangladesh.

Table 1. Percentage distribution of women by selected characteristics and dimension of deprivation

Characteristics	N=5,595	No. of deprivations				Chi-square P–value
		None (N=2,388)	One (N=1,724)	Two (N=1,129)	Three (N=354)	
Maternal age						P<0.001
<20	29.2	39.2	34.8	20.6	5.4	
20-29	56.2	46.1	29.4	18.7	5.8	
30-49	14.6	36.7	28.2	24.9	10.1	
Children ever born						P<0.001
1-2	65.8	48.8	31.4	15.6	4.2	
3+	34.2	30.9	29.7	29.0	10.4	
Births in last five years						P<0.001
One	64.9	46.3	30.6	18.6	4.6	
Two+	35.1	36.0	31.3	23.2	9.6	
Birth order of child						P<0.001
First	41.7	47.9	32.6	15.4	4.1	
Second	29.1	48.0	29.9	17.1	5.1	
Third+	29.2	30.0	29.2	30.1	10.8	
Sex of child						P<0.05
Male	51.7	42.5	32.2	18.8	6.5	
Female	48.3	42.9	29.4	21.6	6.1	
Currently working						P<0.001
No	76.0	44.5	30.5	19.0	6.0	
Yes	24.0	37.0	31.7	24.0	7.3	
Involved in decision making for own health						P<0.001
No	37.5	33.9	38.2	43.1	41.2	
Yes	62.5	66.1	61.8	56.9	58.8	
Religion						P<0.01
Islam	91.9	43.2	30.2	20.3	6.3	
Other	8.1	37.2	37.6	19.1	6.1	
Region						P<0.001
Barisal	5.5	33.9	35.3	22.3	8.6	
Chittagong	22.4	47.4	33.2	15.5	3.9	
Dhaka	34.9	47.9	26.7	18.6	6.8	
Khulna	7.6	46.0	35.4	16.8	1.8	
Rajshahi	9.7	39.9	29.9	21.8	8.4	
Rangpur	9.3	34.3	36.0	24.8	4.9	
Sylhet	10.6	27.9	29.9	31.1	11.1	
Place of residence						P<0.001
Urban	25.0	65.8	24.5	6.8	2.8	
Rural	75.0	35.0	32.9	24.6	7.5	
Total	100.0	42.7	30.8	20.2	6.3	

Table 2. Measures of maternal health care services (MHCSs) utilisation among women who had given at least one live birth in the last three years preceding the survey, by dimensions of deprivation

Indicators of MHCSs	None	One			Two			Three
		Education	Wealth	Health	Education and wealth	Education and health	Wealth and health	Education, wealth and health
Visited for any ANC								
No	19.4	40.7	48.6	27.7	65.6	59.9	46.8	66.5
Yes	80.6	59.3	51.4	72.3	34.4	40.1	53.2	33.5
Visited for ≥4 ANC								
No	55.0	76.3	79.9	68.9	86.9	87.3	78.6	87.3
Yes	45.0	23.7	20.1	31.1	13.1	12.7	21.4	12.7
Delivered at FBD								
No	40.4	68.2	68.6	50.2	85.5	77.6	74.7	85.2
Yes	59.6	31.8	31.4	49.8	14.5	22.4	25.3	14.8
Delivered by SBA								
No	45.2	69.8	74.7	55.9	88.4	77.8	78.7	87.8
Yes	54.8	30.2	25.3	44.1	11.6	22.2	21.3	12.2

Note: All differences in receiving MHCSs are significant at *P*<0.001.

Table 3. Percentage distribution and ratios of percentages of maternal health care services (MHCSs) utilisation among women by place of residence and by dimensions of deprivation

Residence/MHCSs indicators	Total	No. of deprivations				Ratio of none to		
		None	One	Two	Three	One	Two	Three
Visited for any ANC								
Bangladesh	63.8	80.6	58.8	42.5	33.5	1.4	2.0	2.4
Urban	78.8	87.9	63.7	48.8	61.5	1.4	1.8	1.4
Rural	58.6	75.9	57.5	41.9	29.8	1.3	1.8	2.5
Visited for ≥4 ANC								
Bangladesh	31.2	45.0	23.9	16.5	12.7	1.9	2.7	3.5
Urban	45.4	53.8	30.1	24.4	23.7	1.8	2.2	2.3
Rural	26.2	39.4	22.3	15.7	11.3	1.8	2.5	3.5
Delivered by SBA								
Bangladesh	42.1	59.6	36.8	19.4	14.8	1.6	3.1	4.0
Urban	60.5	70.8	47.5	23.1	15.7	1.5	3.1	4.5
Rural	35.8	52.5	34.1	19.1	14.6	1.5	2.7	3.6
Delivered at FBD								
Bangladesh	37.6	54.8	31.5	16.3	12.2	1.7	3.4	4.5
Urban	57.4	66.4	46.1	22.4	25.0	1.4	3.0	2.7
Rural	30.7	47.3	27.9	15.7	10.5	1.7	3.0	4.5

