Contraceptive Use among Poor and Non-Poor
in Asian Countries: A Comparative Study

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Abstract

Family planning is one of the most inexpensive interventions to empower poor women to exercise their rights to better sexual and reproductive health. In many populations, the contraceptive prevalence rate (CPR) still remains low and unmet need remains high. We study the family planning practices and the contextual factors explaining the differentials in contraceptive use among poor and non-poor women in selected Asian countries. We have used Demographic and Health Surveys (DHS) data for six Asian countries. We have derived Poor and non-poor by computing wealth index for the countries studied. We found that, CPR had increased dramatically especially among poor women although it was not equally shared across the countries and the poor and non-poor gap still exists. Therefore, CPR has much room to expand, especially among poor women.

Key words: Contraceptive use, Reproductive health, Poor-non-poor, Asian countries

I. Introduction

Large fertility decline in the developing world occurred due to a major change in reproductive behaviour of couples in the childbearing ages (Bongaarts, 1984). More specifically, contraceptive practice has been considered as the interventions of choice for slowing population growth. Bongaarts (1993) stated that the average unweighted net effect of family planning programme is 0.6 births per women which amount to about 30 per cent of the observed fertility decline in the developing countries in late 1980s.

The primary reason for the growth in contraceptive prevalence from the 1970s to the 1990s in Latin America, Asia and Africa was that couples who in the earlier period failed to use contraceptives, though they wished to avoid pregnancy, were more likely to be doing so in the more recent period. This is presumably because of the weakening of obstacles in contraceptive use that previously prevented them from implementing their fertility preferences (Feyisetan & Casterline, 2000).

Countries with high social and economic development had high contraceptive prevalence (Ross and Stover, 2001). Studies have also shown that countries in which all couples have easy access to a wide range of contraceptive methods have a more balanced method mix and higher levels of overall contraceptive prevalence than countries with limited access to various contraceptives (Ross et al., 2002; Magadi & Curtis, 2003). The universal provision of effective and low-cost contraceptives to eligible couples helped the contraceptive practice rate to rise very quickly. These actions enabled couples to control their fertility to the declining level of ideal number of children (Sun, 2001).

While women's education continues to be strongly associated with lower fertility (Bbaale & Mpuga, 2011), an important feature of India's current fertility transition is the spread of contraceptive use among uneducated women. Indeed, changes in their fertility are now making the

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major contribution to the country's overall fertility decline. The analysis by McNay (2003) suggested that while many of the expected socio-economic variables play their part, there are also considerable diffusion effects in progress, many of which operate at levels beyond the uneducated women's own individual circumstances. Another study by Arokiasamy (2009) concluded that India's fertility transition is driven by major fertility declines among women who are illiterate. This analysis indicated that illiterate women and their children are the greatest recipients of the benefits of health and socio-economic advancement.

Contraceptive knowledge significantly reduces fertility. Besides, mass media exposure and social networks play important roles in obtaining knowledge of modern contraceptive techniques. Women, who regularly watch TV, listen to the radio, or read newspapers and magazines are more likely to be exposed to contraceptive-related information and hence have more knowledge of contraceptives. Similarly, women who participate in women's organizations are more likely to obtain contraceptive information through word-of-mouth communication (Cheng, 2011). Women who have received family planning messages from health care workers are more likely to use contraceptives as compared with other women (Dwivedi et al., 2007).

However, in less developed countries there was a wide gap in contraceptive prevalence rate between the highest and lowest wealth quintiles (World Population Data Sheet, 2009). This gap between the rich and poor in the use of contraception has persisted despite general global improvements in socio-economic status and expansion of family planning services (Gakidou & Vayena, 2007). Health disparities between the rich and poor remain a persistent challenge (Ahmed et al., 2010; Boerma et al., 2008).

Despite the tremendous increase in contraceptive use in general population throughout the world in the last three decades, a question that has not been addressed to date is whether this opportunity is equally available, affordable and accessible for the marginalized sections of the society in different parts of the world. Are they able to use contraceptives when they need them most? To answer this question the study makes an attempt to understand the family planning practices and the contextual factors explaining the differentials in contraceptive use among poor and non-poor women in selected Asian countries.

II. Data and Methods

Data

The primary sources of data for this study are the latest available Demographic and Health Surveys (DHS) for six Asian countries. DHS evolved from World Fertility Surveys and Contraceptive Prevalence Surveys implemented in the 1970s and 1980s (Fabic et al., 2012). Similar to its forerunners, the DHS originally collected comparable population-based data on fertility, contraception, maternal and child health and nutrition in developing countries (Fabic et al., 2012). The main purpose of the DHS is to provide countries with the data needed to monitor and evaluate population, health and nutrition programmes on a regular basis (Vaessen et al., 2004). Almost 230 nationally representative and internationally comparable DHS household surveys have been conducted in more than 85 countries by national institutions in partnership with ICF Macro International and the United States Agency for International Development (USAID) (Fabic et al., 2012). In recent times, DHS questionnaires cover a wide range of population and health topics. Moreover, DHS started collecting information regarding specific topics like human immunodeficiency virus (HIV) and acquired immunodeficiency syndrome (AIDS), malaria and domestic violence through optional modules.

Dependent variables

For the purpose of analysis, Contraceptive Prevalence Rate (CPR), 'any modern method', 'any traditional method', 'limiting method' and 'spacing method' have been considered as

dependent variables. CPR is defined as percentage of currently married women aged 15-49 years who are currently using any contraceptive method at the time of survey. Modern method of contraception refers to clinic and supply methods such as voluntary surgical sterilization, IUD, pills, injectables, condoms and vaginal barrier methods. The main traditional or non-supply methods are periodic abstinence and withdrawal as well as traditional folk methods with uncertain efficacy. Limiting method includes male and female sterilization together. Spacing method is defined as using any method other than these two. Unmet need is often interpreted as evidence of lack of access to family planning services of acceptable quality. An unmet need for contraception is said to exist when a woman in a sexual union (and at risk of conception) says that she would prefer to have no more children or none soon, yet does not use modern contraception to bring these desires into effect. We have examined the extent of total unmet need, unmet need for spacing and unmet need for limiting among urban and rural poor women.

