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National Institute of Statistics
Ministry of Planning

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Ministry of Health

Levels and Trends of Contraceptive Prevalence and Unmet Need for Family Planning in Cambodia

Further Analysis of the Cambodia Demographic and Health Survey

PHNOM PENH
April, 2013

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April 2013

This report presents findings from a secondary analysis study undertaken as part of the follow-up to the 2010 Cambodia Demographic and Health Survey (CDHS). Additional information about the survey can be obtained from the National Institute of Statistics, Ministry of Planning; 386 Monivong Boulevard, Sangkat Beong Keng Kang 1, Chamkar Mon, Phnom Penh, Cambodia; Telephone: (855) 12-723107, (855) 16-644454; E-mail: linahang2002@gmail.com; Internet: www.nis.gov.kh and the Directorate General for Health, Ministry of Health 151-153 Kampuchea Krom Boulevard, Phnom Penh, Cambodia; Telephone: (855) 12-222773; E-mail: rathavy@online.com.kh; Internet: www.moh.gov,kh.

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Preface

The Cambodia Demographic and Health Surveys (DHSs) collect high quality of data on the demographic and health characteristics of populations in Cambodia. The data available allow researchers to perform further and in depth analysis to examine issues related to the population and health conditions in Cambodia and inform policy makers using evidence-based results which are useful for national programs and projects.

This Cambodia DHS Further Analysis focuses on family planning and unmet need in family planning in Cambodia. It presents levels and trends of current contraceptive use; differentials in levels and trends by selected characteristics and the overall method conversion and method discontinuation among women of reproductive age in Cambodia. It also discusses levels, trends, and differentials in unmet need for family planning among women by several characteristics according to the components of unmet need. This study uses data from three Cambodia DHSs surveys collected in 2000, 2005 and 2010, which are comparable, facilitating the trend analysis.

This topic is selected by the analysts of the Ministry of Health in consultation with the National Institute of Statistics and United Nations Population Fund (UNFPA).

It is anticipated that the findings from this analysis will enhance the understanding of important issues of family planning and reproductive health in Cambodia by health analysts and policymakers.

H.E. Prof. Eng Huot
Secretary of State
For Minister of Health

H.E. Ouk Chay
Secretary of State
For Senior Minister
Minister of Planning

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The further analysis of the 2010 Cambodia Demographic and Health Survey (2010 CDHS) was conducted by the Directorate General for Health of the Ministry of Health and by the National Institute of Statistics of the Ministry of Planning. This analysis represents the continuing commitment and efforts in Cambodia to build the capacity of the Cambodia researchers. It reflects interest in obtaining additional information and data needed to develop policies and programs for the country.

We would like to thank Dr. Rathavuth Hong for assistance with data analysis, and the reviewers for their comments on the draft. Special thanks are given to the National Institute of Statistics of the Ministry of Planning and the Directorate General for Health of the Ministry of Health, which provided guidance on this work, and the United Nations Population Fund (UNFPA), which provided funding for this project.

This analysis could not have been completed without the active support and the efforts of the Excellencies Secretaries of State; H.E. Prof. Eng Huot, Ministry of Health, and H.E. Ouk Chay, Ministry of Planning. We also gratefully acknowledge H.E. San Sy Than and H.E. Hor Darith, Undersecretaries of State of the Ministry of Planning for their supports and valuable comments throughout the analysis activities.

We would like to express our appreciation for the researchers, whose dedicated efforts ensured the quality and timeliness of the analysis,

Her Excellency, Ms Hang Lina
Director General
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Director
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Executive Summary

This study used data from the Cambodia Demographic and Health Surveys (CDHS) conducted in 2000, 2005and 2010 to examine trends and differentials of contraceptive prevalence among women of reproductive age in Cambodia. It also examined the women's intention to use in the future among non-users, method conversion (between modern and traditional methods), and overall method discontinuation. Additionally, the study analyzed unmet need for family planning by type of needs reported by women (spacing or limiting childbirth), as well as its level, trend and differential. Women who are not currently using a method of family planning and who want to stop (limiting) or postpone (spacing) childbearing are those who can be classified as having an unmet need for family planning. The CDHS collects data from a sample of women aged 15-49 which is representative of the national, residential (urban rural), and regional levels. These data are comparable from survey to survey.

The prevalence of modern contraception among married women increased from 19 percent in 2000, to 27 percent in 2005 and to 35 percent in 2010. Pills and injectables are the two most popular modern methods of contraception. In 2000, contraception pills were more popular than injectables. However since 2005, injectables have become the more popular form of contraception. Less than one-third of women, who currently use contraception, use a traditional method (16 percent out of 51 percent). Generally, women between 20 and 44 years of age were more likely to use a modern contraceptive method than women younger than 20, or older than age 44. Contraception users are loyal to the type of methods they are using. Only a small proportion of users switched method of contraception. Approximately 2 percent of modern method users switched from the traditional method. Likewise, 2 percent of traditional method users switched from modern methods. Eleven percent of non-current users discontinued using a method and 15 percent of current users re-adopted a method after a discontinuation. The program should target non-current users but those who intended to use a method in the future (26 percent of total women); and women who discontinued using any method (11 percent of total women) by improving their knowledge, attitudes and behavior. Additional activities and support could increase family planning services and availability of commodities, to reach women with low education levels and who live in remote areas.

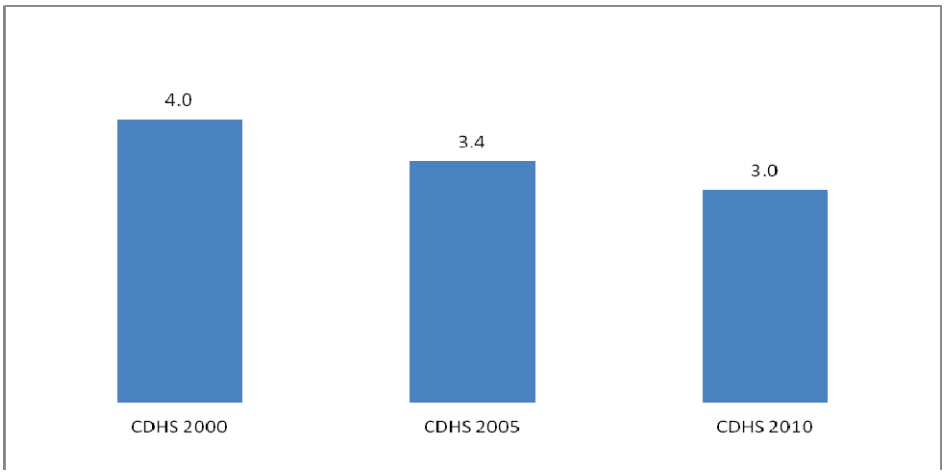
Total unmet need for family planning decreased consistently from 2000 to 2010. The total unmet need is positively associated with a higher number of living children, lower levels of education, rural residence, lower socioeconomic status, and residences outside of Phnom Penh. Women with 4 or more children and who are aged 40 years or older have higher unmet needs for limiting births; whereas women who have one child and are aged less than 25 years old have higher unmet needs for birth spacing. Unmet need for spacing declined faster than unmet need for limiting; and the demand for limiting childbearing surpasses that of spacing. The programs must focus on and emphasize on permanent methods of birth control for both women and their spouses. Examples include improving counseling as well as providing services for female and male sterilization at all primary health care facility.

