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Research Article

Effect of Women's Empowerment on Reproductive and Child Health Services among South Asian Women

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Abstract

This study shed light on women's empowerment associated with increased utilization of reproductive and child health services in selected countries of South Asia. The research questions are explored through the use of bivariate and multivariate analyses based on nationally representative data from the Demographic and Health Survey of India, Nepal, and Bangladesh among married women aged 15-49 years. Proxy variables on different dimensions of women's empowerment are used to obtained empowerment Index by principal component analysis and are tested for an association with the utilization of maternal and child health services by using logistic regression models with the STATA-14 statistical package. The study found a positive and significant association between women's empowerment and utilization of RCH services in these all countries. The likelihood of women is highest to attend more antenatal care visits and postnatal care; visit institutions for delivery, take their children for immunization and use modern family planning methods with empowerment score those complete education, have wealth and media exposure as compared to those less educated, poorer and have no media. Couples in which both husband and wife made reproductive and child health decisions are the most likely to use these services followed by individual decision-makers. The findings suggest that use of maternal health care services is influenced by women's roles in decision-making and the attitudes of women towards domestic violence, after controlling for some socio-economic and demographic factors which are organized at the individual, household, and community level. The study results suggest that policy actions that increase women's empowerment at home could be effective in helping assure good maternal health.

Introduction

Women's empowerment is a complex concept in health-care decision making and is extremely important to access the reproductive and child health services (RCH) (Do and Kurimoto 2012; Acharya et al 2010). Evidence from other developing countries shows that women's status and empowerment have strong ramifications and essential determinants of decision-making processes. Women's empowerment demonstrates the degree of their acceptance of their perceptions and wellbeing, but also for ensuring the personal or household welfare in the society (Acharya et al 2010; Sathar and Kazi 2000). The Sustainable Development Goals (SDGs) aimed to focus on gender equality by tackling inequalities and empowering women and girls. There is a growing call to links gender equality to health and wellbeing to ensure universal access to sexual and reproductive health and rights (SDGs, Goal-5, and target 5.6). Globally, different studies have argued that determinants and consequences of women's position have become a more comprehensive concern influencing the society (TGE 1993). Thus, increasing the challenges for measuring the women's empowerment and making it as a multidimensional latent construct (Pratley 2016). Women's empowerment, however, measured in various ways, has been related with maternal health care utilization focusing on increasing women's autonomy and reproductive and child health outcomes from a life-course perspective (Malhotra and Schuler 2005; Ahmed et al 2010; Gupta 1995). Empowering women as

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both socially and economically can enhance progressive social policies and overall development. As a result, examining the RCH services can, therefore, be challenged.

Women are the prime focuses of programmes that go for enhancing maternal and child health (MCH) and accomplishing other desired demographic goals. Few literatures suggest that women's empowerment is often considered as an essential element (Yesudian 2009; Furuta and Salway 2006; Osamor and Grady 2016; Sado et al 2014). Studies conducted in 67 developing countries showed a positive association between women's empowerment and use of health services (Pratley 2016). A study conducted in North-east India also found the similar findings (Chaurasia 2016).A meta-analysis of 31 countries showed that the likelihood of using modern contraceptive method, attending four or more antenatal care visits, and having a skilled attendant at birth is higher for women with the highest empowerment status compared with women with lower empowerment score based on Demographic and Health Survey (DHS) (Ahmed et al 2010). A study using DHS data from four African countries found positive associations between women's empowerment and family planning method(Do and Kurimoto 2012). Another study from Indonesia and Timor-Leste concluded that women with little education were significantly less likely to attend at least four antenatal care visits, despite the fact that these studies did not examine different indicators of women's empowerment (Khanal et al 2015; Titaley et al 2010).

Empowering women, though measured in different ways, play an important role towards utilization of RCH services, especially through their all-pervasive effects of enabling factors related to education and employment; contraceptive use, antenatal care, institutional delivery, postnatal care and child immunization (Malhotra and Schuler 2005; Ahmed et al 2010; Gupta 1995). The International Conference on Population and Development (ICPD), Cairo held in 1994, focused on improving the status of women and also enhancing their decision-making capacity, after which National Population Policy (NPP), India is documented through which women's empowerment can encourage more extensive use of RCH quality care with reduction in morbidity patterns also(McIntosh and Finkle 1995). Mostly these are male-dominated societies where women lack control over education, working condition, employment, marriage, own health and childbearing, which are instrumental in advancing family planning related issues and reproductive and child health services both at the individual level and at the policy level. On the other hand, few researchers have examined some improvements in Southeast Asia over the last three decades.

Improvements have been seen both in women's education and male-female power balance, but adolescent mother's poor social status may still have a negative impact on the use of RCH services (Booth 2016).Many Studies have been conducted regarding the factors contributing to low utilization of health care services, and most of them are found to be focused on provision and geographic accessibility of services. However, very few studies concentrate on women's empowerment and the use of maternal health care services (Salway & Furuta, 2006). Thus, this study aims at determining the association between women's empowerment and the utilization of RCH services utilization in South Asian countries. Furthermore, the study aims to find the relationship of socio-demographic factors with the utilization of maternal health care services and level of autonomy.

Survey Data

Data for this study derived from the Demographic and Health Surveys (DHS) in three selected South Asian countries India, Nepal, and Bangladesh conducted between period 2006–2008.All these are vast countries regarding social and economic development. United States Agency for International Development (USAID) has funded measure DHS survey in developing countries focussing on demographic and health issues. Multistage probability sampling is applied to provide nationally representative samples of currently married women of reproductive age 15-49 years. It provides comparable data for countries of interest on the majority of variables of interest. The detailed description of the survey designs, households, and individuals data available through an online database to researchers have been described elsewhere (DHS, 2011).The total sample has been used for analysis in India (87,925), Nepal (10,146) and Bangladesh (8,244). The reproductive and child health services like; family planning, immunization, antenatal, institutional delivery and postnatal care are the dependent variables for this study. These were recorded into binary variables, taking the value

1 for family planning, 0 otherwise; 1 for immunization, 0 otherwise; 1 for who availed ANC and PNC, 0 otherwise and 1 for institutional delivery, 0 home delivery. The independent variables like age, education, and media exposure a classified as individual-level variables, whereas family income or wealth is classified as household level variable and place of residence were classified community level variable. Previous studies have shown that education, socio-economic status, and place of residence were the significant predictors of RCH service utilization while other predictor variables were less consistent (Govindasamy and Ramesh 1997; Agha and Carton 2011; Amin et al 2010; Ahmed et al 2010). Principal component analysis has been used to construct empowerment index with all direct and indirect indicators related to women's empowerment (Park et al 2002).This empowerment index is categorized into three tersely categories low (L), medium (M) and high (H) tertiles with the empowerment score predicted by principle component analysis, this categories define to see how women moves from low to medium and than high group and how the distribution of RCH service with these three categories. The questionnaire assessing the variable of interest used is the women's empowerment which is measured by some indicators is described in Appendix table. Bi-variate, Tri-variate, and multivariate methods have been used to examine the relationship between women empowerment and utilization of RCH services. Logistic regression has been used to understand the effect of women empowerment on the utilization of RCH services (Peng et al 2002).

Results

Characteristics of the study population with their level of empowerment in selected countries of South Asia

Table-1 shows the distribution of women with socio-economic and demographic characteristics by their level of empowerment in India, Nepal, and Bangladesh. The majority of women of age below 20 years has a low level of empowerment in the countries. The proportion is highest in Nepal with 73 percent and the lowest in Bangladesh with 47 percent respectively. Majority of women belonging to 30 years & above age group have a high level of empowerment. Notably, in India, 37%of the women living in a rural setting and have a low level of empowerment whereas in urban area 43% women with high level of empowerment, while 46%in Nepal and 33%in Bangladesh with medium level of empowerment in urban areas indicating that almost half of the women in both India and Bangladesh population resides in the rural areas.

