

Published in final edited form as:

Contraception. 2008 September ; 78(3): 249–256. doi:10.1016/j.contraception.2008.05.005.

Cross-sectional analysis of factors associated with prior contraceptive use among hospitalized obstetric patients in Kabul, Afghanistan

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Abstract

Objective—This study was conducted to assess prevalence and correlates of prior contraceptive use among hospitalized obstetric patients in Kabul, Afghanistan.

Study design—Medically-eligible (e.g., conditions not requiring urgent medical attention, such as eclampsia, or not imminently delivering (dilation ≥ 8 cm)) obstetric patients admitted to three Kabul public hospitals were consecutively enrolled in this cross-sectional study. An interviewer-administered questionnaire assessed demographic information, health utilization history, including prior contraceptive use, and intent to use contraception. Correlates of prior contraceptive use were determined with logistic regression.

Results—Of 4452 participants, the mean age was 25.7 years ($SD \pm 5.7$ years), 66.4% reported pregnancy prior to the presenting gestation, 88.4% had ≥ 1 prenatal care visit, and 82.4% reported the current pregnancy was desired. Most (67.4%) had no formal education. One-fifth (22.8%) reported using contraception prior to this pregnancy. Among women with any pregnancy prior to the current gestation (98.6% of prior users), prior contraceptive use was independently associated with having lived outside Afghanistan in the last five years (AOR=1.35, 95% CI: 1.12 – 1.63), having a skilled attendant at the last birth (AOR=1.35, 95% CI: 1.07 – 1.71), having a greater number of living children (AOR=1.30, 95% CI: 1.20 – 1.41), longer mean birth interval (years) (AOR=1.21, 95% CI: 1.11 – 1.38), and higher educational level (AOR=1.16, 95% CI: 1.09 – 1.22). Immediate desire for

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another pregnancy and spousal disapproval were the most common reasons for not utilizing contraception.

Conclusion—Prior contraceptive use is low among women in Kabul, Afghanistan, particularly for younger, less educated women. Programming in Kabul to strengthen postpartum contraceptive counseling should address barriers to contraceptive use, including immediate desire for pregnancy and spousal attitudes.

Keywords

Afghanistan; contraception; birth-spacing; contraceptive prevalence; intrapartum; population

1. Introduction

In low resource countries, pregnancy-related deaths remain a major public health concern. Interventions targeting both pregnant and non-pregnant women, such as institution-based antenatal and intrapartum care with skilled providers or widely available contraception, lead to improved maternal survival [1]. Studies have shown that interpregnancy intervals of less than six months are associated with both increased maternal and perinatal, neonatal and infant morbidity and mortality [2–4].

Currently in Afghanistan, contraceptive use remains low, even in Kabul, despite a maternal mortality ratio (MMR) that is among the highest globally, with 1600 maternal deaths per 100,000 live births, resulting in a 1:8 lifetime risk of dying in childbirth [5]. A 2002 survey of female patients accessing care at reproductive health clinics in Kabul reported a contraceptive prevalence rate (CPR) of 23% [6]. In 2005, the National Risk and Vulnerability Assessment measured a CPR of 35.2% in Kabul and the surrounding metropolitan area, as compared to 10.4% in rural areas of Afghanistan, where more than 80% of the population resides [7,8].

The United States Agency for International Development (USAID) recently reported that women's access to prenatal care from skilled providers has increased by 600% in Afghanistan [9]. However, many challenges to improving contraceptive uptake remain, including low female literacy rates and education, lack of health care access (especially in remote areas), close adherence to traditional religious and cultural practices, and the lower status of women in Afghan society [10]. It is currently unclear to what degree these factors influence contraceptive use and which subgroups of women are less likely to use contraception. Additional research in these areas would provide valuable information to programs designed to improve contraceptive utilization. The purpose of this paper is to assess prevalence and correlates of prior contraceptive use among hospitalized obstetric patients in Kabul, Afghanistan.