Explanatory variables

A number of demographic and socio-economic indicators like age of the women (15-24, 25-34, 35 and above), educational level (no education, primary, secondary and higher), religion (Islam, Hindu, Roman Catholic and Others), current work status (working, not working), number of living children (none, 1-2, 3 and more), exposure to mass media (no exposure, any exposure), husbandøs education (no education, primary, secondary and higher), and ideal family size (non-numeric response, 0-2, 3-6) have been taken as independent variables. Some family planning messages like discussed family planning with partner, visited by family planning worker in last six months, heard family planning on radio/television/newspaper/poster/brochure/street drama were also considered as independent variables.

Selection of the countries

Six Asian countries, namely, Bangladesh, India, Indonesia, Nepal, Philippines and Vietnam have been selected for the study. These countries are chosen because their fertility transition has occurred at relatively low socio-economic levels, and they are in different stages of fertility transition. Three rounds of DHS surveys for each country (two rounds in Vietnam) are considered for the purpose of analysis (Table 1). All DHS surveys are classified into three categories: first period, middle period and recent period. The survey years for the three periods do not overlap in any of the countries. Also, the inter-survey gap between first and recent period is more or less ten years in five of the sample countries, whereas it is five years in case of Vietnam. The data analysis has been done using SPSS version 18.0 and STATA version 10.0 softwares.

Table 1. Time description of the Demographic and Health Surveys (DHS) for the study countries

Country	First period	Middle period	Recent period
Bangladesh (BDHS)	1996-97	1999-2000	2007
India (NFHS)	1992-93	1998-99	2005-06
Indonesia (IDHS)	1998	2003	2007
Nepal (NDHS)	1996	2001	2006
Philippines (NDHS)	1998	2003	2008
Vietnam (VNDHS)	1997	2002	-

Description of the countries studied

The study considers six Asian countries out of which three are from South Asia (Bangladesh, India and Nepal) and rest from Southeast Asia (Indonesia, Philippines and Vietnam). Some basic social and demographic characteristics of the countries are described below:

Bangladesh

Bangladesh is one of the poorest and most densely populated countries in the world. According to the latest population census conducted in 2011, the country had a population of over 152 million, increasing at an annual growth rate 1.59 per cent (*Bangladesh Population Census, 2013*). World Bank data (2012) indicate that 26 per cent people of Bangladesh still live below poverty line and 77 per cent people earn less than US$ 2 per day. The overall literacy rate is 55 per cent among which 58 per cent males and 53 per cent females are literate (*Bangladesh Literacy Survey, 2010*). Its infant mortality rate had been dramatically reduced over time. Infant mortality rate per 1000 live births had dropped to 43 in 2011 from 87 in 1993/94 (*Bangladesh Demographic and Health Survey, 2011*). Similarly, its total fertility rate declined from 6.3 to 2.3 during the same interval.

India

India's astonishing diversity of religions, languages and cultures is inimitable and incomparable. India occupies second rank among the world's most populated countries with its current population of more than 1.21 billion people (*Census, 2011*). Literacy rate improved among females as to males. About 82 per cent males (rise of 7 per cent) and 65 per cent females (rise of 12 per cent) are literate in India according to 2011 census data. However, still India has the largest illiterate population in the world (varies from 20 to 40 per cent across the states). The share of Hindu population is 80 per cent and in addition, it is the house of world's third biggest Muslim population. Almost 30 per cent population was below poverty line according to 2010 estimates and India was home to one-third of the world's poor people. Data from the October 2012 Bulletin of the Sample Registration System (SRS), released by the Registrar General of India shows that IMR for rural areas had dropped to 46 from 72 while in the urban areas it had fallen to 28 from 42 from 2001 to 2012 (*Census of India, 2012*). India's total fertility rate according to recent estimate is 2.4 (*Census of India, 2012*).

Indonesia

Indonesia is situated in South-eastern Asia and consists of a large archipelago between the Indian Ocean and the Pacific Ocean with more than 17,000 islands. Indonesia is the world's most populous Muslim-majority nation with almost 88 per cent of Indonesians declared as Muslims (Pew Research Centre, 2011). The proportion of population living in poverty dropped dramatically from 60 per cent in 1970 to an estimated 13 per cent in 2012 (World Bank, 2012) and the literacy rate for those aged 15 years or more was 93 per cent in 2012 (Central Intelligence Agency, 2012). There had been a decline in fertility in Indonesia from 3.0 children per woman of reproductive age in 1988-1991 to 2.2 children per woman in 2012 (Central Intelligence Agency, 2012).

Nepal

Nepal is a small Himalayan country in South Asia and shares territorial borders with India and China with an area of 147,181 square kilometres. It is exceedingly diverse and has rich geography, culture and religions. Out of the 14 highest peaks above 8,000 meters in the world, eight are located in Nepal. It is the land of Mount Everest (8,848 meters), the highest peak in the World. It ranks 157 out of 187 countries in terms of the Human Development Index (HDI) according to 2012 estimates (*Human Development Report, 2012*). Infant mortality rate was 45 deaths per 1,000 live births (Central Intelligence Agency, 2013) and 25 per cent population lived below national poverty line (World Bank, 2012).

Philippines

The Philippines is one of the largest island groups in the world. It has 7,107 islands and islets lying off the southwest coast of the Asian mainland between Taiwan and Borneo. According

to the 2010 Census, its population was 92 million. The total fertility rate (TFR) slightly decreased from 3.2 in 2006 to 3.1 in 2011. Roman Catholic is the predominant religion, comprising of about 85 per cent of the population. The 2011 Family Health Survey (FHS) revealed improvements in the under-five mortality rate and infant mortality rate. Basic literacy is almost universal in the Philippines. The basic literacy rate was 96 per cent among females and 95 per cent among males (*Functional Literacy, Education and Mass Media Survey, 2008*).

Vietnam

Vietnam is located in Southeast Asia. The country is bounded by a total land area of 329,314 square kilometres and a coast line of approximately 3,200 kilometres. According to the 2009 National Census, the total population was estimated at 86 million. It is home to 54 ethnic minority groups. The total fertility rate (TFR) had reached below replacement level and according to 2012 data TFR is 1.89 (Central Intelligence Agency, 2013). More than 90 per cent males and females were literate (World Bank, 2010). According to *2011 Vietnam Human Development Report*, it was in the medium human development category, and ranks 128 out of 187 countries surveyed (*Human Development Report, 2011*).