Nearly, three out of 11 women in the countries where empowerment level is low are poorer and a quarter of women belongs to the wealthiest categories respectively. More than half of the educated women in India, and Bangladesh have a high level of empowerment. Age at marriage is an important indicators for women's socio-economic development, more than half of women in India and Bangladesh have high empowerment group followed by Nepal with 38% only. The distribution of respondent is similarly distributed for other socio-economic and demographic characteristics in all these selected countries. By the education of women, the percentage is high among women who belongs to the high level of empowerment in India (45%) and Bangladesh (45%) followed by Nepal (46%) with medium level. Almost one third of working women are in the high level of empowerment. Women with least years of marital duration are belonging from a low level of empowerment group, and women more marital duration are belonging from a high level of the group. Women with media exposure have a high level of empowerment followed by those women who are not have any media exposure.

Table 1: Percent distribution of women with background characteristics and their empowerment level in India, Nepal, and Bangladesh, 2006

Background	India			Nepal			Bangladesh		
	L	M	H	L	M	H	L	M	H
Age of Wife									
<20 years	64.2	24.1	11.7	73.3	19.1	7.60	47.8	32.5	19.7
20-24 years	47.2	31.4	21.4	49.9	29.7	20.4	35.1	33.1	31.8
25-29 years	33.4	35.1	31.5	34.0	33.0	33.0	31.7	34.5	33.8
30 & above	24.2	35.1	40.7	17.4	38.1	44.5	29.1	33.6	37.3
Age of Husband									

<20 years	71.6	21.3	7.1	87.0	11.2	1.80	62.3	17.0	20.7
20-24 years	61.9	25.4	12.7	64.4	23.2	12.4	46.1	33.1	20.8
25-29 years	46.3	31.8	21.9	45.0	31.4	23.6	38.8	33.1	28.1
30 & above	27.5	34.8	37.7	20.4	37.2	42.4	31.3	33.7	35.0
Residence									
Rural	37.4	33.9	28.7	34.6	31.4	34.0	35.2	33.7	31.1
Urban	23.3	33.0	43.7	19.5	45.5	35.0	27.1	32.7	40.2
Wealth Index									
Poorest	36.3	34.0	29.7	32.8	30.8	36.4	33.3	34.6	32.1
Poorer	37.7	34.2	28.1	33.3	28.8	37.9	36.9	33.1	30.0
Middle	36.9	33.5	29.6	40.5	28.6	30.9	38.1	32.4	29.5
Richer	32.5	34.3	33.2	34.1	34.7	31.2	33.7	34.4	31.9
Richest	22.5	32.4	45.1	20.9	45.1	34.0	25.0	33.1	41.9
Religion									
Major	33.2	33.5	33.3	32.6	33.7	33.7	33.7	33.2	33.1
Others	32.5	34.3	33.2	30.8	33.2	36.0	29.6	36.7	33.7
Age at Marriage									
< 18 years	35.0	34.0	31.0	33.1	32.4	34.5	34.0	33.9	32.1
19-24 years	29.5	33.1	37.4	30.4	38.1	31.5	29.3	29.9	40.8
25 & above	19.3	28.8	51.9	25.1	37.1	37.8	10.8	35.1	54.1
Women Education									
No Education	35.8	34.2	30.0	30.7	32.2	37.1	33.8	33.3	32.9
Primary	35.2	34.2	30.6	37.3	31.6	31.1	34.0	34.8	31.2
Secondary	31.3	33.2	35.5	34.8	38.7	26.5	35.6	33.0	31.2
Higher	15.5	29.2	55.3	21.5	47.0	31.5	15.9	31.0	53.1
Husband Education									
No Education	34.0	34.6	31.4	26.3	31.2	42.5	33.8	33.8	32.4
Primary	34.0	34.2	31.8	33.0	31.3	35.7	36.4	34.1	29.5
Secondary	34.4	33.5	32.1	37.2	34.2	28.6	34.9	33.1	32.0
Higher	24.4	30.8	44.8	26.4	45.9	27.7	22.4	32.4	45.2
Women Occupation									
Working	30.2	31.9	37.9	31.6	31.3	37.1	37.0	32.7	30.3
Not-working	35.2	34.9	29.9	36.2	45.4	18.4	26.0	35.2	38.8
Marital Duration									
0-4 years	52.5	28.7	18.8	62.7	25.9	11.4	44.4	32.1	23.5
5-9 years	37.6	32.5	29.9	37.8	33.2	29.0	33.1	33.1	33.8
10-14 years	29.2	35.4	35.4	31.0	33.3	35.7	30.4	34.5	35.1
15 & above	24.7	35.4	39.9	16.2	37.6	46.2	29.9	33.9	36.2
Media									
Yes	29.4	33.8	36.8	32.3	34.8	32.9	30.1	33.5	36.4
No	39.0	33.4	27.6	32.6	31.0	36.4	37.3	33.5	29.2
Total	**33.1**	**33.6**	**33.3**	**33.4**	**33.4**	**33.2**	**33.4**	**33.5**	**33.1**

Note: Major religion in India and Nepal are Hindus and Muslims in Bangladesh

Percent distribution of currently married women age 15-49 by utilization reproductive and child health Services in selected countries

The results designate in Table 2 gives the percentage distribution of the currently married women of age 15-49 years who are using the reproductive and child health services in India, Nepal,and Bangladesh. In India, Nepal, and Bangladesh, the majority, of currently women are using the modern method while only 8 % in India, 3% in Nepal and 4% in Bangladesh are using traditional methods. In India, 60% of women are going for postnatal care while only11% in Nepal are availing the services and for Bangladesh data is not available. Almost one-fourth of the women delivered children either in private and government clinics in India as compared to the proportion of institutional delivery in Nepal and Bangladesh, respectively. Almost 45% of women are going for 4 or more antenatal care visit in India while only 29% in Nepal and 23% in Bangladesh are availing the

services. Full immunization coverage is 44% in India, 65% in Nepal and 75% Bangladesh during the survey period. Although much effort has been put into improving maternal health services in South Asian countries, the uptake of services is far from optimal In fact, the statistics show that the rate of maternal health services uptake is very low in South Asia.

Table 2: Prevalence of currently married women age 15-49 by utilization of reproductive and child health services in India, Nepal, and Bangladesh, 2006

RCH Services	India	Nepal	Bangladesh
Family Planning			
No, any method	32.4	33.5	17.9
Traditional methods	7.9	2.9	3.7
Modern methods	59.7	63.6	78.4
Postnatal care			
No	40.5	88.8	na
Yes	59.5	11.2	na
Institutional Delivery			
No any	50.8	81.1	84.0
Government	23.1	13.8	7.50
Private	26.1	5.10	8.50
Antenatal visits			
No antenatal visits	18.4	27.6	37.4
One visit	6.50	8.50	15.2
Two visits	15.4	15.8	12.7
Three visits	14.5	19.0	11.3
Four & above visits	45.2	29.1	23.4
Immunization for last birth			
BCG	78.0	90.4	92.7
DPT3	54.8	78.4	80.6
Polio3	69.6	82.4	81.6
Measles	51.8	68.6	68.4
Full Immunization	44.1	65.6	67.0

Note: n.a: not available

Utilization of reproductive and child health services with women's empowerment levels and background characteristics of women in India

Table 3 reveals the distribution of women with their level of empowerment among those who are using RCH services in India. Thirty-eight% of women of age group 30 years & above with high level of empowerment are availing ANC services, belongs to an urban area and richest quintile. A more significant proportion of mother with almost 45% of age 30 years & above, belong from an urban area and richest quintile with 39%, have a higher education level of about 52%,and media exposure of 34% opted for institutional deliveries with a high level of empowerment in India. The chance for utilizing more immunization service in among women who have good socio-economic and demographic status. Almost 42% of women of age 30 & above having a high level of empowerment take their children for immunization services. Women percentage is 41 percent in the urban, 40 percent in highest wealth group, 33 percent in another religious group, more than half in higher education group and 34 percent in media exposure with high level of empowerment for immunization, in India. The maternal health services uptake rate is correlated with welfare status of women. The majority (64 %) of women of age less than 20 years with the low level of empowerment are using family planning services while 42% women of age 30 years & above with high empowerment level are availing the services in India.

