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# Factors influencing contraceptive use among women in Afghanistan: secondary analysis of the Afghanistan health survey 2012

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### ABSTRACT

The increase in contraceptive use in Afghanistan has been frustratingly slow from 7.0% in 2003 to 11.3% in 2012. Data on contraceptive use and influencing factors were obtained from Afghanistan Health Survey (AHS) 2012, which had been collected through interview-led questionnaire from 13,654 current married women aged 12–49 years. Odds ratio (OR) and 95% confidence interval (CI) of contraceptive use were estimated by logistic regression analysis. When adjusted for age, residence, region, education, media, and wealth index, significant OR was obtained for parity (OR of 6 or more children relative to 1 child was 3.45, and the 95%CI 2.54–4.69), number of living sons (OR of 5 or more sons relative to no son was 2.48, and the 95%CI 1.86–3.29), wealth index (OR of the richest households relative to the poorest households was 2.14, and the 95%CI 1.72–2.67), antenatal care attendance (OR relative to no attendance was 2.13, and the 95%CI 1.74–2.62), education (OR of secondary education or above relative to no education was 1.62, and the 95%CI 1.26–2.08), media exposure (OR of at least some exposure to electronic media relative to no exposure was 1.15, and the 95%CI 1.01–1.30), and child mortality experience (OR was 0.88, and the 95%CI 0.77–0.99), as well as age, residence (rural/urban), and region. This secondary analysis based on AHS 2012 showed the findings similar to those from the previous studies in other developing countries. Although the unique situation in Afghanistan should be considered to promote contraceptive use, the background may be common among the areas with low contraceptive use.

Key Words: contraceptive use, family planning, married women, Afghanistan.

### INTRODUCTION

It is estimated that globally 222 million women in developing countries would like to delay or stop childbearing but do not use any method of contraception. The main reasons for this disparity include limited choice of methods, limited access to contraception, fear or experience of side effects, cultural or religious opposition, poor quality of available services, and gender-based barriers.<sup>1)</sup> As a result, 21 million unsafe abortions are carried out every year, mostly in developing countries. This shocking figure causes 47,000 maternal deaths annually. Many of these

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deaths could be prevented if information on family planning and contraceptives was available and put into practice.<sup>1)</sup> Promotion of contraception and ensuring access to contraceptive methods for women and couples is essential to securing the well-being and autonomy of women, while supporting the health and development of communities. Contraception has direct health benefits on maternal and child health such as prevention of unintended pregnancy and subsequent decreased maternal mortality and morbidity. Women with unintended pregnancies that are continued to term are more likely to receive inadequate or delayed prenatal care and have poorer health outcomes than women with planned pregnancies, such as low infant birth weight, and higher infant and maternal mortality and morbidity.<sup>1)</sup>

Decades of conflict and political uncertainty in Afghanistan virtually ruined all sectors of the country, and Afghanistan's health sector has widely suffered from the country's unstable situation. Access to basic healthcare services and hospital services were almost inconceivably limited. After establishment of the transitional government in 2001, the Ministry of Public Health (MoPH) decided to increase equitable distribution of healthcare services throughout the country. Therefore, the MoPH introduced a comprehensive strategic package: the Basic Package of Health Services (BPHS). The main purpose of the BPHS is to provide a standardized package for delivering basic healthcare with greater focus on reproductive and child healthcare services. Fortunately, introduction of this package has considerably increased coverage and accessibility. Later on in 2005, another package was introduced as complementary to BPHS: the Essential Package of Hospital Services (EPHS). In a general sense, the BPHS provides primary healthcare services throughout the country while EPHS covers secondary and tertiary healthcare services. However, they are interrelated through district hospitals.