Methodology

Computation of wealth index and operational definition of poor and non-poor

DHS does not collect information on income or expenditure, However, it does include at least 25-30 (and often many more) questions about household characteristics and possessions: materials used for house floors, walls and roofs; source of water like a stream, open well or piped system; and presence of durable possessions like a fan, radio receiver, watch, bicycle or automobile; and other attributes related to economic status (Gwatkin et al., 2007). From this information various indicators of household wealth can be constructed (Gwatkin et al., 2000; Filmer & Pritchett, 2001; Sahn & Stiftel, 2003; Rutstein & Johnson, 2004). Researchers have shown that the relationship between economic status and fertility obtained with such proxy variables were similar to those measured with indicators such as the expenditures per person (Montgomery et al., 2000; Bollen et al., 2002; Filmer & Scott, 2012).

For the study, economic status is measured by computing a ‑wealth index‑ using principal component analysis (PCA). Computed wealth index has been standardized by taking the same asset indicators for each of the three time periods. For example, while computing the wealth index for ‑First period‑, those variables have been included which are available for all the countries studied. Likewise, the wealth index for ‑Middle‑ and ‑Recent period‑ has been constructed. Number of assets under consideration varies across the three time periods but not across the countries. It is observed that over the period of time inclusion of the asset indicators has been increased in DHS surveys which are representative of the economic status of households for that particular time period. So it is obvious that number of assets included in ‑First period‑ (11 common assets) are lesser than the ‑Middle period‑ (21 common assets) as well as ‑Recent period‑ (28 common assets). For optimum sample size, the computed household wealth index is classified into three equal parts (33.3 per cent each). The lowest 33.3 per cent is considered as ‑poor‑ and the upper 33.3 per cent is considered as ‑non-poor‑ They are symbolized as a contrast group. The middle 33.3 per cent has been excluded and, therefore, not analyzed in the paper.

III. Results

Trends in contraceptive prevalence rate (any method)

Trends in contraceptive prevalence (any method) among currently married women by their economic status in selected Asian countries are presented in Table 2. There has been a dramatic increase in contraceptive use, particularly among poor women over the last decades in Nepal,

India, Bangladesh, Philippines, Vietnam and Indonesia although the increase was not equally shared across the countries. The highest increase in contraceptive use has occurred among poor and non-poor women in Nepal, followed by India. About 20 per cent (20 per cent in 1996 to 40 per cent in 2006) and 16 per cent (31 per cent in 1992/93 to 47 per cent in 2005/06) increase in CPR has occurred among poor women in Nepal and in India respectively. On the other hand, the corresponding figure for non-poor women in the two countries was 17 per cent and 13 per cent increase respectively. Around 10 per cent increase in CPR was also found among poor women in Bangladesh during ten years of inter-survey period, whereas it was only 3 per cent among non-poor women. According to 2007 Bangladesh DHS data, the gap between poor and non-poor women in terms of CPR has narrowed down (54 per cent and 58 per cent among poor and non-poor women respectively). However, the gap still persisted in India, Indonesia, Nepal and Philippines. Almost more than three fifths of the poor (75 per cent) and non-poor (78 per cent) women were using contraceptive method in Vietnam according to 2002 data however. Surprisingly the CPR has slightly declined among non-poor women from 80 per cent in 1997 to 78 per cent in 2002. We have also found that contraceptive method use had varied by background characteristics across the countries studied among poor and non-poor women (not shown).

Table 2. Trends in contraceptive prevalence rate (any method) and absolute change in any method use among currently married women by economic status in selected Asian countries according to DHS data

Country/Survey	CPR		Absolute change (recent period-first period)	
	Poor	Non-poor	Poor	Non-poor
Bangladesh				
1996-97*	44.2	55.0		
1999-2000**	48.4	58.7	9.9	3.4
2007***	54.1	58.4		
India				
1992-93*	31.2	54.8		
1998-99**	37.0	60.9	15.9	12.5
2005-06***	47.1	67.3		
Indonesia				
1997*	51.4	61.0		
2003**	53.6	63.2	4.0	2.7
2007***	55.4	63.7		
Nepal				
1996*	20.1	40.4		
2001**	29.1	54.1	19.1	17.0
2006***	39.2	57.4		
Philippines				
1998*	38.9	51.9		
2003**	41.3	52.2	6.5	0.8
2008***	45.4	52.7		
Vietnam				
1997*	70.4	80.4		
2002**	75.2	77.6	4.8	-2.8

Note: *refers to first period, **refers to middle period, ***refers to recent period

Trends in any modern and traditional contraceptive methods

Prevalence of any modern and traditional contraceptive methods among poor and non-poor women is shown in Table 3. Results indicate that prevalence of any modern method differed across countries and it was comparatively higher among non-poor women compared with poor women. However, use of modern method has shown increasing trend among poor women in Nepal followed by India, Philippines, Indonesia, Bangladesh and Vietnam, which is generally higher among non-poor women. Therefore, the gap in the prevalence of any modern method between poor and non-poor has narrowed down slowly over time.

Table 3. Trends and absolute change in modern and traditional contraceptive methods among currently married women by economic status in selected Asian countries according to DHS data

Country/Survey	Modern method		Absolute change (recent period-first period)		Traditional method		Absolute change (recent period-first period)	
	Poor	Non-Poor	Poor	Non-Poor	Poor	Non-poor	Poor	Non-poor
Bangladesh								
1996-97*	38.1	45.7			6.2	9.3		
1999-2000**	39.2	46.8	7.8	2.1	9.2	11.9	2.0	1.1
2007***	45.9	47.8			8.2	10.4		
India								
1992-93*	28.0	47.9			3.1	6.8		
1998-99**	32.7	53.2	11.2	10.5	4.3	7.8	4.8	2.2
2005-06***	39.2	58.4			7.9	9.0		
Indonesia								
1997*	41.0	53.6			10.4	7.5		
2003**	44.3	56.0	7.9	2.4	9.3	7.2	-3.9	0.1
2007***	48.9	56.0			6.5	7.6		
Nepal								
1996*	25.1	47.0			3.5	6.5		
2001**	25.4	47.6	11.7	3.1	3.7	6.5	-1.1	0.8
2006***	36.8	50.1			2.4	7.3		
Philippines								
1998*	21.3	31.9			19.4	20.8		
2003**	28.7	36.7	8.7	4.5	14.9	16.6	-2.4	-3.1
2008***	30.0	36.4			17.0	17.7		
Vietnam								
1997*	52.7	57.8			17.8	22.6		
2002**	56.6	52.6	3.9	-5.2	18.6	25.0	0.8	2.4

Note: *refers to first period, **refers to middle period, ***refers to recent period

The prevalence of traditional method was less in comparison with modern method in all the countries (Table 3). Nonetheless, an interesting result revealed from the table is that the acceptance of traditional method still persists to a large extent in Vietnam and Philippines upto 19 per cent poor women and 25 per cent non-poor women in Vietnam were using any traditional method in 2002 and in Philippines the prevalence was almost the same (17 per cent) among both poor and non-poor women in 2008.