1. Introduction

1.1 Background:

Cambodia's population size and structure were severely affected during the Democratic Kampuchea period (also known as Khmer Rouge period) from April 1975 to January 1979. In that period, Cambodia experienced a dramatic excess in mortality and a reduced fertility rate. After January 1979, Cambodians slowly reestablished and resumed their regular family and reproductive life. In 1984-1988 the total fertility rate manifested a post genocidal "baby boom" and reached 6.0 children per woman (Dasvarma GL, Neupert RF 2002), and remained as high as 5.6 children per woman in 1989-1994. The correspondent estimated crude birth rate (CBR) during that period was 44 per 1,000 in the mid-1980s and 38 per 1,000 in 1990. Since the early 1990s, there has been an initiation of family planning programs in Cambodia and there was a rapid increase in the utilization of contraception from 7 percent in 1995, to 16 percent in 1998. According the Cambodia Demographic and Health Surveys, contraceptive use among women in marital unions increased to 19 percent in 2000, 27 percent in 2005, and 37 percent in 2010 (National Institute of Statistics (NIS), Directorate General for Health (DGH), and ORC Macro 2001; National Institute of Public Health and Research (NIPH), National Institute of Statistics (NIS), and ORC Macro 2006; National Institute of Statistics (NIS), Directorate General for Health (DGH), and ICF International 2011).

Figure 1. Total fertility rate, Cambodia 2000 - 2010



During the same period, the total fertility rate (TFR) in Cambodia consistently declined from 4.0 children per woman in 2000, to 3.4 children per woman in 2005, and 3.0 children per woman in 2010 (Figure 1). The change in TFR corresponded to the change in contraceptive prevalence (CPR) (NIS, DGH, ORC Macro 2001; NIPH, NIS, ORC Macro 2006; NIS, DGH, ICF International 2011).

Family planning programs in postwar Cambodia began in 1991 as a small scale project funded by Non Governmental Organizations (NGO). In 1994, following the International Conference on Population and Development (ICPD) in Cairo, Egypt, the Cambodian government began to implement a family planning program with the support from the United Nations Population Fund

(UNFPA). This program began with an introduction of a family planning service in health centers, health education in family planning, and training of health personnel in the public sector (The Policy Project 2005). The program was an integrated part of the National Reproductive Health Program (NRHP) within the department of Maternal and Child Health of the Ministry of Health (MOH). Today, Cambodia family planning services are operated within the Reproductive, Maternal, New Born and Child Health (RMNCH), and the service has been prioritized in the National Health Strategic Plan 2007-2015 (MOH 2007).

1.2 Objective of the study:

Family planning continues to play an important role in improving women's reproductive health by preventing unwanted pregnancy and spacing births. The use of modern contraceptive methods has increased rapidly over the past 10 years, especially in rural Cambodia. Despite the increase, many women who want to stop or postpone pregnancy do not use any family planning method (unmet need). As a result, in 2010 Cambodian women reported wanting only 2.6 children on average, fewer than 3.0 TFR children per woman during the same period. Unmet need for family planning has improved over the past ten years, but the level of unmet need remains high. In 2000, the percentage of women who wanted to stop or postpone pregnancy, or did not use any family planning method, was 33 percent (1 in 3 women). This figure declined to 25 percent (1 in 4 women) in 2005, and to 17 percent in 2010 (1 in 6 women). There were many missed opportunities to promote family planning across the nation, in addition to stressing the vital importance of counseling and quality of services. For example, only 1 in 2 women visited a health facility and were told about family planning by a healthcare provider. This figure remains unchanged throughout the past ten years.

The objective of this study is to analyze the levels and trends of contraceptive prevalence among women of reproductive age in Cambodia. Changes in differentials in the use of modern contraception over the past ten years (2000 to 2010) are presented by selected demographic and socioeconomic factors. This study also looks at the conversion between modern and traditional methods, the overall method of discontinuation, and a woman's intention to use in the future among non users. Finally it will examine the level, differential, and determinants of unmet need for family planning to space and/or limit childbirth for women. This study analyzes data from the 2000, 2005 and 2010 Cambodia DHSs.

2. Data and Methods

2.1 Study population

The study uses data from three Cambodia DHSs, implemented in 2000, 2005 and 2010. The CDHS collected data from a sample of women aged 15-49 that represents national, urban rural and regional levels. The survey uses a two-stage stratified sampling method. In the first stage, enumeration areas or clusters are selected from a master sampling frame from the most recent National Population Census. In the second stage, a number of households were selected within each cluster. Data on population, health, nutrition, as well as on biological tests were collected during the surveys. These data are comparable across the country and the rounds of surveys. This comparability allows the researcher to perform comparative and trend analyses. For the CDHS, information on the survey methodology is available in the CDHS reports (NIS, DGH, ORC Macro 2001; NIPH, NIS, ORC Macro 2006; NIS, DGH, ICF International 2011). Sampling design in the CDHS allows for the estimation of indicators at the national level, urban and rural residence levels, and for 19 domains (provinces and groups of province) in Cambodia. Detail sampling methodology of the survey is available in the CDHS reports. In this study, provinces or groups of provinces are further grouped into 5 regions : the capital city of Phnom Penh is considered a region; the Plain region includes the provinces of Kampong Cham, Kandal, Prey Veng, Svay Rieng and Takeo; the Great Lake region includes the provinces of Banteay Mean Chey, Bat Dambang, Kampong Chhnang, Kampong Thom, Pousat and Siem Reap; the Coastal region includes the provinces of Kampot, Koh Kong, Kep City and Preah Sihanouk City; and the Plateau/Mountain region includes the provinces of Kampong Speu, Kratie, Mondol Kiri, Preah Vihear, Rattanak Kiri, Stung Traeng, Otdor Mean Chey, and Pailin City.

2.2 Data and definition:

Contraceptive prevalence is defined as the current use of contraceptive methods by women aged 15-49 years. In the surveys, all eligible women were asked if they currently used (at the time of the survey) any modern or traditional contraceptives methods. In Cambodia the modern methods include the pill, injectables, intra-uterine device (IUD), Norplant, male condom, female condom, lactational amenorrhea (LAM), female sterilization, and male sterilization. Traditional methods include periodic abstinence, withdrawal, and other traditional methods. This study analyzes both modern and traditional contraceptive methods; its emphasis is on the use of modern contraception.

Unmet need is defined as when a woman who is not currently using any method of family planning, wants to stop (limit) or postpone (spacing) childbearing. Women with unmet need for spacing are women who are not currently using a method of contraception, not currently pregnant or are amenorrheic, and are able to bear a child (fecund) but want to delay the next birth for two or more years. This also includes mis-timed pregnancy/last birth or are amenorrheic. Women with unmet need for limiting are women who are not currently using a method of contraception, nor are currently pregnant or are amenorrheic, but are able to bear a child (fecund), and want to stop childbearing. This includes women who have an unwanted pregnancy and want to stop childbearing, or are amenorrheic.

2.3. Analysis:

This study used descriptive methods to present data for all women and women currently in marital unions aged 15-49. The first part of the analysis shows the levels and trends of current contraceptive use for all women and women currently in marital unions; differentials in levels and trends of current use of contraception by selected characteristics for women currently in marital unions, present the overall method of conversion and discontinuation. The second part presents unmet need for family planning among women aged 15-49 by several characteristics, and according to the components of unmet need.

In the 2000 survey, the Lactational Amenorrhea Method (LAM) was classified as a traditional method. However, since 2005 CDHS, LAM is now considered as a modern method. For comparability, in 2000 data LAM is recoded as a modern method so the analysis may be comparable to the definition in the 2005 and 2010 surveys.