The MoPH of Afghanistan made considerable achievements in terms of healthcare services distribution and coverage by implementing the BPHS and EPHS. For instance, to compare trends in maternal and child health coverage over time in Afghanistan, antenatal care coverage has been generally increasing since 2003, when it was 9%, while the most recent estimate for rural Afghanistan was 48.5%. In the same way, skilled birth attendance and institutional deliveries were both rising from 9.0% and 6.0% to 40.5% and 32.4% respectively, but the level of contraceptive prevalence remained very low, with only 11.3% of rural women using modern contraception in 2012.<sup>2,3)</sup> This is despite family planning services, including counseling on various methods of contraception and distribution of modern methods (condom, oral pill, injection, intrauterine devices and female sterilization), have been provided free of charge by most BPHS and EPHS health facilities since 2003. At the same time, family planning continues to be a priority for the MoPH, with objectives of gradually reducing the population growth rate, promoting the concept of a small family norm to the population in general and the rural population in particular, increasing the availability of and demand for family planning services, providing quality care of family planning services, reducing unmet need, expanding and sustaining adequate family planning services at the community level by utilizing all health facilities, and encouraging the private sector and NGOs to promote family services.<sup>4,5)</sup> Despite to all these efforts in the last decade, Afghanistan still has the lowest contraceptive prevalence rate compared to other countries in the region such as Pakistan, Iran, Bangladesh, and India. This low rate of contraception is also one of the leading causes of Afghanistan's fertility rate (5.2 per women) the highest in southern Asia.<sup>6)</sup> This high fertility will have an impact on rapid population growth and overall socio-economic development of the country in general, and maternal and child health in particular.

In the last two decades, studies in developing countries have shown that contraceptive use is influenced by various factors. A number of these factors include demographic characteristics, economic factors, religious beliefs, and knowledge of contraception. Other factors are social factors such as education of couples, gender preference among children, the quality of the

information given by health professionals, family planning service and supply variables, influence of mass media, extent of communication between husbands and wives on family planning, and reproductive factors.<sup>7-16)</sup>

In order to increase the level of contraceptive use and accelerate fertility decline in Afghanistan it is necessary to understand what socio-economic, demographic and reproductive factors significantly influence contraceptive use there. Therefore, assessment of the various socio-economic, demographic and reproductive variables that contribute to contraceptive use is essential for promoting that use and lowering the birth rate. This study aim is to examine the factors affecting contraceptive use among women in Afghanistan, using the dataset collected by Afghanistan Health Survey (AHS) 2012.

## MATERIALS AND METHODS

### *Data Source*

This is a secondary analysis of the AHS 2012. The survey was conducted from July to December 2012 by a team from the Monitoring and Evaluation Department of the Ministry of Public Health of Afghanistan, Johns Hopkins University (JHU), and the Indian Institute of Health Management Research (IIHMR). The AHS 2012 is a national representative survey that provides information on maternal and child health, family planning, child survival, health care utilization, and health-related expenditures in Afghanistan through a set of 16 indicators identified by MoPH of Afghanistan. The AHS 2012 covered 12,137-sampled households across 34 provinces of Afghanistan. In this survey, the data for 14,551 married women aged 12–49 years were sampled from 12,137 households. For this study, currently pregnant women (n=445), divorced women (n=17) and widowed women (n=435) were excluded from data set bringing the total subjects for analysis to 13,654. The ethical approval for this survey was obtained from both Institutional Review Board (IRB) of MoPH and the Committee for Human Subjects Research (CHR) at JHU. The data collection methods are noted in detail in the AHS 2012 report.<sup>3)</sup>

### *Description of variables*

The dependent variable for this analysis was modern contraceptive use. As per the AHS 2012 women's questionnaire, modern contraceptive methods were defined as use of the pill, contraceptive injection, condom, intrauterine devices (IUD), and female sterilization. Women were asked the question: Are you currently doing something or using any method to delay or avoid getting pregnant? If a woman reported that she was using any method, she was coded 1 and 0 for otherwise. The independent variables were selected for inclusion in the analysis based on their significance in previous studies of contraceptive behavior or on their hypothesized association with contraceptive use. These variables were grouped into three categories: demographic, socioeconomic, and reproductive. To make analysis and interpretation simpler and more meaningful, a number of variables were regrouped from their original categories in the dataset. The demographic variables included in the study were age of the participants at the time of survey, parity, number of living children, place of residence and region. Three categorical variables, women education, media exposure and wealth status, were included in the study as socioeconomic variables. As per the AHS 2012 women's questionnaire, information for exposure to electronic media (Radio and Television) was collected. Women were asked two questions: first, how often do you listen to the radio? Second, how often do you watch television? They were given the following four options for both questions: almost every day, at least once a week, less than once a week, not at all. Two binary reproductive variables, child mortality and antenatal care (ANC) visit were

included in the study.