Trends in limiting and spacing methods

Table 4 represents the prevalence of limiting and spacing method by economic status across the Asian countries. Limiting method was exceedingly popular among both poor and non-poor women in India, followed by Nepal. The prevalence of limiting method has increased by 8 per cent (from 26 per cent in 1992-93 to 34 per cent in 2005-06) among poor women and 3 per cent among non-poor women in India. However, in case of Nepal, there was a 7 per cent increase (15 to 22 per cent during 1996-2006) among poor and, in contrast, 4 per cent decrease among non-poor. It was also found that limiting method was also popular among non-poor women in Philippines (13 per cent in 2008).

Prevalence of spacing method was very high in Vietnam followed by Indonesia, Bangladesh and Philippines. Gap between poor and non-poor in the use of spacing methods has narrowed down mainly because of the increasing use particularly among poor women than their non-poor counterparts in the above stated four countries. Despite the overall increase in the prevalence of spacing methods in other study countries, substantial gaps still persisted among poor and non-poor women in India and Nepal primarily because of the lesser acceptance of spacing methods particularly among poor women.

Table 4. Trends and absolute change in limiting and spacing methods among currently married women by economic status in selected Asian countries according to DHS data

Country/Survey	Limiting		Absolute change (recent period-first period)		Spacing		Absolute change (recent period-first period)	
	Poor	Non-poor	Poor	Non-poor	Poor	Non-poor	Poor	Non-poor
Bangladesh								
1996-97*	9.9	6.9			34.2	48.1		
1999-2000**	8.4	5.7	-2.5	-2.3	40.0	53.1	12.5	5.6
2007***	7.4	4.6			46.7	53.7		
India								
1992-93*	26.3	35.2			4.7	19.6		
1998-99**	30.3	38.4	7.7	2.7	6.6	22.5	8.4	9.9
2005-06***	34.0	37.9			13.1	29.5		
Indonesia								
1997*	1.6	5.1			49.8	55.9		
2003**	2.4	6.1	0.3	-0.8	51.3	57.1	3.8	3.5
2007***	1.9	4.3			53.6	59.4		
Nepal								
1996*	15.1	27.7			13.4	25.8		
2001**	15.2	28.5	7.3	-3.7	13.8	25.6	3.4	7.6
2006***	22.4	24.0			16.8	33.4		
Philippines								
1998*	5.4	14.3			35.3	38.4		
2003**	6.4	15.0	0.9	-1	37.2	38.3	5.3	2.4
2008***	6.3	13.3			40.6	40.8		
Vietnam								
1997*	8.2	7.1			62.2	73.3		
2002**	7.5	4.5	-0.7	-2.6	67.7	73.0	5.5	-0.3

Note: *refers to first period, **refers to middle period, ***refers to recent period

With regard to contraceptive method mix (not shown), our study found that, in each country with low or moderate contraceptive prevalence, maximum two or three methods were accountable for a lion share of contraceptive use and interestingly, the prime method had differed from one country to another. For example, oral pills were most preferred method in Bangladesh and Philippines while female sterilization was very much popular method in India and Nepal. Moreover, injectables and IUD were the dominant methods in Indonesia and Vietnam respectively among both poor and non-poor women.

Unmet need for family planning

Table 5 represents the unmet need for spacing and limiting, met need, total demand for family planning by economic status in Asian countries. Overall, the unmet need was higher among poor than non-poor women across the countries studied. More specifically, unmet need was more among poor women in Nepal followed by Philippines, Bangladesh, India and Indonesia. On the other hand, unmet need was higher among non-poor women in Nepal, Philippines and Bangladesh. However, trend analysis also suggested that total unmet need has gradually declined among both poor and non-poor women although at various degrees with the exception in Philippines, Indonesia and Bangladesh. It was found that unmet need for family planning has increased over time among non-poor women in the above stated countries. Unmet need for limiting method was more compared with spacing method among both poor and non-poor women in Nepal, Philippines and Bangladesh across sample periods.

Table 5. Percentage of currently married poor and non-poor women age 15-49 with unmet need for family planning, percentage with met need for family planning, and total demand for family planning in selected Asian countries according to DHS data

| Country/Survey | Unmet need for | | | | | | Met need for | | | | | |
| | Poor | | | Non-poor | | | Poor | | | Non-poor | | |
	Sp	Lm	Total	Sp	Lm	Total	Sp	Lm	Total	Sp	Lm	Total
Bangladesh												
1996-97*	8.8	8.6	17.4	7.3	6.3	13.6	9.5	34.7	44.3	17.1	38.0	55.1
1999-2000**	9.3	9.1	18.4	6.1	6.2	12.3	12.2	36.3	48.5	18.8	40.0	58.8
2007***	6.2	11.2	17.4	7.1	9.2	16.3	12.9	41.2	54.1	17.6	40.6	58.2
India												
1992-93*	10.8	8.7	19.5	6.8	7.0	13.8	2.1	30.3	32.4	6.1	49.9	56.0
1998-99**	9.7	9.0	18.7	6.5	6.2	12.7	2.0	35.3	37.3	6.1	55.0	61.1
2005-06***	7.6	8.9	16.5	4.0	4.2	8.2	3.5	43.6	47.1	7.3	60.0	67.3
Indonesia												
1997*	5.2	5.9	11.1	3.5	4.1	7.6	25.6	25.8	51.4	23.9	37.2	61.1
2003**	5.4	6.4	11.8	3.7	3.8	7.5	24.8	28.9	53.7	22.3	40.9	63.2
2007***	5.9	5.7	11.6	3.4	4.3	7.7	25.9	29.5	55.4	23.6	40.0	63.6
Nepal												
1996*	15.0	20.3	35.3	12.4	14.7	27.1	1.7	18.5	20.2	3.9	36.5	40.4
2001**	12.6	20.1	32.7	8.3	12.1	20.4	2.2	26.9	29.1	6.3	47.8	54.1
2006***	10.4	17.4	27.8	7.0	14.2	21.2	3.0	36.2	39.2	7.0	50.3	57.3
Philippines												
1998*	11.6	14.8	26.4	6.6	8.1	14.7	10.1	28.9	39.0	15.0	36.9	51.9
2003**	10.1	13.9	24.0	6.5	6.3	12.8	11.0	30.2	41.2	15.7	36.6	52.3
2008***	10.4	15.0	25.4	7.8	12.3	20.1	12.3	33.1	45.4	16.3	36.4	52.7
Vietnam												
1997*	5.0	4.7	9.7	2.2	3.2	5.4	15.2	55.2	70.4	17.7	62.7	80.4
2002**	3.0	4.5	7.5	1.5	2.2	3.7	16.1	59.2	75.3	14.7	62.9	77.6