The analysis of unmet need for family planning also uses descriptive methodology. All analysis done for women aged 15-49 are grouped into two groups: all women and women currently in marital unions to identify changes in unmet need and its components experienced by both groups. Results on differentials present data on women currently in marital unions only because this group has the highest level of unmet need. The analysis shows the trend by urban or rural residence, by geographic region, and differentials in unmet need by selected demographic and socioeconomic characteristic.

In the analysis non-response rates may have affected the estimates if the rates differed significantly for certain groups of respondents and for specific questions compared to other groups of respondents or questions. However, non-response rates were small and are unlikely to cause any significant bias.

Ethics: This study is based on secondary analysis of existing survey data with all identifying information removed. The survey acquired informed consent from women included in this study before asking any questions.

3. Results

3.1 Characteristics of the study population

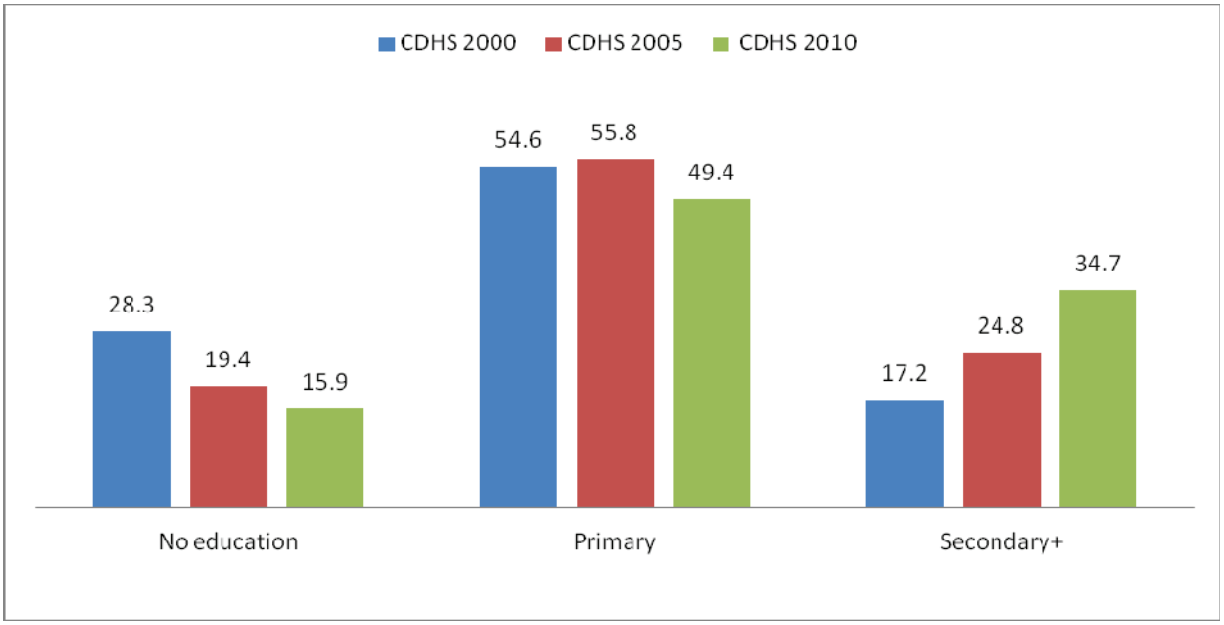
Table 1 presents the distribution of women aged 15-49 by selected background characteristics in 2000, 2005, and 2010. The proportion of women who were in marital unions (defined as married or living together) from 2000 to 2005 increased slightly (59 percent in 2000, 60 percent in 2005 and 62 percent in 2010). The proportion of women who were formerly in union (widowed/divorced/ separated) decreased one percent in each round of the survey. Even though there were fewer women aged 15-19 and more women aged 45-49 in later surveys than the earlier ones, the distribution of women by age group (5 years) was more or less the same (Table 1). More women received education in 2005 and 2010 than in 2000.

Table 1. Sample distribution of women aged 15-49 by selected background characteristics, Cambodia 2000 – 2010

Characteristic	2000	2005	2010
Marital status			
Never in union	31.8	31.8	30.8
Currently in union	59.1	60.0	62.0
Widowed/divorced/separated	9.1	8.2	7.2
Age			
15-19	23.6	21.4	19.9
20-24	12.9	18.1	16.8
25-29	13.8	12.2	17.4
30-34	14.3	12.4	11.6
35-39	14.1	13.3	10.9
40-44	12.0	12.6	12.3
45-49	9.3	10.1	11.2
Education			
No education	28.3	19.4	15.9
Primary	54.6	55.8	49.4
Secondary+	17.2	24.8	34.7
Exposure one or more sources of media[1] at least once per week			
No	70.7	62.2	32.5
Yes	29.3	37.8	67.5
Household wealth			
Lowest	19.9	17.9	18.1
Second	19.0	18.8	18.8
Middle	18.9	19.3	19.2
Fourth	19.0	19.7	20.4
Highest	23.3	24.3	23.6
Residence			
Urban	17.5	17.7	21.0
Rural	82.5	82.3	79.0
Region			
Phnom Penh	10.8	11.3	11.6
Plain	42.3	40.9	38.9
Great lake	29.3	29.3	29.2
Coastal	7.5	7.2	7.1
Plateau/mountainous	10.1	11.3	13.1
Number	15,351	16,823	18,754

Also the proportion of women without education declined and women with secondary or higher education increased. In 2000, less than three in ten women (29 percent) read a newspaper, listened to the radio, or watched television at least once per week (exposure to mass media). This indicator increased to 38 percent in 2005 and to 68 percent in 2010. The distribution by region suggests that the population in Phnom Penh and in Plateau/mountainous regions was relatively slightly higher in 2010 than in 2005 and 2000. Meanwhile, the proportion of population in the Plain region slightly decreased over the years.

Figure 2. Distribution of women aged 15-49 by level of education, Cambodia 2000 - 2010



3.2 Levels and trends of contraceptive prevalence

All women: In 2000 only 14 percent of women aged 15-49 used a family planning method; 11 percent used modern methods and 3 percent used traditional methods. The most commonly used methods were injectables (4 percent) and pill (3 percent). In 2005, 24 percent of women used any method; 16 percent used modern methods and 8 percent used traditional methods. Since 2005, the pill became more popular than injectables. In 2010 the current level of contraceptive use by all women in Cambodia was more than double that of the year 2000 (31 percent versus 14 percent). Current use of modern methods was more than two times that of traditional methods (21 percent versus 9 percent). The pill was the most popular method for all women (10 percent) (Table 2, and Figure 3).

Women currently in marital unions: Current levels of contraceptive use by women currently in marital union has always been higher than that of all women. From 2000 to 2010, the current use of any method increased from 24 percent in 2000, to 40 percent in 2005, and 51 percent in 2010. This increase was the result of the increase in use of both modern methods and traditional methods. Two modern methods (pill and injectables) and one traditional (withdrawal) are the

three most important methods being used by women currently in marital unions in 2010 (Table 2, and Figures 3 and 4).