The pattern of utilization of services shows a positive relationship with parallel increment in the levels of women's empowerment from low into high and with their socio-economic and demographic status. Results are similarlydistributedfor antenatal care, institutional delivery, and immunization, postnatal care with residence, wealth, religion, education and media exposure. Media exposure had a high impact on all the aspects of maternal healthcare. The older women who are

educated and employed have greater decision-making power in the households regarding RCH services. On the whole, utilization of maternal health care is worse for mothers who have a low level of empowerment and low socio-economic and demographic status in India.

Table 3: Percent distribution of utilization of reproductive and child health services with women's empowerment levels by background characteristics of women in India

Background	Antenatal Care			Delivery			Immunization			Postnatal Care			Family Planning		
	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H
Age of Wife															
<20 years	57.8	26.7	15.5	56.4	28.3	15.3	55.7	25.9	18.4	57.9	27.2	14.9	63.7	24.1	12.2
20-24 years	44.9	32.4	22.7	41.1	33.9	25.0	41.8	33.9	24.3	43.9	32.8	23.3	42.3	34.0	23.7
25-29 years	33.7	35.3	31.0	30.4	35.1	34.5	30.8	35.8	33.4	32.4	35.3	32.3	31.5	35.8	32.7
30 & above	27.2	34.1	38.7	22.6	32.3	45.1	24.7	33.0	42.3	25.9	31.5	42.6	23.3	34.9	41.8
Residence															
Urban	28.5	33.8	37.7	27.1	33.9	39.0	26.1	32.7	41.2	28.1	33.5	38.4	20.3	32.8	46.9
Rural	42.4	33.1	24.5	40.6	33.3	26.1	38.1	34.7	27.2	42.4	32.5	25.1	32.7	35.6	31.7
Wealth Index															
Poorest	39.6	33.6	26.8	37.7	34.8	27.5	33.0	35.4	31.6	40.1	32.7	27.2	31.6	35.5	32.9
Poorer	42.4	33.4	24.2	41.4	32.3	26.3	39.6	33.6	26.8	42.8	31.5	25.7	32.6	36.4	31.0
Middle	42.5	31.8	25.7	41.1	31.6	27.3	38.5	34.7	26.8	42.4	31.8	25.8	32.5	35.3	32.2
Richer	37.5	34.1	28.4	34.9	35.1	30.0	34.8	33.5	31.7	37.0	33.9	29.1	28.5	35.2	36.3
Richest	28.6	33.7	37.7	26.7	33.7	39.6	26.2	33.7	40.1	27.6	33.8	38.6	20.1	32.0	47.9
Religion															
Major	38.5	33.2	28.3	34.4	33.6	32.0	33.8	34.2	32.0	37.2	32.7	30.1	28.1	34.6	37.3
Others	35.9	34.0	30.1	32.2	33.7	34.1	33.5	33.4	33.1	35.3	33.8	30.9	29.7	34.8	35.5
Education															
No Education	42.4	32.5	25.1	40.6	32.7	26.7	37.5	33.6	28.9	43.1	31.2	25.7	31.5	35.7	32.8
Primary	40.7	34.8	24.5	39.3	35.1	25.7	38.0	36.4	25.6	40.7	34.3	25.0	30.7	35.4	33.9
Secondary	36.5	33.8	29.7	34.6	34.1	31.2	34.2	33.8	32.0	35.9	33.9	30.2	26.6	34.1	39.3
Higher	18.9	32.1	49.0	17.8	31.7	50.5	16.5	32.9	50.6	18.7	31.6	49.7	13.4	29.0	57.6
Media Exposure															
No	44.3	32.1	23.6	43.7	30.5	25.8	40.2	32.5	27.3	45.1	30.1	24.8	34.8	35.0	30.2
Yes	34.6	34.0	31.4	31.6	34.4	34.0	31.2	34.6	34.2	33.6	34.0	32.4	25.5	34.4	40.1

Utilization of reproductive and child health services with women's empowerment levels and background characteristics of women in Nepal

Table-4 demonstrates the utilization of RCH services with a level of empowerment and background characteristics of the respondent's. Overall 40% of women received full antenatal care of age group 30 years & above with high level of empowerment in Nepal Similarly, women who belong to the medium level of empowerment, ANC services is 48% among women in the urban area, 45% belongs to wealthiest group with 50% for those with high education, and the same was found to be high with 34% among ever-married women who had any exposure of mass media. The majority of women by the institutional delivery is 27% in the age<20 years group, 42%in 20-24 years, 49 percent in 25-29 years and 51% in30 years & above age group with the medium level of empowerment using institutional delivery service. The women with medium empowerment group are30 % in urban area, 53 % in richest wealth group, 59 % in other religion group, 56 % in higher education group and 45 % with media exposure are using ANC services. In terms of immunization service, almost 40 % of the women are involved in decision-making with high level of empowerment about their own health care, these distribution are found with women's residence (48%), richest wealth group (46%), major religion group (34%), at higher level for education (49%) and with mass media exposure almost 35 %for immunization services with medium empowerment group in Nepal A large majority of women those who belongs to medium group uses more services as compared to the low and high level of empowerment. The percentages of women using postnatal care is 38 percent in<20 years age group, almost 40 %in urban area, nearly 33 %in richest wealth group, almost 38 %in higher education level and 32 %with media exposure group. The similar distribution is found in family planning services in

Nepal, almost 40 %women are in 30 & above age group, 48 %in urban setting, 46 %in richest wealth group, nearly 26 %in other religion group, 46 %in higher education level and 39 %in media exposure group are utilizing family planning service in Nepal Results found that by increases the level of empowerment, socio-economic and demographic status the proportion of women for utilization of reproductive and child health services increases.

Table 4: Percent distribution of utilization of reproductive and child health services with women's empowerment levels by background characteristics of women in Nepal

Background	Antenatal Care			Delivery			Immunization			Postnatal Care			Family Planning		
	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H
Age of wife															
<20 years	66.3	20.3	13.4	62.5	26.7	10.8	64.8	22.3	12.9	58.4	22.0	19.6	59.3	30.1	10.6
20-24 years	47.8	30.9	21.3	40.1	42.2	17.7	46.4	31.9	21.7	43.2	32.2	24.6	42.3	34.6	23.1
25-29 years	34.9	35.3	29.8	25.9	49.0	25.1	32.9	33.4	33.7	36.8	30.3	32.9	29.8	35.3	34.9
30y & above	22.9	36.7	40.4	21.3	50.6	28.1	23.9	36.9	39.2	19.8	38.2	42.0	16.0	40.1	43.9
Residence															
Urban	24.5	48.1	27.4	18.7	54.4	26.9	20.3	47.8	31.9	35.6	39.9	24.5	16.2	47.8	36.0
Rural	42.6	29.7	27.7	42.5	38.9	18.6	39.0	31.0	30.0	38.0	30.9	31.1	27.1	35.6	37.3
Wealth Index															
Poorest	36.3	28.1	35.6	34.5	40.4	25.1	31.4	30.0	38.6	37.1	26.1	36.8	24.1	35.9	40.0
Poorer	39.2	31.1	29.7	34.1	41.4	24.5	36.4	30.1	33.5	38.1	26.2	35.7	25.0	31.0	44.0
Middle	49.9	24.3	25.8	51.8	30.4	17.8	45.8	28.4	25.8	42.3	27.1	30.6	32.4	33.6	34.0
Richer	44.3	33.1	22.6	50.1	33.9	16.0	43.0	32.7	24.3	31.9	41.2	26.9	26.8	38.7	34.5
Richest	28.2	45.3	26.5	22.9	53.4	23.7	25.3	45.6	29.1	41.6	32.9	25.5	18.6	46.4	35.0
Religion															
Major	40.0	32.2	27.7	35.1	43.6	21.3	36.5	33.2	30.3	37.8	31.0	31.2	25.9	37.2	36.9
Others	37.6	35.3	27.1	28.5	49.0	22.5	35.7	34.1	30.2	37.2	37.8	25.0	19.9	41.7	38.4
Education															
No Education	40.9	30.3	28.8	31.5	50.3	18.2	37.3	31.0	31.7	36.4	29.7	33.9	23.9	36.4	39.7
Primary	42.0	28.3	29.7	43.0	31.9	25.1	37.0	31.4	31.6	40.0	22.9	37.1	27.7	35.8	36.5
Secondary	38.0	38.0	24.0	36.0	43.2	20.8	35.4	38.1	26.5	36.0	41.9	22.1	27.5	41.7	30.8
Higher	23.4	50.3	26.3	18.4	55.8	25.8	23.0	48.7	28.3	64.9	26.5	8.60	21.8	46.7	31.5
Media Exposure															
No	41.0	28.6	30.4	34.2	42.7	23.1	36.5	29.8	33.7	37.2	30.6	32.2	23.8	35.6	40.6
Yes	39.2	34.3	26.5	34.2	44.5	21.3	36.3	34.9	28.8	37.9	32.6	29.5	25.7	38.5	35.8