#### *Data analysis*

Two approaches were used in the data analysis. Descriptive tabulation was performed to inspect the frequency distributions of variables among the subjects and logistic regression was used to examine the influence of demographic, socioeconomic and reproductive factors on contraceptive use. The results of logistic regression analysis are given as odds ratio (OR), 95% confidence interval (CI) and p-values to assess the relative importance of the selected variables. Comparisons and associations were considered statistically significant when the p-value was less than 0.05. STATA 12 was used for data management and analysis.

## RESULTS

Table 1 provides background characteristics and frequency distribution of contraceptive use among married women aged 12–49 years by socio-economic, demographic and reproductive variables. The highest percentage (20.6%) of responders were women aged 25 to 29 years, followed by women aged 20 to 24 years at 19.3%. However, the smallest segment was the age group of women less than 20 years old (7.0%). The majority of respondents (92.7%) resided in rural areas, while only 7.3% of interviewed women were residents of urban areas. The highest proportions of women were represented by the north and central regions (22.5% and 19.0% respectively), while the lowest proportions were found in the south and west regions (7.2%). Most of the respondents (92.0%) had no formal education, while 3.7% had primary level education only, and 4.3% had attained secondary level education or higher. By wealth status, more than 50% of women belonged to the two poorest wealth categories, although a low proportion, 9.2% and 10.7% respectively, belonged to the fourth and fifth highest wealth categories. The majority of women (91.1%) had at least one or more pregnancy, but 8.8% had never been pregnant at the time of the survey. Among women who had ever given birth, 73.2% of them had not experienced child mortality and the remaining (26.8%) had a history of child mortality. More than half of women (53.6%) had attended antenatal care for pregnancies in the last two years, and 42.4% had not attend antenatal care for their last pregnancy.

A total of 1,773 (13.0%) of currently married women aged 12–49 years were using modern contraceptive methods. Contraceptive use was significantly associated with woman's age, rising with each successive age group until to 40–44 age group. The proportion of women in this age group using modern contraceptive methods was 4.5 times higher than 20–24 age group. Urban residence was associated with increased use of at least one modern contraceptive method. Contraceptive use is high in the south and central highland regions, 30.3% and 22.1%, respectively, and was lowest in the northeast region at 5.4%. The percentage of women using any method of contraception was associated with women's education; it rises from 12.7% among those with no education to 15.2% and 17.8% respectively among women with primary and secondary or higher education. Contraceptive use was also increased by mass media (radio and TV) exposure. It was high among women who had at least some exposure to media compared to those who did not have exposure to media (15.1% versus 10.0%). There were significant differences in contraceptive use among women belong to lowest, second, or middle wealth quintiles (9.4%, 11.5%, and 14.1%, respectively) compared to those living in households in the richest wealth quintile (24.9%). Parity also influenced contraceptive use among currently married women. The contraceptive use was 5.3% among women with 1 birth while rising to 10.0% among women with 2–3 births, 14.7% among women with 4–5 births and 18.8% among women with 6 or above births. In the same

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**Table 1** Background Characteristics and Frequency distribution of contraceptive use among married women aged 12–49 years by socio-economic, demographic and reproductive variables (n=13,654)