Table 2. Current use of contraception among women aged 15-49 by marital status and by type of method, Cambodia 2000 – 2010

Contraceptive methods	2000	2005	2010
All Women			
Any Method	14.2	24.1	31.4
Any modern method	11.2	16.4	21.7
Pill	2.7	6.6	9.5
IUD	0.8	1.1	1.9
Injections	4.4	4.7	6.5
Condom	0.6	1.8	1.7
Female sterilization	0.9	1.1	1.5
Male sterilization	0.1	0.1	0.0
Norplant	0.1	0.1	0.3
Lactational amenorrhea	0.2	0.1	0.0
Female condom	Na	Na	0.0
Monthly pill	1.6	0.9	0.2
Other modern method	0.0	0.0	0.0
Any traditional method	3.0	7.7	9.7
periodic abstinence	1.6	2.7	2.4
Withdrawal	1.3	5.0	7.3
other traditional method	0.0	0.1	0.0
Number of women	15,351	16,823	18,754
Women currently in union			
Any Method	23.8	40.0	50.5
Any modern method	18.8	27.2	34.9
Pill	4.5	11.0	15.4
IUD	1.3	1.8	3.1
Injections	7.4	7.9	10.4
Condom	0.9	2.9	2.7
Female sterilization	1.5	1.7	2.4
Male sterilization	0.2	0.1	0.1
Norplant	0.1	0.2	0.4
Lactational amenorrhea	0.3	0.1	0.0
Female condom	Na	Na	0.0
Monthly pill	2.7	1.6	0.4
Other modern method	0.0	0.0	0.0
Any traditional method	5.0	12.9	15.7
periodic abstinence	2.7	4.5	3.9
withdrawal	2.3	8.3	11.7
other traditional method	0.1	0.1	0.1
Number of women	9,071	10,087	11,626

Figure 3. Current use of contraception among all women and women currently in union by type of method, Cambodia 2000 - 2010

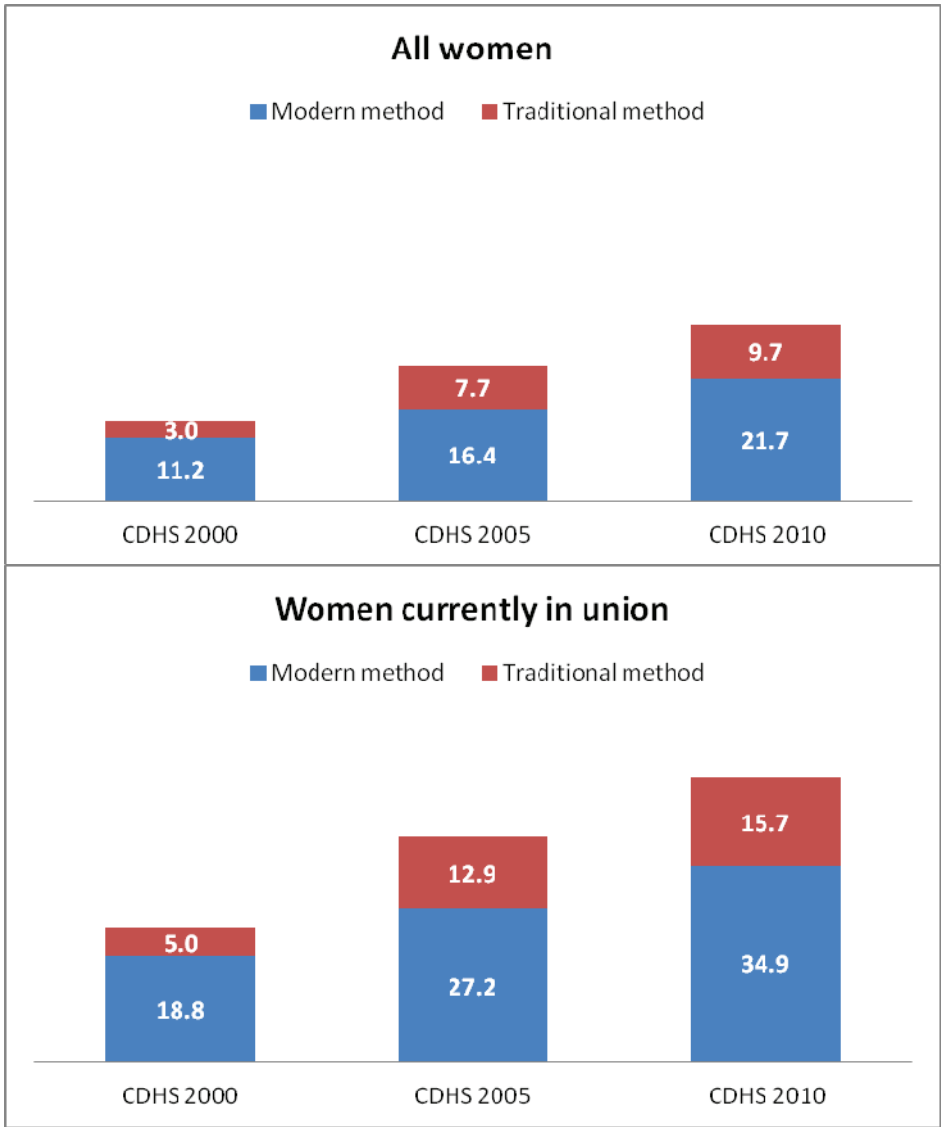
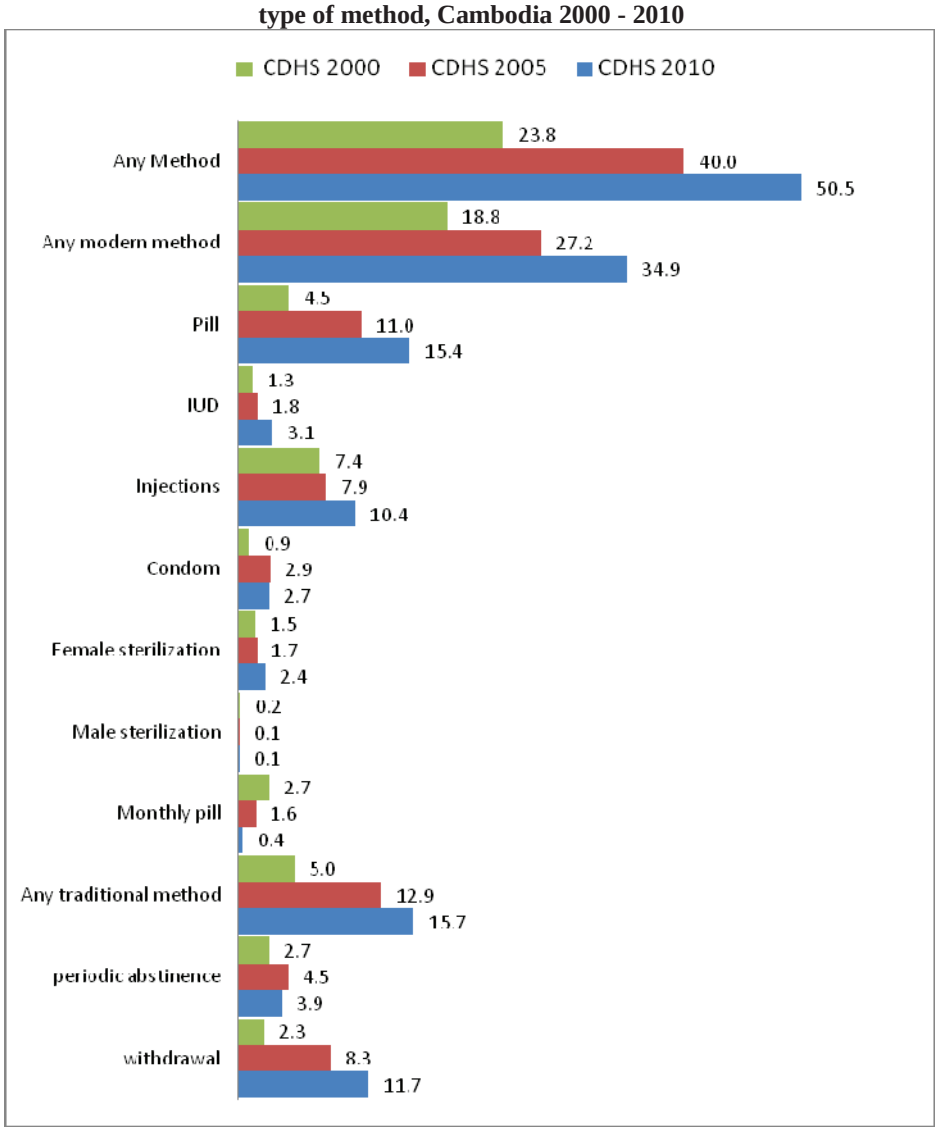