Utilization of reproductive and child health services with women's empowerment levels and background characteristics of women in Bangladesh.

Antenatal care service is very important for pregnant women. Early and regular checkups by trained service providers are very necessary in assessing the physical status of women during pregnancy. The respondents were asked whether they received ANC during the pregnancy and the information gathered in this respect is shown with women's empowerment level. The table 5 shows that majority of women found 39 %in 30& above year's age group with medium empowerment are using antenatal care service in Bangladesh. This percentage by the residence is almost 38 percent, richest wealth group (41%), 32 %in major religion, 52 %in higher level education group and 35 %with media exposure for utilization of ANC with a high level of empowerment in Bangladesh. About 52 %of women attained institutional delivery who have a high level empowerment in Bangladesh. Among the other socio-economic status of the women, approximately 43 %of the women belong to an urban area, 42 %from richest wealth class and 39 %belongs to majorreligious group and almost 40 %with a high group of empowerment using institutional delivery service in Bangladesh. Results on child immunization show that those women who are in the age group 30 & above years tend to receive immunization services (38%) for their children compared women from the other age groups with the high level of empowerment in Bangladesh. Similar pattern is observed with the results for residence (38%), richest (41%), major religion (33%), having a higher level of education (54%) and with media exposure (35%) with a high level of empowerment for utilization of

Immunization service. A Majority of women (38 %) in age< 20 years, 41 % in urban, 42 %in richest group, 34 % in major religion, 54 % in higher education and 37 %with media exposure are using family planning services and with high empowerment level in Bangladesh. Results found that an increasing trend found for women's education level from having no education to secondary or higher, age, place of residence, religion, media and wealth status of women with a level of empowerment from low into high. The urban women have more significant percentage of utilization than those in the rural areas; women in the richest quintile have a higher percentage than those in middle and poor status; women who reported exposure of mass media have high percent than those not receiving. Women who have low status are mostly falling in large proportion in a low level of empowerment group and away from reproductive and child health services. Overall results found that if the level of empowerment is increasing from low into a medium and high group with socio-economic status than utilization of services are more.

Table 5: Percent distribution of utilization of reproductive and child health services with women's empowerment levels by background characteristics of women in Bangladesh

Background	Antenatal Care			Inst. Delivery			Immunization			Family Planning		
	L	M	H	L	M	H	L	M	H	L	M	H
Age of Wife												
<20 years	43.0	34.3	22.7	40.5	33.9	25.6	46.3	34.5	19.2	45.2	34.2	20.6
20-24 years	33.4	33.8	32.8	34.3	34.6	31.1	33.0	32.8	34.2	33.6	34.5	31.9
25-29 years	31.2	32.6	36.2	25.5	34.5	40.0	35.1	31.7	33.2	31.0	35.1	33.9
30 & above	29.4	31.2	39.4	17.9	30.6	51.5	30.3	32.2	37.5	27.6	34.6	37.8
Residence												
Urban	27.8	34.4	37.8	22.6	34.3	43.1	28.2	33.4	38.4	25.7	33.6	40.7
Rural	35.8	32.6	31.7	34.4	32.9	32.7	36.5	32.4	31.1	33.3	34.9	31.8
Wealth Index												
Poorest	36.6	31.8	31.6	42.5	24.7	32.8	34.7	34.1	31.2	31.8	35.0	33.2
Poorer	38.1	32.8	29.1	41.2	35.6	23.2	37.5	30.9	31.6	34.2	34.4	31.4
Middle	37.4	34.0	28.6	46.1	31.2	22.7	38.1	32.8	29.1	36.5	33.9	29.6
Richer	34.4	33.1	32.5	30.0	31.6	38.4	36.3	32.6	31.1	32.1	35.6	32.3
Richest	25.9	33.1	41.0	21.8	35.8	42.4	26.8	32.5	40.7	23.4	34.3	42.3
Religion												
Major	34.1	32.4	33.5	28.6	32.0	39.4	34.9	32.0	33.1	31.7	34.3	34.1
Others	28.7	39.5	31.8	33.5	45.5	21.0	31.9	39.3	28.8	28.3	38.0	33.7
Education												
No Education	38.2	27.3	34.5	27.9	21.9	50.2	35.8	30.6	33.6	32.1	34.6	33.3
Primary	34.7	37.5	27.8	37.4	35.2	27.4	35.6	34.8	29.6	31.8	36.0	32.3
Secondary	35.6	32.6	31.5	35.0	34.6	30.4	37.2	32.2	30.6	34.0	34.2	31.8
Higher	15.6	31.9	52.4	12.4	32.7	54.9	13.7	32.2	54.1	14.8	30.9	54.3
Media Exposure												
No	38.6	31.7	29.7	38.7	34.4	26.9	37.8	32.8	29.4	35.0	35.2	29.8
Yes	30.8	33.8	35.4	26.7	33.3	39.9	32.3	32.4	35.3	28.7	34.2	37.1

Multivariate Results

Effect of women's empowerment on reproductive and child health services with background characteristics in India

Table 6 shows the results of binary logistic regression analyses to investigate the level of women's empowerment that is associated with utilization of RCH services, taking into account confounding effects of services that occurred prior to programmed beginning. Results found that empowerment of women is positively associated with utilization of RCH services in India. The odds ratio found a marginal decline in medium (aOR=0.991; p≤.05) and high (aOR=0.986, p>.056)) group of empowerment for ANC, this decline may be due to adjustment of other predictors. The odds ratio value is declining in the age group 20-24 years (aOR=0.998, p>.05), 25-29 years (aOR=0.819, p≤.01), age 30 & above years (aOR=0.620, p≤.001) and in another religion group (aOR=0.608, p≤.001) and residence (aOR=.836, p≤.001), means decreasing in odds ratio are showing less utilization of ANC