Variables	Subjects Number (%)	Contraceptive use Number (%)	P-Value
<i>Age</i>			
<20	959 (7.0)	30 (3.1)	<0.001
20–24	2,638 (19.3)	190 (7.2)	
25–29	2,814 (20.6)	309 (10.9)	
30–34	2,027 (14.8)	343 (16.9)	
35–39	2,011 (14.7)	357 (17.8)	
40–44	1,568 (11.5)	315 (20.1)	
45–49	1,637 (12.0)	230 (14.1)	
<i>Residence</i>			
Urban	991 (7.3)	292 (29.5)	<0.001
Rural	12,663 (92.7)	1,481 (11.7)	
<i>Region</i>			
Central	2,652 (19.4)	299 (11.3)	<0.001
Central Highlands	1,357 (9.9)	301 (22.1)	
East	1,081 (7.9)	77 (7.1)	
North	3,078 (22.5)	364 (11.8)	
Northeast	2,411 (17.7)	131 (5.4)	
South	980 (7.2)	297 (30.3)	
Southeast	1,147 (8.4)	147 (12.8)	
West	948 (7.2)	157 (16.5)	
<i>Education</i>			
Non	12,558 (92.0)	1,591 (12.7)	
Primary	506 (3.7)	77 (15.2)	
Secondary or higher	590 (4.3)	105 (17.8)	
<i>Media</i>			
No exposure	7,385 (54.1)	761 (10.3)	<0.001
At least some exposure	6,269 (45.9)	1,012 (16.1)	
<i>Wealth categories</i>			
Poorest	5,377 (39.4)	504 (9.4)	<0.001
Second	3,202 (23.5)	368 (11.5)	
Third	2,361 (17.3)	334 (14.1)	
Fourth	1,260 (9.2)	205 (16.3)	
Richest	1,454 (10.7)	362 (24.9)	
<i>Parity<sup>a</sup></i> (n=12,452)			
1	1,334 (10.7)	71 (5.3)	<0.001
2–3	3,052 (24.5)	313 (10.3)	
4–5	3,011 (24.2)	414 (14.7)	
6 or over	5,055 (40.6)	944 (18.8)	
<i>Number of living sons<sup>b</sup></i> (n=12,186)			
0	2,009 (16.5)	199 (9.9)	<0.001
1–2	6,541 (53.7)	931 (14.2)	
3–4	3,005 (24.5)	528 (17.8)	
5 or more	631 (5.2)	104 (16.5)	
<i>Child mortality experience<sup>b</sup></i> (n=12,452)			
No	9,116 (73.2)	1,282 (14.1)	0.549
Yes	3,336 (26.8)	485 (14.6)	
<i>ANC for preg. in last two years<sup>c</sup></i> (n=5,581)			
No	2,587 (46.4)	156 (0.1)	
Yes	2,994 (53.6)	444 (15.0)	

a) 1,202 women who have never given birth excluded.

b) 1,202 women who have never given birth and 266 women whose children do not live with them excluded.

c) 8,070 women who did not have pregnancy in two years prior to the survey have been excluded.

way contraceptive use increased with rising numbers of living sons and daughters. Finally, ANC attendance for pregnancies in the last two-years was associated with increased contraceptive use, but there was no association between child mortality experience and contraceptive use.

The OR and 95% CI of modern contraceptive use for 11 selected factors are listed in Table 2. Almost all unadjusted ORs were found to be statistically significant, excepting only child mortality experience. In multivariate logistic regression analysis, when the ORs were adjusted for all variables statistically significant associations of demographic, socioeconomic, reproductive factors with contraceptive use were found, except for residence in the east region and number of living daughters. Women in age groups 20–24 and 25–29 were respectively 3.03 and 5.40 times more likely to use contraceptives than women in the age group of less than 20. Similarly, the ORs for women in age groups 30–34, 35–39, and 40–44 were increased by 9.10, 10.14, and 11.43 times respectively compared to women in age group less than 20; however; OR decreased to 7.50 in women of age group 45–49. Place of residence indicated that women who lived in urban areas were more likely to use contraceptives than those reside in rural areas, with the adjusted OR of women in urban areas using a modern contraceptive method being 1.69 times greater than OR of women in rural areas. Region had a significant association with use of contraceptives after adjustment. Women who lived in the central highland and south regions had the highest ORs (OR=3.20 and 3.28 respectively compared to the central region); the west, north and southeast regions had the third, fourth and fifth highest ORs relative to the central region (OR=1.84, 1.55, and 1.39, respectively). However, women who lived in the northeast and east regions were less likely to use contraceptives than their counterparts in the central region. As expected, women with a primary education were 1.43 times more likely to use contraception than those with no education, and women with a secondary education or higher were 1.62 times more likely to use contraceptives than women with no education. Media exposure also figured prominently in use of contraception. Those women who had at least some exposure to media were 1.15 times more likely to use contraceptives than women with no exposure to media. As expected, wealth status also influenced the use of contraceptives. The women who lived in the richest household were 2 times more likely to use contraceptives than women who resided in poor households. Similarly the OR of women living in the fourth, third and second categories were 1.82, 1.72, and 1.34 times respectively greater than that of women in poor category. Also as hypothesized, parity strongly influenced women's contraceptive use. Women with 6 or more pregnancies were 3 times more likely to use contraceptives relative to women with 1 child. In the same way, the ORs of women with 4–5 and 2–3 children were two times greater than that of women with 1 child. The multivariate analysis implied that the OR increased with the number of living sons; women with 1–2 sons are 1.64 times more likely to use contraceptives than women with no sons; similarly, women with 3–4 sons and women with 5 or more sons were two times more likely to use contraceptives than women in the reference category. Conversely, the number of living daughters had a significant negative statistical effect on the use of contraceptives, with an inverse relationship between the number of living daughters a woman had, and the number who used contraception. The analysis also showed that there was a significant association between child mortality experience and contraceptive use. Finally, contraceptive use was passively influenced by ANC attendance: OR for contraceptive use among women who attended ANC was 2.13 greater than that of women did not attend ANC.