2. Materials and methods

2.1. Setting

Kabul has a population of approximately 2.5 million and an estimated facility-based obstetric delivery rate of 85.2% [7,11]. In the city, there are multiple venues providing obstetric care, including four public maternity hospitals, which provide care at no cost and fee-for-service private hospitals and clinics. The public maternity hospitals, principally the two largest, also serve as local and regional referral centers.

2.2. Procedures

Participants were enrolled at the three public maternity hospitals (Malalai, Rabia Balkhi, and Khair Khana) with the largest delivery volume from the previous quarter, due to resource

constraints. Participants were consecutively enrolled in this cross-sectional study between June 15 and September 23, 2006. Enrollment at Malalai Hospital occurred from June 15 to August 5 and enrollment at Rabia Balkhi and Khair Khana Hospitals took place from August 6 through September 23.

Pregnant women greater than 20 weeks gestation admitted for any obstetric indication in stable medical condition were eligible to participate; assessment was performed by study personnel immediately following admission. Patients with conditions requiring urgent medical intervention (e.g., eclampsia, hemorrhage), imminently delivering (cervical dilation ≥ 8 cm), or unable to provide informed consent were not eligible. For all admissions, age, ethnic affiliation, parity, and decision to decline or reason for ineligibility were recorded. Study approval was obtained from the University of California, San Diego, and Ministry of Public Health of Afghanistan institutional review boards (IRBs) prior to enrollment. The written consent forms were approved by the University of California, San Diego, the IRB of record for this project, following certification of translation.

Study representatives were female medical providers (midwives and physicians) trained in human subject research, questionnaire administration, whole blood rapid testing, and pre- and post-test counseling. Study representatives enrolled all participants, with at least one trained study representative consistently present (24 h/day) during the enrollment period. Following determination of eligibility, representatives briefly described the study and women stating interest in participation were invited to accompany the study representative to a private setting for informed consent. Following informed consent, participants were assigned a study number, which became the sole identifier for all study materials and was not entered on any hospital records.

Questionnaires were developed by the investigators, with input on content and accuracy provided by a local advisory board throughout the development process. Pilot testing activities were conducted at Malalai Hospital, with results reviewed by all investigators to determine final questionnaire design. The questionnaire assessed demographics, economic status (e.g., usual mode of transportation, meat consumption), health care utilization history, and reproductive health history. The outcome of interest was prior contraceptive use. Prior contraceptive use was measured by an affirmative response to the question, "Have you ever used/done anything to prevent getting pregnant?". Those answering affirmatively were also asked to specify past contraceptive methods utilized, which were open-ended questions with multiple choices in the questionnaire determined by responses provided during pilot exercises. All participants were queried about plans for contraceptive use following delivery, and, if declining to use a method, the reasons for not using a method after delivery. This question was asked as an open-ended question in the pilot and final instruments; the answers in the final instrument were quantified based on the most frequent responses given in pilot sessions: the high cost of contraceptive methods, dislike of side effects, fear of future infertility, belief that contraceptive methods do not work, fear of family finding out or family forbidding contraceptive use, lack of awareness of contraceptive methods, desire for another pregnancy soon, and husband not desiring contraceptive use. To help characterize both the socioeconomic and nutritional status of study participants, weekly meat consumption was assessed. This measure has been used in other settings and correlates closely with household income [12, 13].

Descriptive statistics were calculated for all study participants. Univariate logistic regression analysis was performed to identify correlates of prior contraceptive method use among women with any pregnancy prior to the presenting gestation. Age and education were entered as continuous variables in years. Variables related to prior contraceptive method use from univariate analysis ($p=0.10$) were assessed for inclusion in the final model using likelihood

ratio tests comparing nested models. Variables that remained significant ($p < 0.05$) were retained in the final multivariable logistic regression model, after assessing potential two-way interactions.