service.The odds ratio are more than two and four times higher in richer and richest group as compared to poorer of wealth for unitization of ANC service among women. Women's education is also associated with ANC services and odds ratio found in primary (aOR=1.74, ≤.001), in secondary (aOR=2.82, p≤.001) and in the higher group (aOR=5.54, p≤.001) as compared to women who have no schooling. Hence a certain amount of ANC services exist for utilization, and it has a strong association with current level of women's education. It also shows significant associations with media exposure and odds ratio found (aOR=1.73, p≤.001). It shows that if women are empoweredregarding mobility, freedom from family domination and economic security then they are more likely to go for ANC visits as compared to those women who are not empowered.Women age 15-49 those in prime reproductive years have a significantly more positive attitude with medium (aOR=.932, p≤.01) group of empowerment followed higher (aOR=.955, p>.01) for institutional delivery. This odds are decline due to adjustment of other predictors in the model. As the age of the participant's increases, the odds of delivery care decreases significantly means age has a reverse relation with the institutional delivery of women. Similarly, the odds decreases in residence and women of other religion mean low probability to avail institutional delivery services. Those women who belong to richest quintile, having higher education, and media exposure are more likely to go for institutional delivery service, odds were found higher in poorer (aOR=1.66, p≤.001), approximately three times in the middle, five times in richer and ten times in richest category. As the education level among participants increases, the odds of institutional delivery increases significantly. The education level of participants and exposure of mass media shows a significant increase in odds in preference to the place of delivery in the institution. The odds of women having a primary education (aOR=1.79, p≤.001), secondary (aOR=3.26, p≤.001), and higher education (aOR=11.4, p≤.001) are more likely to go for institutional delivery. The exposure of mass media also shows a significant with an increase in odds for institutional delivery in India. In case of child immunization, the odds ratios increase significantly in the medium and high group as compared to a low group of empowerment. Immunization is strongly associated with all level of women's empowerment, and the odds ratio is higher in medium (aOR=1.06; p≤.001) and high group (aOR=1.14; p≤) as compared to the reference category. It found that women those who are falling in medium and high group more likely moves for immunization service for their children as compared to women of the low group. The age of women is strongly associated with, and it has a significant impact. The odds ratio is found in age 20-24 years (aOR=1.69, p≤.001), more than two times in age 25-29 years and 30 & above years age group among women in India.

The women are having less probability of using immunization service those who are living in rural area and belonging fromanother religion group. The finding shows that children whose mothers belong to the richest category are three times more likely to have immunization, having significant results with an increase in wealth category. The full immunization status among children whose mothers havemedia exposure, the odds ratio forimmunization (aOR=0.963, p≤.001). Postnatal care is also about empowering the mother to care for her baby and herself in order to promote their longer-term physiological and emotional well-being.The empowerment of women has a significant effect for postnatal care but it declines in medium (aOR=0.884, p≤.001) and high (aOR=0.903, p≤.001) empowerment group due to adjustment in odds of wealth and education. Women with higher age group, living in rural area, belongsto other religious group having less chance of using postnatal care service.Withthe increasein the level of wealth, education and use of media exposure women are more likelyto utilizepostnatal care. The odds are nearly two times in the middle, three times in richer and more than six times in richest wealth group. Educated women are using more postnatal care services in primary (aOR=1.59, p≤.001), secondary (aOR=2.56, p≤.001) and approximate nine times in higher level of their education level as compared to no education. Women who have media exposure, the oddsratio for postnatal careis 1.37 with p-value less than 0.001.Women who preferred to make decisions with medium (aOR= 1.14, *p* ≤0.001) or high (aOR= 1.24, *p*≤ 0.001) empowerment group are more likely to use family planning than those who preferred with low level to make such decisions. The age group of women founda positive association with family planning with nearly triple the odds of age 20-24 years, more than six times in age 24-29 years and more than ten times in age 30 & above years. Respondents with higher levels of wealth categories have a stronger prediction of use of family planing services. The odds value is high and significant in middle (aOR=

1.47, *p* ≤0.0017,) richer (aOR= 1.65, *p* ≤0.001) and richest (aOR= 1.82, *p* ≤0.001) wealth group. The education of women is also a strong predictor for the use of family planning service and the odds significantly found in primary (aOR=1.39, p≤.001), secondary (aOR=1.35, p≤.001) 1.32 and higher (aOR=1.29, p≤.001) level of education. Media exposure also has a significant effect on utilization of FP. Overall results suggest that if the level of empowerment, socio-economic and demographic factors will increase than women will be more likely to participate in decision making for utilization of services in India.

Table 6: Adjusted odds ratios (aOR) and 95% confidence intervals of logistic regression to show the effect of background characteristics and empowerment on RCH services in India

Background	Antenatal Care		Inst. Delivery		Immunization		Postnatal Care		Family Planning	
	aOR	CI [95%]	aOR	CI [95%]	aOR	CI [95%]	aOR	CI [95%]	aOR	CI [95%]
Age of Wife										
<20 years®										
20-24 years	0.998	[.992-1.11]	0.820***	[.801-842]	1.69***	[1.65-1.71]	0.975	[.942-1.22]	2.66***	[1.93-2.81]
25-29 years	0.819**	[.809-.820]	0.730**	[.721-.756]	2.33***	[2.29-2.38]	0.945	[.921-1.13]	6.27***	[5.79-7.12]
30years & above	0.620***	[.591-.652]	0.659***	[.632-.678]	2.43***	[2.41-2.48]	0.818***	[.798-.823]	10.5***	[9.98-11.2]
Residence										
Urban®										
Rural	0.836***	[.812-.864]	0.459***	[.435-.487]	0.957**	[.931-.993]	0.595***	[.532-.621]	0.963***	[.921-1.10]
Wealth Index										
Poorest®										
Poorer	1.25***	[1.13-1.63]	1.66***	[1.64-1.68]	1.30***	[1.29-1.32]	1.20***	[.991-1.34]	1.31***	[1.28-1.40]
Middle	1.73***	[1.68-1.81]	2.85***	[2.81-2.89]	1.87***	[1.82-1.92]	1.89***	[1.82-1.92]	1.47***	[1.41-1.52]
Richer	2.57***	[2.41-3.31]	4.60***	[4.34-5.78]	2.17***	[1.99-3.14]	2.83***	[2.80-2.87]	1.65***	[1.62-1.73]
Richest	4.34***	[3.98-5.21]	10.01***	[9.12-11.3]	3.06***	[2.67-4.32]	6.21***	[5.92-6.43]	1.82***	[1.81-1.84]
Religion										
Major®										
Others	0.608***	[.589-.625]	0.697***	[.631-.721]	0.626***	[.567-.652]	0.635***	[.612-.687]	0.648***	[.612-.781]
Education										
No Education®										
Primary	1.74***	[1.69-1.79]	1.79***	[1.71-1.82]	1.55***	[1.45-1.64]	1.59***	[1.51-1.67]	1.39***	[1.32-1.43]
Secondary	2.82***	[2.79-2.86]	3.26***	[2.98-4.12]	1.93***	[1.89-2.01]	2.56***	[2.12-2.61]	1.32***	[1.30-1.34]
Higher	5.54***	[5.12-6.01]	11.4***	[10.9-13.2]	2.16***	[1.97-2.21]	8.95***	[8.22-9.21]	1.29***	[1.27-1.30]
Media Exposure										
No®										
Yes	1.73***	[1.72-1.80]	1.37***	[1.28-1.42]	1.37***	[1.31-1.42]	1.37***	[1.32-1.39]	1.50***	[1.49-1.52]
Empowerment										
Low®										
Medium	0.991*	[.943-1.13]	0.932**	[.891-1.31]	1.069**	[.978-1.23]	0.884***	[.831-.924]	1.14***	[1.12-1.17]
High	0.986	[.971-1.11]	0.955	[.912-.982]	1.14***	[.981-1.21]	0.903***	[.879-1.06]	1.24***	[1.21-1.29]

*Note: ® is reference category,*significant at 10%; ** significant at 5%; *** significant at 1%; aOR: Adjusted odds ratio, CI: Confidence Interval*

Effect of women's empowerment on reproductive and child health services with background characteristics in Nepal