Figure 4. Current use of contraception among women currently in union by type of method, Cambodia 2000 - 2010



3.3 Differential in levels and trends of current use of contraception

Table 3 illustrates the distribution of trends in modern contraceptive use for women currently in marital unions, by selected demographic and socioeconomic characteristics throughout the three surveys. Modern contraceptive prevalence among women currently in marital unions was affected considerably by background characteristics, beginning with age. Generally, women between 20 and 44 years of age were more likely to use a modern contraceptive than women younger than 20 or older than 44. Results by the number of living children show that in all three surveys, modern contraceptive prevalence increased with the number of living children. However, the prevalence sharply increased since the first child, particularly in the 2010 survey.

Table 3. Current use of modern contraception among women aged 15-49 currently in union by selected characteristics, Cambodia

Characteristic	2000	2005	2010
Age			
15-19	7.1	13.7	18.8
20-24	12.4	23.3	31.4
25-29	18.7	30.5	39.1
30-34	23.8	33.4	43.0
35-39	25.5	34.5	45.1
40-44	20.3	28.0	33.7
45-49	7.5	11.9	16.4
Number of living children			
No children	1.4	3.3	3.6
1 child	11.7	21.5	31.4
2 children	19.2	34.2	42.0
3 children	23.6	33.8	42.2
4+ children	22.3	27.7	34.1
Education			
No education	16.2	22.2	33.8
Primary	19.0	27.6	35.6
Secondary+	23.2	31.9	34.2
Exposure one or more sources of media[1] at least once per week			
No	18.3	26.6	34.1
Yes	20.1	28.3	35.3
Household wealth			
Lowest	12.5	22.1	35.2
Second	15.4	25.1	37.0
Middle	20.2	27.3	37.0
Fourth	19.9	28.7	33.9
Highest	25.4	32.3	31.4
Residence			
Urban	23.6	30.6	30.7
Rural	17.9	26.5	35.8
Region			
Phnom Penh	27.4	31.6	29.3
Plain	16.7	27.2	35.5
Great lake	21.3	26.8	35.6
Coastal	20.0	29.1	33.7
Plateau/mountainous	12.1	23.4	36.0
Total	18.8	27.2	34.9
Number	9,071	10,087	11,626

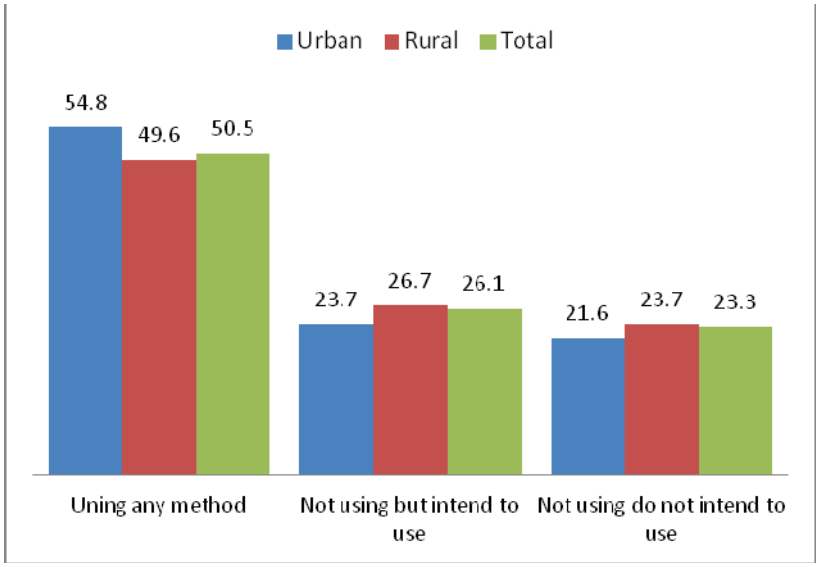
Contraceptive prevalence also increased with a woman's level of education, except in 2010 where contraceptive use among women with different education levels was about the same. Exposure to one or more media sources slightly affected the current use of modern contraception among women in marital unions. Modern contraceptive prevalence increased steadily with the rise in socioeconomic status of the household, represented by the household wealth quintile. However, socioeconomic inequality in modern contraceptive use was not observed in 2010. In 2000, the use of modern methods was 13 percent in the lowest (poorest) wealth quintile and 25 percent in the highest (richest) wealth quintile. It was 22 percent and 32 percent in 2000 and 2005, respectively. Use of modern contraception evolved dramatically by residence. Use of modern methods was higher in urban areas than in rural areas in 2000, and in 2005 the urban/ rural gap narrowed. The urban/ rural difference in use of modern methods reversed in 2010 in favor of rural residences. A similar trend is observed by geographic region. In 2000, women

living in the Phnom Penh region were more likely to use a modern contraceptive than women living in other regions. However, gaps in modern contraceptive prevalence between Phnom Penh and other regions narrowed considerably in 2005. In 2010, the modern contraceptive prevalence in Phnom Penh was lowest compared to other regions.

3.4 Future intention of non users

The survey asked women in marital unions who did not use any contraception, whether they intended to use any contraceptive method in the future. In 2010, about half of the women (51 percent) currently used a family planning method, while the other half (49 percent) did not use any method. Use of any method was slightly higher in urban areas than in rural areas. Among those who were not currently using a contraceptive method (49 percent), more than half of them (26 percent) said that they intended to use a contraceptive method in the future. The rest of them (23 percent) did not plan to use any method (Figure 5). The proportion of non users who intended to use a family planning method in the future was slightly higher in rural areas (27 percent) than in urban areas (24 percent). Proportions of non users who did not intend to use a method in the future by rural and urban residence were 24 percent and 22 percent respectively.

Figure 5. Non-user according to their intention for future use of contraception, by residence, Cambodia 2010



3.5 Method conversion and discontinuation

A large majority of women who used a modern contraceptive method or a traditional contraceptive method was loyal to the type of method that they were using. Only a small proportion of users switched their current method. Out of the 35 percent of women who used a modern contraceptive method, about 2 percent switched from a traditional method. Likewise, out

of 16 percent of women who used a traditional contraceptive method, 2 percent switched to a modern method (Figure 6).