Table 5 continued...

| Country/Survey | Total demand for family planning | | | | | | % of demand satisfied | |
| | Poor | | | Non-poor | | | Poor | Non-poor |
	Sp	Lm	Total	Sp	Lm	Total		
Bangladesh								
1996-97*	18.3	43.3	61.7	24.4	44.3	68.7	71.8	80.2
1999-2000**	21.5	45.4	66.9	24.9	46.2	71.1	72.5	82.7
2007***	19.1	52.4	71.5	24.7	49.8	74.5	75.7	78.1
India								
1992-93*	12.9	39	51.9	12.8	57	69.8	62.4	80.2
1998-99**	11.7	44.3	56	12.6	61.2	73.8	66.6	82.8
2005-06***	11.1	52.5	63.6	11.3	64.2	75.5	74.1	89.1
Indonesia								
1997*	30.8	31.7	62.5	27.4	41.3	68.7	82.3	88.9
2003**	30.2	35.3	65.5	26	44.7	70.7	82	89.4
2007***	31.8	35.2	67	27	44.3	71.3	82.7	89.2
Nepal								
1996*	16.7	38.8	55.5	16.3	51.2	67.5	36.4	59.9
2001**	14.8	47	61.8	14.6	59.9	74.5	47.1	72.6
2006***	13.4	53.6	67	14	64.5	78.5	58.5	73
Philippines								
1998*	21.7	43.7	65.4	21.6	45	66.6	59.6	77.9
2003**	21.1	44.1	65.2	22.2	42.9	65.1	63.2	80.3
2008***	22.7	48.1	70.8	24.1	48.7	72.8	64.1	72.4
Vietnam								
1997*	20.2	59.9	80.1	19.9	65.9	85.8	87.9	93.7
2002**	19.1	63.7	82.8	16.2	65.1	81.3	90.9	95.4

Note: *refers to first period, **refers to middle period, ***refers to recent period
Sp refers to spacing methods, Lm refers to limiting methods

Determinants of contraceptive use

The effect of socio-economic correlates on the likelihood of using any contraceptive methods, among poor and non-poor, was examined using logistic regression models for the six

countries separately. Thus, for the regression using any contraceptive method (yes=1; otherwise=0) was taken as dependent variable, while women's age, education, religion, current working status, husband's education, place of residence, exposure to mass media, ideal family size, discussed family planning with partner, visited by family planning worker in last six months, heard/seen family planning messages through radio/television/newspaper/poster/brochure/street drama were considered as independent variables (Tables 6 to 11).

Several factors have emerged as significant predictors of any contraceptive use. Compared with young age group (15-24), both middle (25-34) and older age (35-49) groups of women were significantly more likely to use any contraceptive methods irrespective of economic status in all the countries across the surveyed periods. The lower contraceptive use in the rural areas compared with the urban areas may be attributed to unmeasured mediating factors.

Thus, although the multivariate analysis was adjusted for several factors, there were several other factors such as access to services, psychosocial, cultural factors and community/contextual factors that were not included in our analysis due to paucity of such information in the data.

The role of education in shaping women's health behaviour has long been established. As expected, we found higher odds of any contraceptive use among both poor and non-poor women with primary, secondary or higher education compared with women with no education across the countries in all the surveys with some exceptions. However, non-poor women having secondary and above education were significantly less likely to use any contraceptive methods compared with women who had no education in India according to the most recent survey. The findings can be supported by other literature (Bhat, 2002; McNay et al., 2003, Arokiasamy, 2009) also.

Husband's education also emerged as an important variable among the predictors of contraceptive use for both the poor and non-poor women in Bangladesh, India, Indonesia and Nepal. Compared with women with uneducated husbands, those women whose husbands had a minimum of primary or secondary and above education were more likely to use contraception.

It is already documented that work status of women and mass media exposure are another two important factors that influence contraceptive use (Navaneetham & Dharmalingam, 2002) and promote health-related behaviour such as reproductive preferences (Ratherford & Mishra, 1997; Rao et al., 1998). Our results corroborate these findings. Additionally, poor and non-poor working women and women who had any kind of mass media exposure were significantly more likely to use any contraceptive methods compared with non-working women and women who had no mass media exposure in almost all the countries barring few exceptions. Possible mediating factors between women's work status and their contraceptive behaviour may include peers and colleagues who have a positive attitude towards small family and family planning, which may work against large family thereby increasing their acceptability of family planning.

Another indicator examined in this study was respondents visited by family planning worker. We found a higher likelihood of using contraception among poor and non-poor women who received information by them compared with those who didn't. Inter-spousal discussion about family planning had a significant positive effect on contraceptive use irrespective of economic status across all the countries. Both poor and non-poor women who discussed about family planning with their husbands were significantly more likely to use contraceptive methods compared with those who did not. The odds ratios were consistently significant in all the countries. Exposure to family planning messages was also positively associated with contraceptive use. Poor and non-poor women who had been exposed to family planning messages from either single source or multiple sources had higher odds (with few exceptions) of using any contraceptives than did women who had not been exposed to such messages across the countries and the pattern was almost similar in all the surveyed periods.

IV. Conclusion

Contraceptive prevalence had shown a dramatic increase in the last decade, especially among poor women although the increase was not equally shared across the countries and the gap between poor and non-poor had still existed. Therefore, it can be said that although the increase in CPR was quite impressive, nevertheless, it has much room to expand especially among poor women. The prevalence of modern methods had increased among poor women across the countries however A substantial proportion of poor and non-poor women still relied on traditional method, mainly in Philippines and Vietnam. Limiting methods were dominant in India and Nepal irrespective of economic status while in rest of the countries spacing methods were more popular among women.