Results found that empowerment of women is positively associated with utilization of RCH services. The odds ratio found a marginal increment in medium (aOR=1.08; p≤.05) and high (aOR=1.10, p>.056) group of empowerment for ANC. The odds ratio declines in the age group 20-24 years (aOR=.727, p>.05), 25-29 years (aOR=.632, p≤.01), age 30 & above years (aOR=.432, p≤.001) in residence (aOR=.760, p≤.01) and in other religion group (aOR=.850, p>.05), means decrease in odds ratio shows less utilization of ANC services.The odds ratio has increased from two times in poorer, three times middle, four times, and more than five times in richest as compared to poorer of wealth group for unitization of ANC services among women. Women's education is also associated with ANC services and odds ratio found in primary (aOR=1.88, ≤.001), in secondary (aOR=3.82, p≤.001) and in the higher group (aOR=3.50, p≤.001) as compared to women who have no schooling. Hence a certain amount of ANC services exist for utilization, and it has a strong association with level of women's education. It also shows significant associations with media exposure and odds ratio found (aOR=1.13, p≤.001). Women age 15-49 those in prime reproductive years have a significantly

more positive attitude with medium (aOR=1.20, p≤.01) group of empowerment followed higher (aOR=1.23, p≤.01) for institutional delivery. The women are more likely to use ANC services in Nepal with medium and high empowerment group. As the age of the participant's increases, the odds of institutional delivery decreases significantly, i.e., in the age group 20-24 years (aOR=.514, p≤.001), in 25-29 years (aOR=.486, p≤.05), in 30 & above years (aOR=.546, p≤.001), means age has a reverse relation with institutional delivery of women, older women are less likely preferred institutional delivery in Nepal The odds are in residence, and other religionsare decreased means low probability found for utilization of institutional delivery service. Those women who are richer, educated, and have media exposure are more likely to using institutional delivery services, the adjusted odds ratio found in poorer is 1.72 (p≤.001), two times in the middle, three times in richer and more than six times in richest category of wealth. As the education level among participants increased, the odds of institutional delivering at increased significantly. The education level of participants shows a significant increase in odds in preference of place of delivery as institutional

As compared to the reference group of education the odds found in the primary is 1.55 (p≤.001), more than three times in secondary and more than twelve times in higher education level of women for institutional delivery. The exposure of mass media also shows a significant increase in odds for delivery as institutional which is more than two times for media exposure in institutional delivery in Nepal In case of immunization of child, the odds ratios increase significantly in the medium and high group as compared to a low group of empowerment. Immunization is strongly associated with all level of women's empowerment, and the odds ratio is higher in medium (aOR=1.07; p≤.001) and high group (aOR=1.10; p≤) as compared to the reference category. The age of women is strongly associated with, and it has a significant impact. The odds ratio is found in age 20-24 years (aOR=1.92, p≤.001), more than two times in age 20-24 years and three times in age 30 & above years group. Children born to mothers in richest group, the odds are three times higher as compared to children born in poorer group.

Table 7: Adjusted odds ratios (aOR) and 95% confidence intervals of logistic regression to show the effect of background characteristics and empowerment on RCH services in Nepal

Background	Antenatal Care		Inst. Delivery		Immunization		Postnatal Care		Family Planning	
	aOR	CI [95%]	aOR	CI [95%]	aOR	CI [95%]	aOR	CI [95%]	aOR	CI [95%]
Age of Wife										
<20 years®										
20-24 years	0.727	[.653-.821]	0.514***	[.451-.698]	1.92***	[1.86-1.98]	1.15	[1.04-1.20]	2.90***	[2.01-3.21]
25-29 years	0.632*	[.597-.734]	0.486**	[.421-.561]	2.67***	[2.23-2.78]	1.10	[.991-1.16]	5.01***	[4.89-5.98]
30years & above	0.432***	[.342-.532]	0.546***	[.512-.672]	3.02***	[2.95-3.34]	0.882	[.812-.962]	8.11***	[7.89-9.18]
Residence										
Urban®										
Rural	0.760*	[.748-..794]	0.465***	[.421-.556]	1.27**	[1.16-1.43]	0.882	[.845-.902]	0.904***	[.891-1.14]
Wealth Index										
Poorest®										
Poorer	1.93***	[1.86-1.98]	1.72***	[1.67-1.80]	1.78***	[1.69-1.85]	1.79**	[1.68-1.86]	1.68***	[1.62-1.73]
Middle	2.63***	[2.56-2.78]	2.10***	[1.98-2.45]	1.93***	[1.87-1.99]	2.10***	[1.97-2.32]	1.91***	[1.89-2.15]
Richer	3.60***	[3.53-3.67]	3.01***	[2.89-3.12]	2.05***	[1.97-2.12]	3.15***	[3.03-3.24]	2.07***	[1.98-2.18]
Richest	5.47***	[5.11-5.52]	6.43***	[5.89-7.21]	2.52***	[2.30-2.65]	3.01***	[2.96-3.14]	2.54***	[2.22-2.78]
Religion										
Major®										
Others	0.850	[.765-.910]	1.25***	[1.12-1.54]	0.826*	[.765-.892]	0.973	[.901-1.05]	0.737***	[.678-.891]
Education										
No Education®										
Primary	1.88***	[.182-1.93]	1.44***	[1.34-1.57]	1.46***	[1.41-1.49]	1.39*	[1.34-1.54]	1.39***	[1.21-1.49]
Secondary	3.87***	[3.65-3.94]	3.55***	[3.23-3.89]	1.76***	[1.71-1.82]	2.33***	[2.14-2.46]	2.05***	[1.93-2.15]
Higher	3.50***	[3.23-3.68]	12.0***	[11.7-13.2]	1.20***	[1.10-1.26]	6.14***	[5.95-7.34]	2.78***	[2.11-3.01]
Media Exposure										
No®										
Yes	1.13	[1.03-1.25]	2.30***	[1.98-2.56]	1.18**	[.986-1.24]	1.20	[1.09-1.27]	1.63***	[1.56-1.73]
Empowerment										
Low®										
Medium	1.08	[.974-1.15]	1.20*	[.971-1.32]	1.07	[.932-1.12]	1.07	[.976-1.18]	1.78***	[1.73-1.83]
High	1.10	[1.09-1.16]	1.23*	[1.15-1.28]	1.10	[1.09-1.16]	1.27*	[1.13-1.35]	1.60***	[1.56-1.68]

*Note: ® is reference category,*significant at 10%; ** significant at 5%; *** significant at 1%; aOR: Adjusted odds ratio; CI: Confidence Interval*

The odds ratio increases significantly for utilization of child immunization services. Women who have media exposure, the odds ratio for immunization is aOR=1.18, p≤.001. The women are having less probability of using immunization service those who are belonging form other religious group and more likely those who are living in urban area.(similar line as previous table 6, change it). Women with higher age group, living in rural area, belong to other religious group having less chance to use postnatal care services. With the increase in the level of wealth and education and use of media exposure, women are more likely to use postnatal care. The odds found nearly two times in the middle, three times in richer and richest wealth group. Educated women are also using more postnatal care service and the odds value found in primary (aOR=1.59, p≤.001), secondary (aOR=2.33, p≤.001) and approximate six times in higher level of their education level. Women who are having media exposure have high odds of PNC (aOR=1.20, p≤.001). Women with the medium and high level of empowerment are more usingpostnatal care.

The age of women is a positive association with family planning with nearly triple times odds of age 20-24 years, more than five times in age 25-29 years and more than eight times in age 30 & above years group as compared to age <20 years. Respondents with higher levels of wealth categories seem to have a stronger prediction of use of FP services. The odds value is high and significant in middle (aOR= 1.91, *p* ≤0.0017,) richer (aOR= 2.05, *p* ≤0.001) and richest (aOR= 2.54, *p* ≤0.001) wealth group. The education of women is also a strong predictor for the use of family planning services and the odds significantly found in primary (aOR=1.39, p≤.001), secondary (aOR=2.05, p≤.001) 1.32 and higher (aOR=2.87, p≤.001) level of education. Media exposure also has a significant effect on utilization of FP. Overall results suggest that if the level of empowerment, socio-economic and demographic factors will increase than women will be more likely to participate in decision making for utilization of services in Nepal Women who preferred to make decisions with medium (aOR= 1.78, *p* ≤0.001) or high (aOR= 1.60, *p*≤ 0.001) empowerment group are more likely to use family planning than those who preferred with low level to make such decisions.