Figure 6. Method conversion, Cambodia 2010

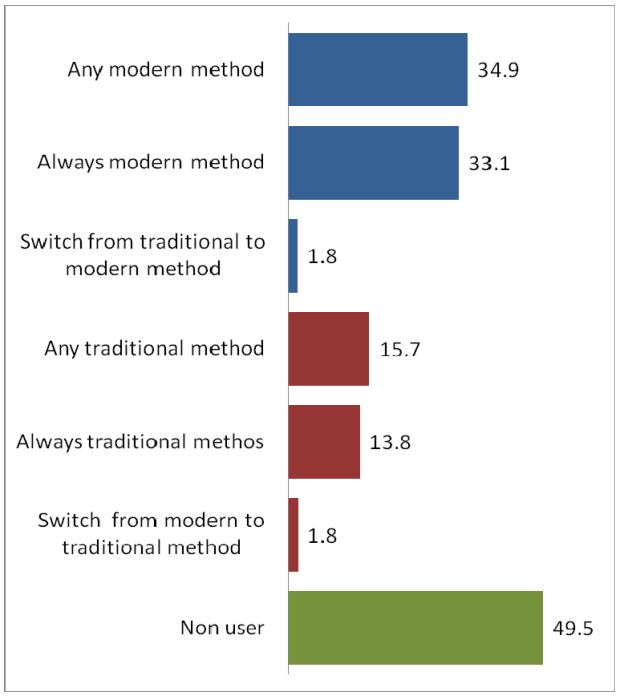
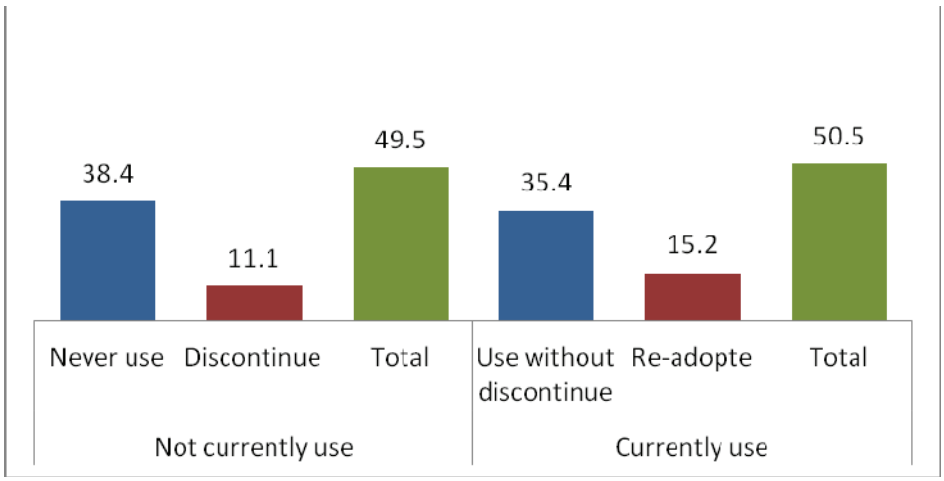


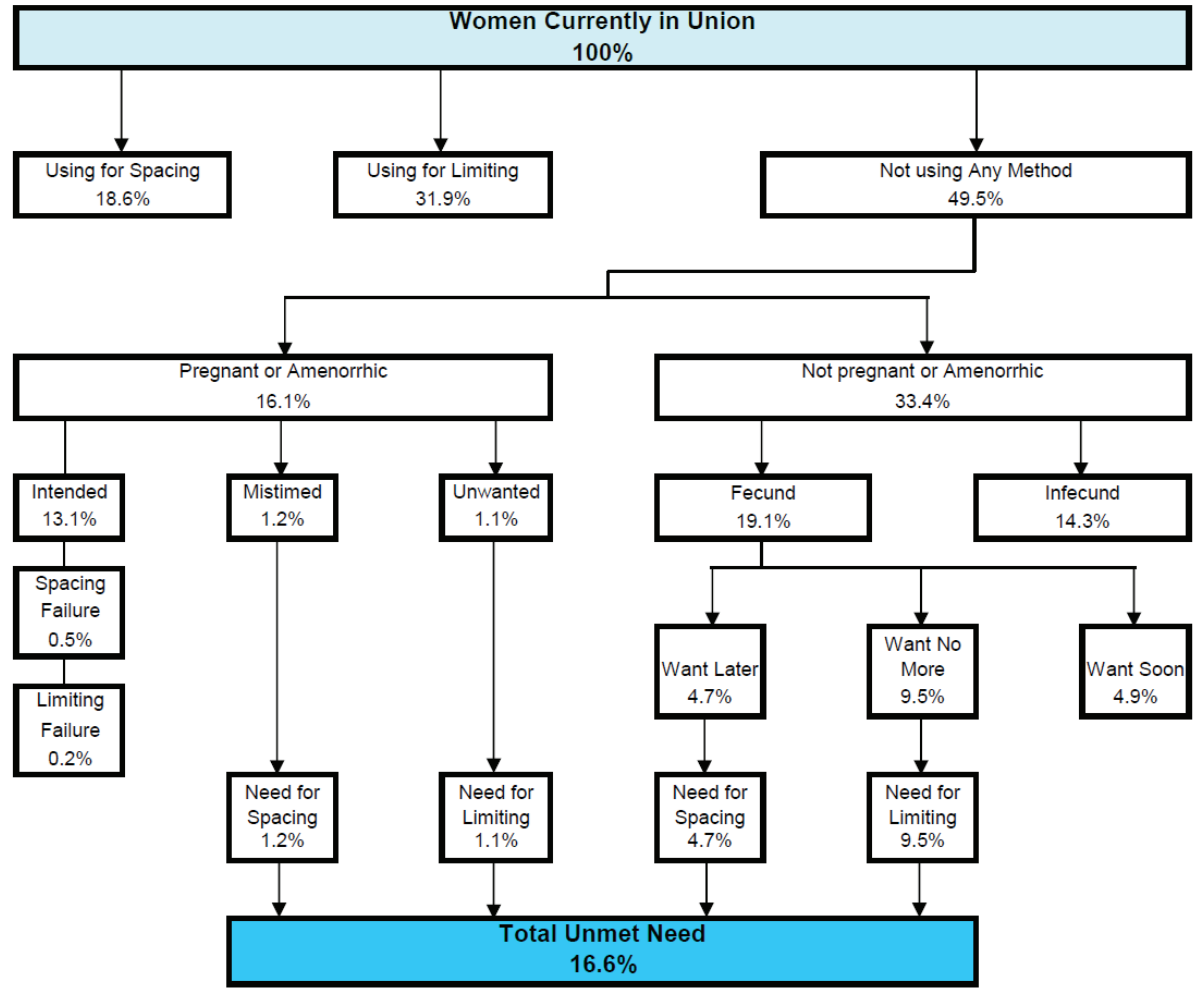
Figure 7. Method discontinuation and re-adoption, Cambodia 2010



Analysis of the family planning discontinuation reveals that among 49 percent of women who did not currently use any method, 38 percent had never used any method and 11 percent had used a method before, but had discontinued it were not using any method at the time of interview. Among 51 percent of women who were currently using a contraceptive method, 35 percent used contraception regularly without discontinuation, and 15 percent used a method before but had then discontinued it, only to re-adopt and begin using a method at the time of interview.

3.6 Estimate unmet need for family planning

Figure 8. Unmet need for family planning for women currently in union, Cambodia 2010



Unmet need for family planning is the percentage of women who are not currently using a family planning method and who want to postpone (space) or stop (limit) their childbearing. A women who has an unmet need for spacing if she does not use a method and either (1) is pregnant or amenorrhic and mistimed that pregnancy or (2) is not pregnant or amenorrhic, is fecund, and wants to wait at least two years to become pregnant. A women who has an unmet need for limiting if she does not use a method and either (1) is pregnant or amenorrhic and does not want that pregnancy or (2) is not pregnant or amenorrhic, is fecund, and wants to stop childbearing. Figure 8 illustrates the definition and the levels of unmet need for family planning for women currently in marital unions in Cambodia in 2010.

The sum of the total unmet need and total current use is the total demand for family planning. Total demand satisfied is the percentage of the total current use of the total demand. The unmet need for modern contraceptive methods is the sum of total unmet need and the percentage using traditional methods (Westoff, 2006). The percent of total demand satisfied by modern methods is calculated by dividing the current use of modern methods by the total demand.