Overall unmet need for family planning was higher among poor women compared with their non-poor counterparts. However, the desire had decreased gradually over time as contraceptive use had risen. Both unmet need for spacing (except Bangladesh in 2007) and limiting were higher among poor women than non-poor and that showed a declining trend at a very slow pace.

Several factors emerged as shapers of women's contraceptive behaviour in our analysis. Any contraceptive method use was significantly higher among both poor and non-poor women who were comparatively older, living in urban areas, having primary and secondary or higher education, working and having any mass media exposure. In some cases religion and husband's education had a significant impact on contraceptive use. It is quite interesting to note that significant increase in contraceptive use was associated with spousal discussion on family planning, women visited by family planning workers and women exposed to family planning messages by single or multiple sources.

The results of the study should be interpreted considering the limitations mentioned below: In the absence of data on direct income and expenditure this study defined economic status on the basis of household ownership and consumer assets. The present analysis has relied on self-reported use of contraception, which may suffer from recall bias.

Education plays an important role in adoption of family planning methods irrespective of economic status. Therefore, investing in education for the poor is the urgent need. This will have positive effect on modern contraceptive use which in turn will reduce the fertility among poor women. The poor individuals and those with unmet need for family planning should be reached on a wide scale. Results indicate strong relation between contraceptive use and discussion among the partners/couples about family planning methods. This can be done through the mass media communication which will increase the contraceptive knowledge, acceptance and use of family planning methods.

Table 6. Logistic regression coefficients predicting the relative odds of any contraceptive method use among currently married poor and non-poor women, Bangladesh, 1996-97, 1999-2000 and 2007

Background characteristics	1996-97		1999-2000		2007	
	Poor	**Non-poor**	**Poor**	**Non-poor**	**Poor**	**Non-poor**
Age of the respondent						
15-24®	1	1	1	1	1	1
25-34	2.309***	1.826***	2.821***	1.949***	2.087***	2.162***
35-49	2.499***	2.218***	4.227***	2.292***	2.992***	2.762***
Place of residence						
Urban®	1	1	1	1	1	1
Rural	0.636*	0.714***	0.816	0.725***	0.835	0.658***
Religion						
Muslim®	1	1	1	1	1	1
Non-Muslim	0.826	1.318**	0.965	1.337**	1.023	1.676***
Education						
No education®	1	1	1	1	1	1
Primary	1.416***	1.177	1.208	1.328**	1.077	0.907
Secondary and above	1.649**	1.145	1.172	1.599***	0.853	0.762*
Work status						
Not working®	1	1	1	1	1	1
Working	1.717***	1.172	1.578***	1.299***	1.433***	1.430***
Mass Media exposure						
No exposure®	1	1	1	1	1	1
Any exposure	1.008	1.044	1.173	1.247*	1.389***	1.255**
Husband's education						
No education®	1	1	1	1	1	1
Primary	0.849	0.848	0.937	1.142	1.182*	0.937
Secondary and above	0.925	1.030	1.017	1.104	1.234*	1.055
Ideal family size						
Non-numeric response®	1	1	1	1	1	1
0-2	3.294***	4.313***	7.358***	3.599***	4.605***	2.676***
3-6	2.051***	3.634***	5.200***	3.157***	2.352**	2.185**
Discussed FP with partner						
No®	1	1	1	1	1	1
Yes	4.495***	5.094***	2.385***	2.759***	6.431***	9.776***
Visited by FP worker in last 6 months						
No®	1	1	1	1	1	1
Yes	4.125***	2.940***	2.892***	2.252***	3.158***	2.349***
Constant	0.043***	0.050	0.036***	0.091***	0.056***	0.103***
-2 Log likelihood =	2378.071	3197.261	2393.094	3288.262	3445.387	3888.506
Cox & Snell R square =	0.269	0.233	0.132	0.108	0.237	0.259
Nagelkerke R square=	0.366	0.311	0.178	0.145	0.315	0.349

® reference category;   *** $p < 0.001$, ** $p < 0.05$, * $p < 0.10$

Table 7. Logistic regression coefficients predicting the relative odds of any contraceptive method use among currently married poor and non-poor women, India, 1992-93, 1998-1999 and 2005-06

Background characteristics	1992-93		1998-99		2005-06	
	Poor	Non-poor	Poor	Non-poor	Poor	Non-poor
Age of the respondent						
15-24®	1	1	1	1	1	1
25-34	1.797***	2.483***	5.698***	4.478***	4.485***	3.293***
35-49	2.381***	2.508***	9.330***	6.578***	6.162***	4.242***
Place of residence						
Urban®	1	1	1	1	1	1
Rural	0.919	0.773***	0.855**	0.881***	1.033	0.880***
Religion						
Hindu®	1	1	1	1	1	1
Muslim	2.247***	0.926	0.680***	0.631***	0.699***	0.672***
Others	1.050	1.001	0.613***	0.825***	0.417***	0.750***
Education						
No education®	1	1	1	1	1	1
Primary	2.069***	1.314***	1.364***	1.229***	1.254***	1.015
Secondary and above	2.112***	2.036***	1.095	1.109***	1.194***	0.842***
Work status						
Not working®	1	1	1	1	1	1
Working	0.902	1.072	1.359***	1.193***	1.413***	1.103***
Mass Media exposure						
No exposure®	1	1	1	1	1	1
Any exposure	1.282***	1.675***	1.664***	1.419***	1.306***	1.345***
Husband's education						
No education®	1	1	1	1	1	1
Primary	1.231***	0.906	1.228***	1.313***	1.150***	1.169*
Secondary and above	1.142*	1.246***	1.123***	1.137**	1.016	0.939
Ideal family size						
Non-numeric response®	1	1	1	1	1	1
0-2	2.084***	1.980***	0.572***	0.940*	2.407***	1.316***
3-6	1.393***	1.311***	0.396***	0.641***	1.612***	1.252**
Discussed FP with partner						
No®	1	1	1	1		
Yes	4.944***	3.105***	1.138***	1.429***	na	na
Visited by FP worker/ANM/LHV®						
No®			1	1	1	1
Yes	na	na	1.293***	1.151***	0.888***	0.879***
Heard FP messages on radio in last few months						
No®					1	1
Yes	na	na	na	na	0.988	0.950*
Seen FP messages in TV in last few months						
No®					1	1
Yes	na	na	na	na	1.386***	1.179***
Seen FP messages in newspaper in last few months						
No®					1	1
Yes	na	na	na	na	1.175**	1.114***
Constant	0.009***	0.025***	0.140***	0.246***	0.096***	0.425***
-2 Log likelihood =	9218.448	21121.882	31020.629	34594.179	35877.922	35536.948
Cox & Snell R square =	0.067	0.152	0.162	0.116	0.147	0.066
Nagelkerke R square=	0.166	0.210	0.223	0.158	0.196	0.092