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**Table 2** Unadjusted and adjusted odds ratio (OR) of selected explanatory factors of contraceptive use among women in Afghanistan.

Variables	Unadjusted OR (95%CI)	P-value	Adjusted OR <sup>a</sup> (95%CI)	P-value
<i>Age</i>				
<20	1 (Reference)		1 (Reference)	
20–24	2.40 (1.62–3.56)	<0.001	3.03 (2.03–4.52)	<0.001
25–29	3.80 (2.60–5.58)	<0.001	5.40 (3.64–7.99)	<0.001
30–34	6.30 (4.30–9.24)	<0.001	9.10 (6.14–13.49)	<0.001
35–39	6.68 (4.56–9.78)	<0.001	10.14 (6.84–15.03)	<0.001
40–44	7.78 (5.30–11.43)	<0.001	11.43 (7.69–16.99)	<0.001
45–49	5.06 (3.43–7.47)	<0.001	7.50 (5.02–11.21)	<0.001
<i>Residence</i>				
Rural	1 (Reference)		1 (Reference)	
Urban	3.15 (2.72–3.653)	<0.001	1.69 (1.37–2.07)	<0.001
<i>Region</i>				
Central	1 (Reference)		1 (Reference)	
Southeast	1.15 (0.94–1.43)	0.176	1.39 (1.11–1.73)	0.003
East	0.60 (0.46–0.78)	<0.001	0.77 (0.59–1.01)	0.065
Northeast	0.45 (0.36–0.56)	<0.001	0.60 (0.48–0.75)	<0.001
North	1.05 (0.89–1.24)	0.515	1.55 (1.30–1.85)	<0.001
West	1.56 (1.26–1.92)	<0.001	1.84 (1.47–2.30)	<0.001
South	3.42 (2.85–4.10)	<0.001	3.20 (2.62–3.92)	<0.001
Central Highlands	2.24 (1.88–2.67)	<0.001	3.28 (2.71–3.97)	<0.001
<i>Education</i>				
No education	1 (Reference)		1 (Reference)	
Primary	1.23 (0.96–1.58)	0.093	1.43 (1.09–1.88)	0.009
Secondary or higher	1.49 (1.20–1.85)	<0.001	1.62 (1.26–2.08)	<0.001
<i>Media</i>				
No exposure	1 (Reference)		1 (Reference)	
At least some exposure	1.67 (1.51–1.85)	<0.001	1.15 (1.01–1.30)	0.024
<i>Wealth categories</i>				
Poorest	1 (Reference)		1 (Reference)	
Second	1.25 (1.08–1.44)	0.002	1.34 (1.15–1.56)	<0.001
Third	1.59 (1.37–1.84)	<0.001	1.72 (1.45–2.04)	<0.001
Fourth	1.87 (1.57–2.23)	<0.001	1.82 (1.48–2.24)	<0.001
Richest	3.20 (2.75–3.72)	<0.001	2.14 (1.72–2.67)	<0.001
<i>Parity</i>				
1	1 (Reference)		1 (Reference)	
2–3	2.03 (1.55–2.65)	<0.001	2.08 (1.57–2.75)	<0.001
4–5	3.05 (2.35–3.95)	<0.001	2.70 (2.01–3.65)	<0.001
6 or more	4.08 (3.18–5.24)	<0.001	3.45 (2.54–4.06)	<0.001
<i>Number of living sons</i>				
0	1 (Reference)		1 (Reference)	
1–2	1.76 (1.43–2.17)	<0.001	1.64 (1.31–2.05)	<0.001
3–4	2.63 (2.12–3.25)	<0.001	2.07 (1.63–2.64)	<0.001
5 or more	3.33 (2.60–4.26)	<0.001	2.48 (1.86–3.29)	<0.001
<i>Number of living daughters</i>				
0	1 (Reference)		1 (Reference)	
1–2	1.50 (1.28–1.77)	<0.001	1.38 (1.16–1.65)	<0.001
3–4	1.93 (1.62–2.30)	<0.001	1.39 (1.14–1.70)	0.001
5 or more	1.79 (1.38–2.31)	<0.001	1.20 (0.90–1.60)	0.194
<i>Child mortality experience</i>				
No	1 (Reference)		1 (Reference)	
Yes	1.04 (0.92–1.16)	0.521	0.88 (0.77–0.99)	0.04
<i>ANC<sup>b</sup> visit in last two year</i>				
No	1 (Reference)		1 (Reference)	
Yes	2.71 (2.23–3.27)	<0.001	2.13 (1.74–2.62)	<0.001