3.7 Levels and trends of unmet need in family planning

Figure 9. Unmet need, Cambodia 2000 - 2010

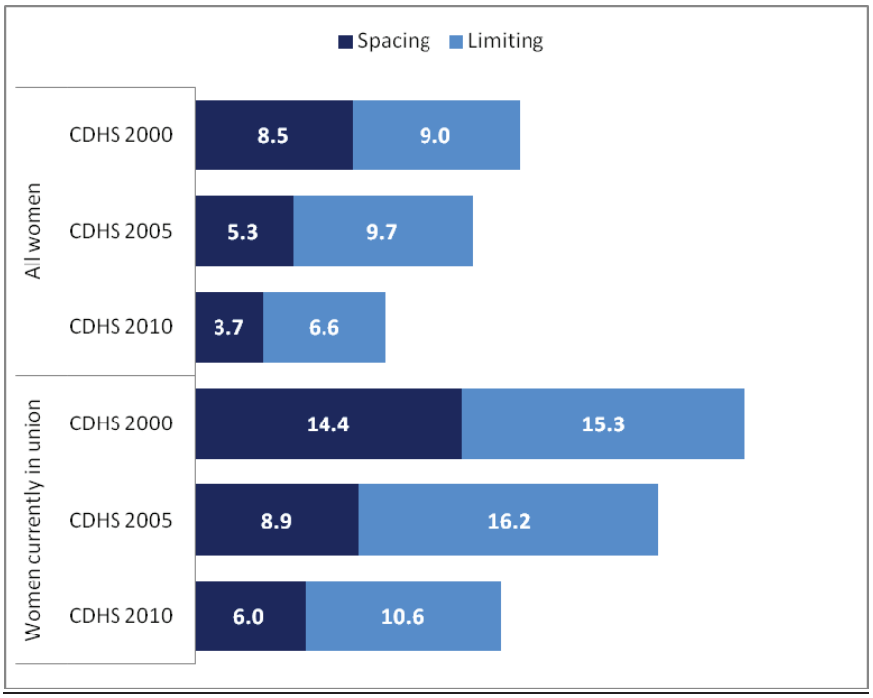


Table 4 shows trends of unmet need and other components for all women and women currently in marital unions. For both groups of women, the level of unmet need was highest in 2000 (18 percent for all women) and 30 percent for women currently in union (Table 4). The level of unmet need declined steadily over time among both groups of women. Among women currently in marital unions, this level declined from 30 percent in 2000 to 25 percent in 2005 and to 17

percent in 2010. Among all women, unmet need declined from 18 percent in 2000 to 15 percent in 2005 and to 10 percent in 2010. These declines in unmet need were steady and similar in unmet need for spacing and unmet need for limiting among both groups of women (Table 4 and Figure 9).

Unmet need for limiting was always greater than unmet need for spacing, in any group of women and in all three rounds of the survey. Unmet need for limiting among women currently in marital unions between 2000 and 2005 was about the same (15 percent and 16 percent respectively). Among those women, unmet need for limiting decreased to 11 percent in 2010. Unmet need for spacing among women currently in marital unions decreased more sharply, from 14 percent in 2000, to 9 percent in 2005, and 6 percent in 2010. The trend of unmet need for limiting and for spacing among all women followed the same pattern of women currently in marital unions. Among this group, unmet need for limiting did not change very much between 2000 and 2005 (9 percent and 10 percent respectively; and further decreased to 7 percent in 2010. Unmet need for spacing decreased from 9 percent to 5 percent between 2000 and 2005, then to 4 percent in 2010.

Table 4. Unmet need and the demand for family planning among all women and women currently in union, by year, Cambodia 2000-2010

	Unmet need			Current use								
Year	Total	Spacing	Limiting	Total	Spacing	Limiting	Total demand	% total demand satisfied	Unmet need modern methods	Using modern methods	% total demand satisfied by modern methods	Number
All women												
2000	17.6	8.5	9.0	14.2	5.6	8.6	31.8	44.7	20.6	11.2	35.3	15,348
2005	15.0	5.3	9.7	24.1	7.8	16.4	39.2	61.6	22.8	16.4	41.9	16,823
2010	10.3	3.7	6.6	31.4	11.6	19.9	41.7	75.3	20.0	21.7	52.0	18,754
Women currently in union												
2000	29.7	14.4	15.3	23.8	9.4	14.4	53.5	44.5	34.7	18.8	35.1	9,071
2005	25.1	8.9	16.2	40.0	12.9	27.1	65.1	61.5	37.9	27.2	41.7	10,087
2010	16.6	6.0	10.6	50.5	18.6	31.9	67.1	75.3	32.2	34.9	52.0	11,626

Contraceptive use among all women was lower than among women currently in marital unions. Contraceptive use increased from 2000 to 2010 in both groups of women. Contraceptive use for birth limiting was always higher than the use for birth spacing in any given period and in both groups of women. Total demand for family planning increased steadily over time in both groups. Total demand for family planning in 2010 was 42 percent among all women and 67 percent among women currently in marital unions. From 2000 to 2010, the percentage of total demand satisfied increased in both groups of women. The percentage of total demand satisfied in 2010 was 75 percent among all women and among women currently in marital unions.

Unmet need for modern methods in 2010 was 20 percent for all women and 32 percent for women currently in marital unions. In both groups of women, unmet need for modern methods slightly increased from 2000 to 2005. However, in 2010, it dropped to the 2000 level or lower.

Uses of modern methods increased steadily in both groups of women, which corresponded to the parallel increase in the percent of total demand satisfied by modern methods (Table 4).

Table 5 presents current use of a method by urban-rural residence. In rural area, contraceptive use for spacing and limiting increased steadily from 2000 to 2010. In urban area, the increase in contraceptive use for spacing was slow between 2000 and 2005 (14 percent to 15 percent respectively, but increase sharply in 2010 (22 percent). The use for limiting increased substantially from 2000 to 2005 (19 percent to 35 percent respectively), but had slightly declined in 2010 (33 percent).

In urban areas, the total unmet need for spacing decreased steadily over time, whereas the unmet need for limiting was stalled between 2000 and 2005 (12 percent and 13 percent respectively), before decreased in 2010 (7 percent). A similar trend is observed for unmet need for spacing and for limiting in rural areas. The total demand satisfied also increased steadily over time in both urban and rural areas. However the percent of total demand satisfied was higher in urban areas than in rural areas at anytime.