® reference category; *** p<0.001, ** p<0.05, * p<0.10 ; na: refers to information not available

Table 8. Logistic regression coefficients predicting the relative odds of any contraceptive method use among currently married poor and non-poor women, Indonesia, 1997, 2003 and 2007

Background characteristics	1997		2003		2007	
	Poor	Non-poor	Poor	Non-poor	Poor	Non-poor
Age of the respondent						
15-24®	1	1	1	1	1	1
25-34	1.635***	1.739***	1.388***	1.554***	1.423***	1.596***
35-49	1.379***	2.053***	1.023	1.836***	0.976	1.635***
Place of residence						
Urban®	1	1	1	1	1	1
Rural	0.971	1.060	0.989	1.043	0.967	1.069
Religion						
Muslim®	1	1	1	1	1	1
Others	0.809***	1.055	0.834***	0.998	0.660***	0.917*
Education						
No education®	1	1	1	1	1	1
Primary	1.296***	1.223*	1.132	1.269	1.264***	1.352*
Secondary and above	1.209**	1.323**	1.000	1.248	1.397***	1.535**
Work status						
Not working®			1	1	1	1
Working	na	na	1.275***	1.123***	1.428***	0.976
Mass Media exposure						
No exposure®	1	1	1	1	1	1
Any exposure	1.627***	1.628***	1.277***	1.255**	1.445***	1.170*
Husband's education						
No education®	1	1	1	1	1	1
Primary	1.121	1.589***	1.231**	1.520**	1.362***	1.200
Secondary and above	1.045	1.489**	1.238**	1.407	1.313***	1.168
Ideal family size						
Non-numeric response®	1	1	1	1	1	1
0-2	1.667***	1.583***	1.873***	1.869***	2.186***	1.556***
3-6	1.178***	1.262***	1.242***	1.354***	1.392***	1.247***
Discussed FP with partner						
No®	1	1	1	1	1	1
Yes	1.476***	1.443***	3.168***	2.773***	2.624***	1.763***
Visited by FP worker/ANM/LHV®						
No®	1	1	1	1	1	1
Yes	4.966***	4.129***	1.135	1.106	1.170*	1.419***
Heard FP messages on radio in last few months						
No®	1	1	1	1	1	1
Yes	0.961	0.891**	0.990	0.991	0.788**	0.869**
Seen FP messages in TV in last few months						
No®	1	1	1	1	1	1
Yes	1.279***	1.203***	1.179**	1.034	1.054	1.071
Seen FP messages in newspaper in last few months						
No®	1	1	1	1	1	1
Yes	0.884	0.968	0.816*	0.841***	0.700**	0.990
Seen FP messages on poster in last few months						
No®	1	1			1	1
Yes	1.145	0.896	na	na	1.138	1.034
Seen FP messages on brochure in last few months						
No®	1	1			1	1
Yes	1.004	0.954***	na	na	0.917	0.902
Constant	0.165***	0.115***	0.213***	0.162***	0.255***	0.344***
-2 Log likelihood =	10546.818	11484.790	11068.394	11963.494	12391.659	14386.696
Cox & Snell R square =	0.168	0.099	0.113	0.066	0.090	0.025
Nagelkerke R square=	0.224	0.134	0.151	0.091	0.120	0.034

® reference category;   *** p<0.001, ** p<0.05, *p<0.10; na: refers to information not available

Table 9. Logistic regression coefficients predicting the relative odds of any contraceptive method use among currently married poor and non-poor women, Nepal, 1996, 2001 and 2007

Background characteristics	1996		2001		2007	
	Poor	**Non-poor**	**Poor**	**Non-poor**	**Poor**	**Non-poor**
Age of the respondent						
15-24®	1	1	1	1	1	1
25-34	5.115***	3.873***	3.766***	3.642***	3.801***	2.758***
35-49	7.368***	5.895***	5.902***	5.505***	5.267***	4.940***
Place of residence						
Urban®	1	1	1	1	1	1
Rural	0.534**	0.562***	0.764	0.655***	0.772*	0.824**
Religion						
Muslim®	1	1	1	1	1	1
Others	0.871	0.610***	1.096	0.669***	0.648***	0.746**
Education						
No education®	1	1	1	1	1	1
Primary	1.483*	0.945	1.019	1.082	1.052	0.942
Secondary and above	1.913*	1.000	1.312	1.270**	1.078	0.756**
Work status						
Not working®	1	1	1	1	1	1
Working	1.083	1.262**	1.178	1.300***	0.894	1.275***
Mass Media exposure						
No exposure®	1	1	1	1	1	1
Any exposure	0.970	1.361***	1.302**	1.100	1.426***	0.993
Husband's education						
No education®	1	1	1	1	1	1
Primary	1.476***	1.166	1.180	1.352**	0.881	1.285
Secondary and above	1.359**	1.455***	1.003	1.536***	0.773**	1.642***
Ideal family size						
Non-numeric response®	1	1	1	1	1	1
0-2	3.440	4.038***	3.084**	2.124**	0.187	0.274
3-6	3.243	3.143**	2.377	2.010*	0.164	0.277
Discussed FP with partner						
No®	1	1	1	1	1	1
Yes	1.385***	1.330**	2.269***	1.845***	1.786***	2.101***
Visited by FP worker/ANM/LHV®						
No®	1	1	1	1	1	1
Yes	2.236***	1.663***	1.303*	1.401**	2.130***	1.529***
Heard FP messages on radio in last few months						
No®	1	1	1	1	1	1
Yes	1.192	1.181	1.476***	1.183*	1.001	0.966
Seen FP messages in TV in last few months						
No®	1	1	1	1	1	1
Yes	1.051	1.371***	1.457**	1.626***	1.071	1.649***
Seen FP messages in newspaper in last few months						
No®	1	1	1	1	1	1
Yes	0.684	1.121	1.511	1.059	1.278	0.892
Seen FP messages on poster in last few months						
No®	1	1			1	1
Yes	1.841***	1.640***	na	na	1.589***	1.005
Seen FP messages on brochure in last few months						
No®	1	1				
Yes	1.340	0.923	na	na	na	na
Seen FP messages in street dramas in last few months						
No®					1	1
Yes	na	na	na	na	0.697	0.977
Constant	0.997***	0.032***	0.029***	0.085***	0.930	0.727
-2 Log likelihood =	2206.753	3119.581	2758.089	3440.213	3056.898	3328.727
Cox & Snell R square =	0.101	0.173	0.111	0.149	0.124	0.118
Nagelkerke R square=	0.160	0.233	0.159	0.199	0.171	0.159