a) Odds ratios adjusted for age, residence, region, education, media, and wealth index quintile

b) Antenatal care

## DISCUSSION

This study aimed to examine which explanatory factors influenced contraceptive use among currently married women aged 12–49 years in Afghanistan and how effective these variables were at the individual level. From multivariate logistic regression analysis for a large sample size, the adjusted OR for all selected explanatory factors, except for women having 5 or above daughters, showed statistically significant associations with contraceptive use. The strongest adjusted association was observed in the age group factor. As shown in Table 2, adjusted OR for contraceptive use significantly increased with the age of the respondent. The low contraceptive use among women aged less than 20 years may be due to the fact that most of women in this age group are newly married and have interest in having children. On the other hand, in Afghanistan social setting families culturally encourage newly married couples to have children within the first year of marriage. Considerable increase of contraceptive use from age of 25 to 44 years indicated that the majority of women reached their desired number of children and then chose to avoid pregnancy by using modern contraceptive methods. The reduction of contraceptive use among the oldest age group (45–49 years) may be related to the fact that they rely on traditional methods like calendar base, or using some herbs, and due to social taboos they were afraid to talk about these issues when interviewed. In addition, a number of older women might be not sexually active.

Considering the place of residence, urban women were more likely to use modern methods of contraception than rural women. The contributors to this positive association may be better socioeconomic status of women in cities, easy access to family planning services, cultural disparity compared to rural areas, and high level of female literacy in urban areas. At the regional level, disparity was observed among regions. In the east and northeast regions less women like to use contraceptives relative to central region. In the east region (Nangrahar, Laghman, Kunar and Noristan provinces) the possible causes for low use of contraception may include, but are not limited to, the area's worse security situation affecting access to and coverage of health care services, shortage of female doctors and midwives in most health facilities that provide maternal and child health care services, strong prohibition of contraceptive use by the Taliban in this area, and misconceptions about family planning in the community. Regarding the northeast region (Baghlan, Kunduz, Takhar, and Badakhshan provinces), remote geographical areas, women's low access to primary health care services, and security threats are the possible leading causes of low contraceptive use.

As expected, the relationship between education and contraceptive use was strong. In general, current use of contraception progressively increased with increasing female education. This may be because educated women had better access to health facilities and information about contraception. The contraceptive use increases gradually with household wealth status that has several possible explanations. For example, the wealth variable was an aggregate index of assets, with many having assets such cellphones, radios, televisions, motorbikes, cars, or bicycles, all of which can contribute to other important factors such as access to information and transport. All aforementioned findings are in line with similar studies conducted in low-income and lower middle income countries such as Pakistan,<sup>7,8,10,14</sup> Sudan,<sup>9)</sup> Malawi,<sup>13)</sup> Ghana,<sup>15)</sup> Iran,<sup>16)</sup> and Turkey.<sup>17)</sup> In all these studies it was found that contraceptive use positively influenced by women's age, urban residence, women's secondary or higher level of education, and better health status of women.