Table 5. Trends of unmet need among women currently in union, by residence, Cambodia 2000-2010

	Year		
Residence	2000	2005	2010
Unmet need			
Total	***29.7***	***25.1***	***16.6***
Urban	25.2	21.8	11.6
Rural	30.5	25.7	17.6
Spacing	***14.4***	***8.9***	***6.0***
Urban	12.8	8.5	4.2
Rural	14.8	9.0	6.3
Limiting	***15.3***	***16.2***	***10.6***
Urban	12.4	13.3	7.4
Rural	15.8	16.7	11.3
Current use			
Total	***23.8***	***40.0***	***50.5***
Urban	32.7	49.5	54.8
Rural	22.2	38.3	49.6
Spacing	***9.4***	***12.9***	***18.6***
Urban	13.5	14.9	22.0
Rural	8.7	12.5	17.9
Limiting	***14.4***	***27.1***	***31.9***
Urban	19.2	34.6	32.8
Rural	13.5	25.7	31.7
Total demand satisfied			
Total	***44.5***	***61.5***	***75.3***
Urban	56.5	69.4	82.6
Rural	42.1	59.8	73.8

3.8. Differentials in unmet need for family planning

Table 6. Differentials in unmet need for contraception among women currently in union, Cambodia 2010

Characteristic	Percent with unmet need: For spacing	For limiting	Total	Number
Number of living children				
0	6.8	0.3	7.0	860
1	12.6	3.3	15.8	2,388
2	7.1	7.3	14.4	3,016
3	3.5	12.9	16.4	2,208
4+	1.4	20.5	21.9	3,154
Age				
15-19	13.9	1.3	15.3	382
20-24	12.8	3.5	16.3	1,679
25-29	9.5	6.0	15.4	2,572
30-34	5.9	9.1	15.0	1,811
35-39	2.5	13.4	15.8	1,747
40-44	1.4	17.2	18.6	1,861
45-49	0.4	18.8	19.2	1,574
Education				
No education	5.1	12.4	17.4	2,221
Primary	6.2	11.6	17.7	6,489
Secondary +	6.2	7.1	13.3	2,917
Household wealth				
Lowest	7.2	13.3	20.5	2,299
Second	7.4	12.0	19.3	2,347
Middle	6.0	10.4	16.3	2,296
Fourth	5.2	9.7	14.9	2,319
Highest	4.2	7.7	11.8	2,364
Residence				
Urban	4.2	7.4	11.6	2,069
Rural	6.3	11.3	17.6	9,557
Region				
Phnom Penh	3.4	6.2	9.6	1,099
Plain	6.0	10.9	16.9	4,765
Great lake	5.9	11.2	17.2	3,332
Coastal	6.8	10.9	17.7	833
Plateau/mountainous	7.1	11.3	18.3	1,597
Total	6.0	10.6	16.6	11,626

In 2010, women aged 15-49 who were currently in a marital union, were more likely to have an unmet need for limiting (11 percent) than for spacing (6 percent) (Table 6). Unmet need for limiting was more common among women who were older, had three or more children, had a primary education or less, lived in a rural area, and who lived in households in the middle or lower wealth index quintiles. Women who lived in the city of Phnom Penh were less likely to

have an unmet need for limiting than other women. Unmet need for spacing was more commonly observed among women who had only one child and who were younger than 25 years of age. Unmet need for spacing was less likely to be observed among women who lived in households of the highest wealth index quintile, in urban areas, and in the city of Phnom Penh. Total unmet need was highest among women who had 4 or more children, were aged 40-49, had a primary education or less, lived in a household of lowest wealth index quintile, and who lived in rural areas and in the Coastal and Plateau/mountainous regions.

4. Discussion and Recommendations

Reducing maternal mortality and early childhood mortality is one of the Millennium Development Goals. The Ministry of Health (MOH) has identified Reproductive, Maternal, Newborn and Child Health (RNMCH) as ones of its first prioritized programs in the health sector. It had developed a number of health policies, strategies, guidelines, and protocols targeting components of the RNMCH program. Priorities and activities have been implemented in the public and private health sectors with financial and technical support from the government and donors. Family planning is one of the seven critical interventions in the fast track initiative road map that the MOH implemented in 2010. Modern contraceptive prevalence (CPR) consistently increased during the study period, reflecting the policies and efforts of the Cambodian government and donor community. At the same time, the total unmet need for family planning declined from 30 percent in 2000, to 25 percent in 2005, and 17 percent in 2010.

A steady increase in the CPR corresponds to a consistent decline in the total fertility rate (TFR) in Cambodia during the same period: from 4.0 children per woman in 2000, to 3.4 children per woman in 2005, and 3.0 children per woman in 2010. This inverse relationship between CPR and TFR found in Cambodia is consistent with findings from studies that have been demonstrated elsewhere (Mturi A, Joshua K 2011; Saha UR, Bairagi R 2007; Ahman EL, Shah IH 2006). Similar to women in some countries in the region or in some African countries, Cambodian women, who used a modern contraception, preferred pills and injectables to other modern methods (Statistics Indonesia (Badan Pusat Statistik—BPS), Macro International 2008; National Institute of Population Research and Training (NIPORT), Mitra and Associates, ICF International 2013; Institut de Statistiques et d'Études Économiques du Burundi (ISTEEBU), Ministère de la Santé Publique et de la Lutte contre le Sida [Burundi] (MSPLS), ICF International 2012; National Institute of Statistics of Rwanda (NISR) [Rwanda], Ministry of Health (MOH) [Rwanda], ICF International 2012). The association of higher CPR with at least a child (particularly in 2005 and 2010) and not necessarily only with those who had a higher number of children (four children or more) coupled with the desired fertility of 2.6 children (National Institute of Statistics (NIS), Directorate General for Health (DGH), ICF International 2011); demonstrated the optimal use of family planning, to combine spacing and limiting childbearing rather than just to limiting it. Inequality (by level of education, wealth index quintile, urban-rural, and region) of CPR that was observed in 2000 and 2005 had essentially disappeared or reversed direction in 2010. This may indicate a broader expansion and more affordability of the services as well as a break in socioeconomic barriers to using services (in this case; modern contraception). Contraception users are loyal to the type of methods they are using as this was demonstrated by the small proportion of women who switched their methods from modern to traditional and vice versa.

However this analysis reveals two areas for possible program improvement. Given the fact that (1) half of the women who are not currently using a contraceptive method, plan to use one in the future and (2) more than one in five women who are not currently using any method, discontinued using them for one reason or another: this gives the opportunity for the program to improve its coverage. Further studies are needed to understand the characteristics, needs, and method preference of these women. In the meantime, the program should continue to improve

the knowledge, attitudes and behavior change of non-users, towards birth spacing programs. Policy makers should focus more on the additional activities and support by increasing family planning services and availability of birth spacing commodities, to reach women who are likely to have less education, live far from public facilities and may have difficulty reaching family planning services because of their financial barriers and fears on possible side effects.

Unmet need for family planning has declined consistently over the past ten years. Total demand satisfied (particularly by modern methods of contraception) continues to increase substantially, while the increase in total demand slowed down to a near stall, and unmet need for modern methods declined. These trends indicate a strong impact of the program on women's reproductive health. It is worth mentioning that the decline in unmet need for spacing was more pronounced than that of the unmet need for limiting; while the demand for limiting childbearing surpassed that for spacing. This could be an indication for the need to focus and emphasize on permanent methods not only for women but for their spouses as well.

In response to this finding, the family planning program should continue to expand its health education in order to provide more information about birth spacing and limiting methods through the media or through campaigns to reach the above-mentioned women's group (those who want to stop or space child bearing and who do not use any contraceptive methods), who live in the rural areas and have difficulty in getting information about contraceptive method. Additionally, unmet need was also high among the population in the Plateau/mountainous regions, where those people were likely ethnic groups who may have had a language barrier and who live far from public health facilities. This would necessitate an outreach program for family planning which could cooperate with local people to facilitate the language barrier.

Unmet need for limiting was more common among women who were older, and who had three or more children. Women who became pregnant over age 40 were more likely to face risks associated with pregnancy, including genetic disorders, stillbirths, miscarriages, diabetes, and high-blood pressure. For the time being, the permanent family planning methods (female and male sterilization) are not widely available at the primary health care facilities and the knowledge of male sterilization is very limited compared to that of female sterilization. We therefore recommend that more counseling for women by health workers on male sterilization, will strengthen and increase their awareness on spousal participation on limiting childbearing, improve service availability at all primary health care facilities and will ultimately improve and promote access to services at public health facilities.

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