Effect of empowerment on reproductive and child health services with background characteristics in Bangladesh

Results of logistic regressions reveal that women's empowerment significantly influences the antenatal care of women and odds ratio found in medium (aOR=1.21, p ≤0.01) and in high group of empowerment for antenatal care visits (aOR= 1.27, p ≤0.01). The odds ratio declines in the age group 25-29 years (aOR=.876, p≤.05), age 30 & above years (aOR=.819, p≤.05) and in a rural area (aOR=0.681, p≤.001), this declines in odds ratio shows that women are less likely to utilize ANC services. The odds ratio are approximately two times higher (aOR=1.64, p≤.001) in richer and three-time in richest (aOR=2.82, p≤.001) group as compared to poorer of wealth for unitization of ANC services among women. Education increases the probability of a mother to use the maternal health care services, mothers with primary education (aOR=1.71, p≤.001); secondary (aOR=3.36, p≤ .001) and higher (aOR=15.6, p≤.001) education more likely to use ANC compared to those women with no education.Findings also show significant associations with media exposure with significant results (aOR=1.40, p≤.001). Similarly, for institutional delivery, where mothers who have medium (aOR=1.16, p>.05) and high (aOR=1.13, p≤.01) group of empowerment are more likely to use institutional delivery. The odds of institutional delivery among the reproductive age group of the participants remains almost unchanged insignificantly, in the age group 20-24 years (aOR=1.02, p>.05), in 25-29 years (aOR=.947, p>05), and in age 30 years &above (aOR=1.07, p>.05). Rural women have the least probability to go for institutional delivery. Those women who belong to higher wealth quintile are more likely to use institutional delivery services, the odds are found to be insignificant in richer (aOR=1.31, p≤.001) but significant in richest category with three times higher likelihood. Results reveal that women's education significantly influences the place of delivery women who have a primary education (aOR=2.62, p≤.001), the odds of women to go for institutional delivery is more than seven times higher in secondary education. The exposure of mass media also shows a significant increase in odds (aOR=1.49, p≤.001) for delivery as institutional In case of immunization of child, the odds ratios increase significantly in the medium and high group as compared to the low level of empowerment, and the adjusted odds ratio is 1.13 in medium (p≤.001) and high group (aOR=1.18; p≤.01) as compared to the reference category. It means women those who

are falling in medium and high group more likely moves for immunization service for their children as compared to women of the low group. The age of women is strongly associated with, and it has a significant impact. The odds ratio is found in age 20-24 years (aOR=1.62, p≤.001), approximate two times in age 25-29 years and (aOR=2.48, p≤.001) in 30 & above years age of women.

In a rural area, the odds are less likely with insignificant results for immunization of the child. Similarly, the chance of child immunization in wealth quintile is insignificant when compared to the reference group. Women's having media exposure have a high odds ratio for immunization status (aOR=1.29, p≤.001). The women are having less probability of using immunization service those who are living in rural area and belonging fromanother religion group. Women who preferred to make decisions with medium (aOR= 1.59, $p \leq 0.001$) or high (aOR= 1.30, $p \leq 0.001$) empowerment group are more likely to use family planning than those who preferred with low level to make such decisions. The age group of women found a positive association with family planning with two times odds of age 20-24 years, four times in age 25-29and 30 & above years group. Poorer and middle wealth group have an insignificant effect on the use of family planning among women in Bangladesh. The odds value is richer and richest wealth group is significant but decline from richer (aOR= .703, $p \leq 0.001$) to richest (aOR= .571, $p \leq 0.001$). The education of women is also an active predictor for the use of family planning service and the odds significantly found in primary (aOR=1.57, p≤.001), secondary (aOR=2.29, p≤.001) and higher (aOR=2.79, p≤.001) level of education. Media exposure also has a significant effect on utilization of FP. So, if the level of empowerment will increase with a background of women, then they will be more likely to participate in decision making for utilization of services.

Table 8: Adjusted odds ratios (aOR) and 95% confidence intervals of logistic regression to show the effect of background characteristics and empowerment on RCH services in Bangladesh

Background	Antenatal Care		Inst. Delivery		Immunization		Family Planning	
	aOR	CI [95%]	aOR	CI [95%]	aOR	CI [95%]	aOR	CI [95%]
Age of Wife								
<20 years®								
20-24 years	1.10	[1.02-1.14]	1.023	[.954-1.27]	1.62***	[1.56-1.69]	2.06***	[1.98-2.15]
25-29 years	0.876	[.869-.883]	0.947	[.895-1.03]	1.93***	[1.87-2.01]	4.01***	[3.89-4.21]
30years & above	0.819	[.798-.897]	1.07	[.986-1.08]	2.48***	[2.30-2.53]	3.80***	[3.11-4.09]
Residence								
Urban®								
Rural	0.681***	[.623-.712]	0.553***	[.510-.621]	0.947	[.892-1.06]	0.616***	[.589-.712]
Wealth Index								
Poorest®								
Poorer	0.958	[.923-1.08]	0.608*	[.568-.720]	0.903	[.874-1.02]	0.943	[.878-1.02]
Middle	1.21	[1.10-1.28]	.941	[.882-1.02]	0.997	[.921-1.08]	0.875	[.786-.945]
Richer	1.64***	[1.61-1.72]	1.31	[1.17-1.43]	0.973	[.917-1.03]	0.703***	[.678-.821]
Richest	2.82***	[2.73-2.89]	3.06***	[2.96-3.18]	0.952	[.921-.987]	0.571***	[.521-.615]
Religion								
Major®								
Others	1.40**	[1.34-1.45]	1.61***	[1.58-1.69]	0.958	[.934-.101]	1.09	[.934-1.17]
Education								
No Education®								
Primary	1.71***	[1.68-1.78]	2.62***	[2.54-2.70]	1.43***	[1.38-1.51]	1.57***	[1.49-1.64]
Secondary	3.36***	[3.15-3.56]	7.85***	[7.65-7.98]	1.80***	[1.76-1.89]	2.29***	[2.05-2.37]
Higher	15.6***	[14.7-16.1]	23.3***	[22.7-24.6]	1.64***	[1.58-1.73]	2.79***	[2.65-2.85]
Media Exposure								
No®								
Yes	1.40***	[1.37-1.48]	1.49***	[1.37-1.57]	1.29***	[1.20-1.34]	1.83***	[1.73-1.92]
Empowerment								
Low®								
Medium	1.21**	[1.12-1.35]	1.16	[1.09-1.23]	1.13	[1.04-1.23]	1.59***	[1.48-1.69]
High	1.27**	[1.20-1.29]	1.13*	[1.05-1.17]	1.18*	[1.09-1.20]	1.30***	[1.26-1.34]

Discussion

Some predisposing and enabling factors influencing the use of maternal and child health care services has been examined in this paper. The findings show a high level of association between certain predisposing and enabling factors and use of maternal and child health services.

Findings from both bivariate and multivariate analysis show that women's empowerment within the context of her household and daily life and relations play a powerful role in the utilization of healthcare services. Consistent with the findings of previous studies, our findings show that women's education, household wealth, and urban-rural residence had significant and consistent effects on the utilization of MCH services (Ahmed et al 2010; Govindasamy & Ramesh 1991; Jat et al 2011; Shariff & Singh 2002; Woldemicael 2007).India, Nepal, and Bangladesh need to invest more in education, with the alternative strategies to reach health services among those living in remote areas and give equal opportunities to the girls and the lower socioeconomic groups.