Note: All differences in receiving MHCSs are significant at *P*<0.10.
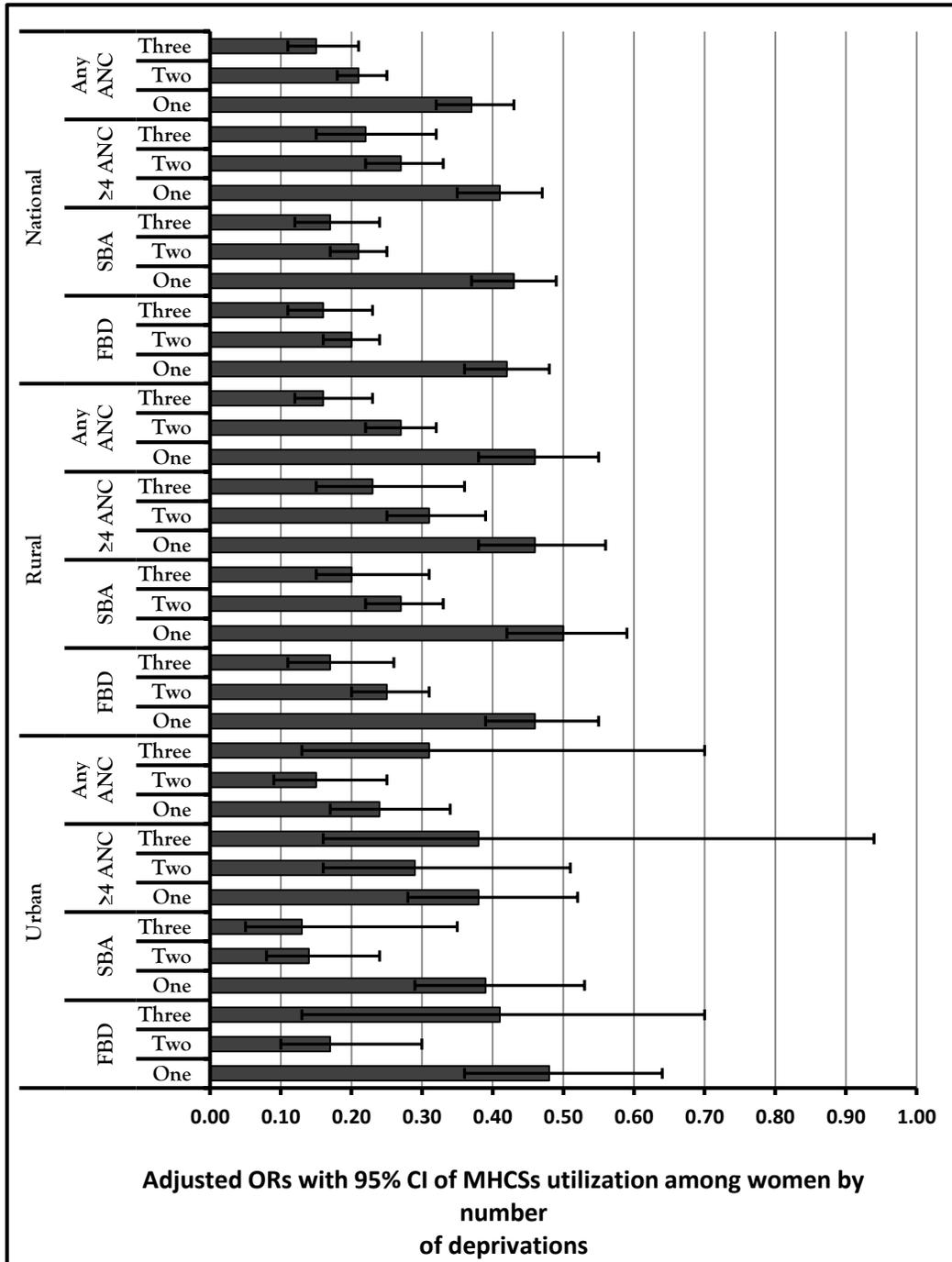
Figure I. Results[*] of multivariate logistic regression analysis of MHCSs utilisation among women of Bangladesh by number of deprivations.