® reference category; *** p<0.001, ** p<0.05, * p<0.10; na: refers to information not available

Table 10. Logistic regression coefficients predicting the relative odds of any contraceptive method use among currently married poor and non-poor women, Philippines, 1998, 2003 and 2008

Background characteristics	1998		2003		2008	
	Poor	Non-poor	Poor	Non-poor	Poor	Non-poor
Age of the respondent						
15-24®	1	1	1	1	1	1
25-34	1.773***	1.546***	1.636***	1.075	1.646**	1.320
35-49	1.323*	1.530***	1.188	1.204	1.244	1.061
Place of residence						
Urban®	1	1	1	1	1	1
Rural	0.752**	0.943	0.956	1.360***	0.705**	0.850
Religion						
Muslim®	1	1	1	1	1	1
Others	0.959	1.168	0.862	1.188	1.002	0.984
Education						
No education®	1	1	1	1	1	1
Primary	1.873**	0.855	1.717*	1.947	1.397	0.881
Secondary and above	2.475***	0.880	2.274***	1.817	2.060	1.743
Work status						
Not working®	1	1	1	1	1	1
Working	1.375***	1.213**	1.531***	1.032	1.371**	1.299**
Mass Media exposure						
No exposure®	1	1	1	1	1	1
Any exposure	1.135	0.756	1.148	0.068	1.699***	1.163
Ideal family size						
Non-numeric response®	1	1	1	1	1	1
0-2	1.304	3.140**	2.838**	2.645	2.646	0.718
3-6	1.322	3.498**	2.166*	2.353	2.436	0.687
Discussed FP with partner						
No®	1	1	1	1	1	1
Yes	1.673***	1.192*	1.592***	1.449***	1.256	1.515***
Visited by FP worker/ANM/LHV®						
No®	1	1	1	1	1	1
Yes	1.510***	1.218*	1.067	1.688	1.035	1.091
Heard FP messages on radio in last few months						
No®	1	1	1	1	1	1
Yes	0.943	0.853	1.005	0.791**	0.992	1.202
Seen FP messages in TV in last few months						
No®	1	1	1	1	1	1
Yes	1.135	1.057	1.235*	0.808	0.876	0.729
Seen FP messages in newspaper in last few months						
No®	1	1	1	1	1	1
Yes	0.865	0.871	1.044	1.029	0.911	0.745
Seen FP messages on poster in last few months						
No®	1	1	1	1		
Yes	0.766*	1.208	1.046	1.144	na	na
Seen FP messages on brochure in last few months						
No®	1	1	1	1		
Yes	1.537***	1.033	0.826	0.899	na	na
Constant	0.169***	0.335	0.113***	0.420	0.166**	1.846
-2 Log likelihood =	2452.461	2776.364	2365.833	2768.238	1498.713	1584.778
Cox & Snell R square =	0.067	0.018	0.057	0.030	0.041	0.022
Nagelkerke R square=	0.089	0.024	0.075	0.041	0.054	0.030

® reference category; *** p<0.001, ** p<0.05, * p<0.10; na: refers to information not available

Table 11. Logistic regression coefficients predicting the relative odds of any contraceptive method use among currently married poor and non-poor women, Vietnam, 1997 and 2002

Background characteristics	1997		2002	
	Poor	**Non-poor**	**Poor**	**Non-poor**
Age of the respondent				
15-24®	1	1	1	1
25-34	3.310***	2.769***	2.861***	2.473***
35-49	3.180***	3.284***	3.638***	4.495***
Place of residence				
Urban®	1	1	1	1
Rural	0.309***	1.186	0.489*	0.985
Religion				
No religion®	1	1	1	1
Buddhist	1.087	0.717**	1.064	1.008
Others	1.257	0.901	1.027	1.205
Education				
No education®	1	1	1	1
Primary	1.328	2.187	1.609***	2.044
Secondary and above	1.783***	2.306*	1.449***	2.117
Work status				
Not working®	1	1	1	1
Working	1.486**	1.278	2.348***	1.419**
Mass Media exposure				
No exposure®	1	1	1	1
Any exposure	0.957	0.711	1.077	1.752
Husband's education				
No education®	1	1	1	1
Primary	0.911	5.117**	0.933	0.393
Secondary and above	1.098	4.587**	1.007	0.627
Discussed FP with partner				
No®	1	1	1	1
Yes	1.521***	2.016***	2.664***	2.601***
Visited by FP worker/ANM/LHV®				
No®	1	1	1	1
Yes	1.429**	1.160	1.407**	1.391**
Heard FP messages on radio in last few months				
No®	1	1	1	1
Yes	1.322*	1.166	1.147	0.791
Seen FP messages in TV in last few months				
No®	1	1	1	1
Yes	1.275	2.064***	1.476**	1.266
Seen FP messages in newspaper in last few months				
No®	1	1	1	1
Yes	1.285	1.117	0.742	0.933
Seen FP messages on poster in last few months				
No®	1	1	1	1
Yes	1.067	1.197	0.973	1.211
Seen FP messages on brochure in last few months				
No®	1	1	1	1
Yes	1.110	1.071	1.324	0.755*
Constant	0.792	0.050***	0.320**	0.203
-2 Log likelihood =	1885.993	1637.976	1679.286	1741.209
Cox & Snell R square =	0.102	0.076	0.119	0.082
Nagelkerke R square=	0.146	0.120	0.177	0.126

® reference category; *** p<0.001, ** p<0.05, * p<0.10

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