The inability of the poor to pay the high cost of health services possess as a serious barrier to the use of health facilities. Our finding suggests that Lack of exposure to media also possess as a barrier to the utilization of MCH services, consistent with previous research (Kistiana 2009). The low media exposure among women in South Asia could be partly due to their low level of empowerment. Hence, concerted efforts should be made to encourage and motivate the community to disseminate the benefits and understand the importance of these services. Malhotra et al (1995) noted that measuring empowerment indicators in these various dimensions should happen at different levels of social aggregation, such as the household, community and broader areas (i.e., regional, national and global). Since the concept of women's empowerment originates from the western feminist movement and is largely based on an individualistic ideal, it may not be directly applicable in traditional societies, where women's agency is more strongly embedded in family and other social networks (Mumtaz and Salway 2009). In the south Asian region the decision of women on RCH services influence with various factors like their empowerment level, schooling, age, wealth, residence, exposure of media, unemployment and different type of social, traditional and cultural belief.

The lack of awareness, knowledge, cultural beliefs and practices often possess as barriers to the utilization of MCH services. There are various risk factors associated with pregnancy and its outcomes which most of the women and their husbands don't realize it. Thus, more knowledge, awareness, education, motivation programs, and campaigns should be held to reach out to the public. Findings of this study show that the level of empowerment plays a significantly important role between spouses in communicating. There is a vast difference in the maternal healthcare utilization pattern in rural and urban settings. The positive results found between women's empowerment and its association with spousal communication on RCH matters (Brajesh and Shekhar 2015),i.e. joint decision about reproductive and child health matters also remained strong effect after adjustment for potential confounders, implying that the act of making a decision joint between spouses necessitates ahigher level of communication.Use of antenatal, delivery, immunization, postnatal care, and family planning services by women vary by their level of empowerment.

Women belonging to low and medium levelgroup of empowermentare less likely to use these allRCH services as compared to who have in high empowerment level. Some authors argue that the concept of empowerment can be problematic in developing countries, where relationships are strongly rooted in the family context for individual decision making (Basu 1999b, 1999a). Therefore, the governments should assign more resources to the health sector to make health services widely accessible, including the remote provincial zones, and to prepare and recruit more health personnel. The administrations can think about giving free maternal care, as on account of Ghana (Opoku 2009), give vouchers, for example, in Cambodia (Jr et al 2009), or make different courses of action to advance health care services among the poor. Increasing in ambulance services might be important to bring patients to the health facilities, as many had referred that absence of transportation as the main reason for not utilizing the health-related services.

Conclusions

Despite making substantial progress towards improving maternal health, in India, Nepal and Bangladesh are still grappling with the problems and have wide disparities in socio-economic and health indicators. Even though maternal child health care is the priority agenda, all the countries of this region were unlikely to attain Millennium Development Goals 4 and 5. It is believed that the new Sustainable Development Goals 'universal access to sexual and reproductive health care services' will supersede the Millennium Development Goals in the next 15 years. India, Nepal, and Bangladesh still

have many challenges to face. Increase in education and communication strategy can help womento achieve the desired level of empowerment for deciding to access health services in all these three countries.

The study shows that until these problems are not addressed, the condition of women's health status will not improve in India, Nepal, and Bangladesh. Reducing school dropout, increasing the age at marriage of women, controlling religious and traditional problem, increasing employment for women who will increase their wealth power, changing rural setting like urban areas and increasing media exposure can increase the level of empowerment. In other societies, however, increase empowerment of women is likely to increase their ability to seek out and use health services to better meet their reproductive and child health goods, including the goal of safe motherhood and save the child. Thus, Access to quality health care is a human right and an economic necessity, particularly when it comes to mothers and children. These countries can do well over the coming decades if the collaboration between governments and the private sector is co-operative.

Policy Recommendations

Women's decision-making power has a significant positive correlation with maternal health services uptake after controlling for socio-economic indicators and supply-side conditions. Our findings suggest that empowering women and increasing their ability to make decisions may increase their uptake of maternal health services. They also suggest that policies directed toward improving women's utilization of maternal health services in South Asia must target men as well as women. Policies are needed to encourage the rural families to give their girls a chance of attending higher level education and professional course so that can get abetter job opportunity and can economically support their family as a son are expected to do. This way they will not attain self-efficiency nut by improving their socio-economic, demographic, and cultural influence can increase the level of empowerment. So, in a society where health care services are whispered, women empowerment may not affect their access to reproductive and child health services.

Strengths and Limitations

The main strength of the study is based on current information collected during antenatal follow-ups, which requires less memory recall. DHSs offer the unique advantage of performing cross-country analyses of data collected using a standardized questionnaire and methodology.The limitation of this study should also be noted. The cultural factors are influencing at different strata of women in these three countries which is invisible and cannot control by any model. Only these estimated value provided by the model is based on the available information related to socio-economic and demographic characteristics of women. There are also several types of variations due to human behavior at the ground level within countries which cannot be studied and interpret without information and availability of data.

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Ethical Approval

Demographic Health Survey data obtained informed consent from the individual respondents for the interview, as well as for blood sampling. The authors declare no conflict of interest. This article does not contain any studies with human or animal subjects performed by the author. The study used the data set that is available online in the public domain; hence, there was no need to seek ethical consent to publish this study. The authors confirm that all data underlying the findings are fully available without restriction. Data are publicly available from the Demographic and Health Survey website: https://dhsprogram.com/data/available-datasets.cfm.

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Appendix

Gender empowerment characteristics of women age 15-49 years in Demographic and Health Survey, India, Nepal Bangladesh	
Characteristics	Categories
Woman has access to money of her own [Economic Freedom]	
• **Who decides how to spend money?**	1. Respondent alone 2. Respondent and husband/partner, 3. Respondent and other

	person 4. Husband/partner alone, 5.someone else
• **Who decides on use of husband's earnings?**	1. Respondent alone 2. Respondent and husband/partner, 3. Respondent and other person 4. Husband/partner alone, 5.someone else
Woman participates in the following household decisions [Decision-making]	
• **Final say on own health care.**	1. Respondent alone 2. Respondent and husband/partner, 3. Respondent and other person 4. Husband/partner alone, 5.someone else
• **Final say on making large household purchases.**	1. Respondent alone 2.Respondent and husband/partner, 3.Respondent and other person 4. Husband/partner alone, 5.someone else
• **Final say on making household purchases for daily needs.**	1. Respondent alone 2.Respondent and husband/partner, 3.Respondent and other person 4. Husband/partner alone, 5.someone else
• **Final say on visits to family or relatives.**	1. Respondent alone 2.Respondent and husband/partner, 3. Respondent and other person 4. Husband/partner alone, 5.someone else
• **Final say on food to be cooked each day.**	1. Respondent alone 2.Respondent and husband/partner, 3.Respondent and other person 4. Husband/partner alone, 5.someone else
A man is justified in beating his wife in the following situations [Attitudes towards Domestic Violence]	
• **Wife beating justified if she goes out without telling him.**	1. No 2. Yes 8. don't know
• **Wife beating justified if she neglects the children.**	1. No 2. Yes 8. don't know
• **Wife beating justified if she argues with him.**	1. No 2. Yes 8. don't know
• **Wife beating justified if she refuses to have sex with him.**	1. No 2. Yes 8. don't know
• **Wife beating justified if she burns the food.**	1. No 2. Yes 8. don't know

Empowerment level Score Range

Variable	Observation	Mean	Min	Max
Nepal				
Low	2,866	-2.06	-2.38	-1.34
Medium	2,729	0.19	-1.33	1.45
High	2,647	1.85	1.46	2.59
Bangladesh				
Low	4,218	-1.40	-5.06	0.35
Medium	5,012	0.93	0.43	1.10
High	916.0	1.18	1.18	1.18
India				
Low	21,750	-1.88	-4.11	-0.45
Medium	23,034	0.24	-0.44	0.85
High	3,141	1.91	0.86	2.63