In addition, as hypothesized, media exposure had a positive effect on contraceptive use. This indicates that those women may have obtained some messages of information, education and communication of the family planning program through the public and private media. This

finding was also outlined by a study conducted in India regarding the effect of mass media on contraceptive use.<sup>18)</sup> This study analyzed the data of a national representative survey, including 84,558 currently married women aged 13–49 years, suggested that general exposure to electronic mass media has a substantial positive effect on current contraceptive use and intended future use of contraception.

Although all reproductive health factors of women, with the exception of number of living daughters, were positively associated with contraceptive use, parity and number of living sons were the two leading reproductive factors for contraceptive use. The analysis showed that when the number of children increased, the number of women using contraception also relatively increased. This indicates that when women reach their desired number of children, they used contraception for the purpose of not becoming pregnant, rather than for birth spacing or reducing the number of their desired children. In the same way, ORs for contraceptive use increased by increasing number of sons. This disparity makes it clearer that son preference among families influences contraceptive use. The possible reasons for this cultural preference of sons in Afghanistan may include a number of cultural and socioeconomic considerations, including sons' financial contributions to the family economy, their ability to support their parents and perpetuate the family name, as well as a general sense of pride in having more sons than daughters. Similar to these findings regarding parity and son preference, a study in three south Asia countries (Bangladesh, India and Nepal) also found that even after controlling for socioeconomic and other factors including education, employment, wealth, media exposure, women's participation in household decision making, and urban or rural residence contraceptive use was still strongly associated with parity and number of sons.<sup>19)</sup> The child mortality experience was the third reproductive criteria of women that affected the contraceptive use. The women who have experienced the death of at least one child up to the time of survey were less likely to use contraception than women who have never experienced the death of a child. This may be because that in order to compensate for their dead child or reach to their desired number of children, these women did not have high interest to contraceptive use. Similar to this study, studies in Turkey<sup>20)</sup> and Egypt<sup>21)</sup> also found that child mortality was strongly associated with non-use of contraception.

This study's largest strength is the number of current married women for whom data was collected (n=13,654) from all over of the country and the associated power to detect significant differences and trends among this group of women. In addition, the data was used in this study had valuable information about each woman which allowed us to investigate association of each factor with contraceptive use. However, the present study had a number of limitations. First, cross sectional data was used, which allowed to examine the associations between variables but not to show causality. Second, the reporting of current contraceptive use might be inaccurate. This might arise from the fact that in Afghanistan traditional setting any discussion on sex and sex-related subjects is regarded, as a taboo particular in rural areas where literacy levels are low and traditional believes are in place. Lastly, the study did not include the unmarried women because of the fact that the community and the religion reject the sexual activities outside marriage.

It was evident that contraceptive use in Afghanistan was influenced by almost all of the selected explanatory factors for this study. A number of conclusions and evidence-based recommendations can be derived from this study's findings. Firstly, the national family planning program should initiate family planning campaigns in rural areas aimed at increasing knowledge of contraception among young age groups. Secondly, efforts should be made to continue improving girls and women access to education in the country. This would be effective not only for increasing their reproductive health awareness and use of modern contraceptives, but also important for empowering women in the family and community. While in the long term universal female education is a priority for the Afghanistan government, in the short term strategies such as engaging religious

leaders in the national family planning program, and encouraging the sustainable outreach of maternal services by the staff of comprehensive health centers and district hospitals in the rural areas may achieve more immediate improvements in contraceptive prevalence. Thirdly, this study found that mass media had positive effect on contraceptive use. The electronic mass media plays an important role in educating women on the benefits of small families and providing them with information on contraception. Radio and television information, education and communication programs and messages specific to family planning and birth spacing will likely have considerable effect on use of contraceptive particularly in a country like Afghanistan where the literacy rate is very low. Therefore, dissemination of family planning information, education and communication programs by using mass media is not only a cost effective approach, but also huge numbers of women exposed to electric media may be informed about the benefits of family planning.

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### CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

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