[*] Controlled for maternal age, children ever born, births in last five years, birth order, child, working status of women, women's involvement in their own health, region and religion
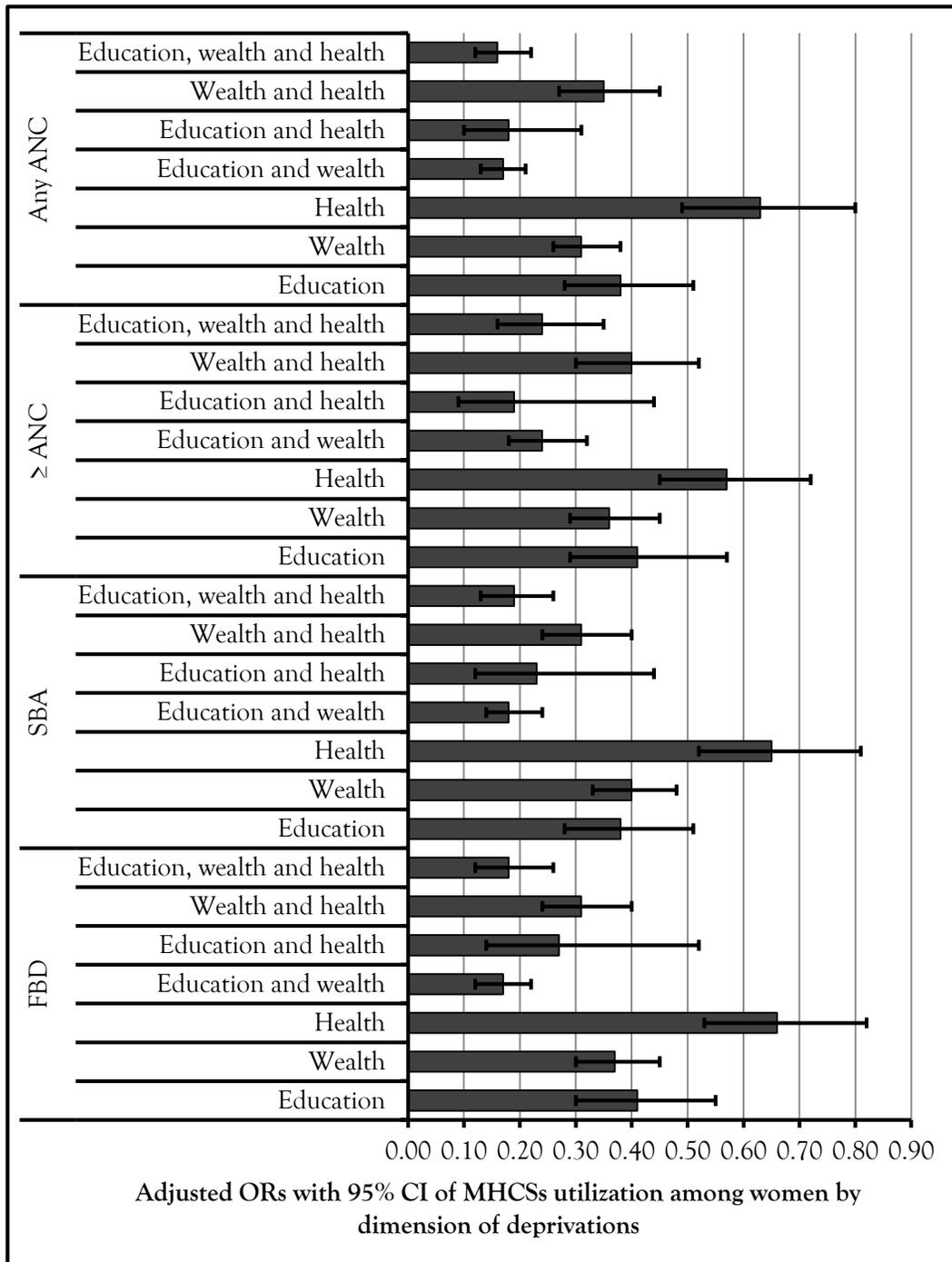
Figure II.   Results[*] of multivariate logistic regression analysis of MHCSs utilisation among women of Bangladesh by dimension of deprivations.

[*] Controlled for maternal age, children ever born, births in last five years, birth order, child, working status of women, women's involvement in their own health, region and religion

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