3. Results

This study included 4452 participants; a further 1179 women were ineligible for medical reasons and 153 women declined participation. Women not medically eligible were older (mean 27.7 years vs. 25.7 years, $p < 0.001$) and had a significantly greater number of prior pregnancies (mean 3.41 vs. 2.09, $p < 0.001$). Approximately two-thirds (66.4%) of participants had a pregnancy prior to the presenting gestation. These women had a mean of 3.15 pregnancies (SD 2.04, range 1–15) as compared to 2.09 for the entire study population. Most participants were born in Afghanistan, with the majority originating from Kabul and the surrounding provinces, though one-third had lived outside of Afghanistan in the last five years. Demographic information for participants who had a pregnancy prior to the presenting gestation and those with no pregnancy prior to the presenting gestation are presented in Table 1. Compared to women with no pregnancy prior to the presenting gestation, participants with any prior pregnancy were more likely to be older, married at a younger age, and born in Afghanistan. Participants with no pregnancies prior to the presenting gestation were more likely to eat meat one or more times per week and have a family car.

Women with pregnancies prior to that at presentation had a mean of 2.85 (SD=1.91) live births, 2.75 (SD=1.85) children alive at one year of age, and 2.72 (SD=1.83) currently living children. The majority (77.8%) reported having a skilled attendant at their last delivery, had slightly more living male children (mean 1.59 ± 1.24 , range: 0–8) than female children (mean 1.36 ± 1.33 , range: 0–9), and a mean birth interval of 2.09 years (SD=0.84, range: 1–13).

The majority (82.4%) of participants reported that the current pregnancy was planned or desired; women with pregnancies prior to that of presentation were somewhat less likely to report that this pregnancy was desired (75.6% vs. 95.8%, $p < 0.001$).

One-fifth (22.8%) of the study population reported the use of any contraceptive method, including withdrawal or periodic abstinence, in the past. One-third of women with pregnancies prior to that at presentation (33.9%) had previously used contraception, while very few women with no pregnancies prior to that at presentation reported ever using a contraceptive method (0.93%, $p < 0.001$). Among cultural practices influencing contraceptive use, childbearing is expected immediately following marriage and few women use contraception prior to their first delivery. As such, we focused solely on women with any pregnancy prior to the presenting gestation in subsequent analyses of prior contraceptive use. Of women who had previously utilized a contraceptive method ($n=1016$), the most popular methods were oral contraceptives (38.5%), condoms (30.3%), medroxyprogesterone acetate (17.0%), intrauterine contraceptive device (IUCD) (15.6%), lactational amenorrhea method (LAM) (5.4%), and other methods (1.6%) (e.g., withdrawal, naturopathic methods, or periodic abstinence) (more than one answer was allowed so percentages do not add to 100%).

Most participants (73.2%) planned to initiate a contraceptive method postpartum, with stated preferences being condoms (25.2%), an IUCD (20.3%), oral contraceptives (17.3%), tubal ligation (12.0%), injectable medroxyprogesterone acetate (9.7%), lactational amenorrhea (8.5%), “other” (6.1%), periodic abstinence (0.7%), or douching (0.1%). Only 7.8% of the total study population wanted another pregnancy in the next six months, but 26.8% had no plan to use a contraceptive method after delivery. Reasons for not using a contraceptive method postpartum are presented in Table 2.

We separately assessed the effect of having lived outside the country in the last five years on prior contraceptive use and intended contraceptive use by method. Women who had resided outside Afghanistan in the past five years were more likely than women who had resided consistently in Afghanistan to report prior condom use (34.2% vs. 27.4%, OR=1.37, 95% CI: 1.05 – 1.80) and less likely to report prior utilization of LAM (3.2% vs. 7.2%, OR=0.42, 95% CI: 0.23 – 0.79); there were no significant differences in prior use for any other method. Women who had lived outside Afghanistan in the last five years were marginally more likely to state intent to use contraception postpartum (77.5% vs. 70.6%, OR=1.43, 95% CI: 1.24 – 1.65). Intended methods for participants who lived outside the country in the last five years did not differ markedly from participants who had resided in Afghanistan for IUCD (16.8% vs. 13.7%), oral contraceptives (11.6% vs. 13.3%), tubal ligation (9.1% vs. 8.7%), medroxyprogesterone acetate (7.5% vs. 6.9%), or LAM (5.5% vs. 6.4%). Preference for condoms (21.2% vs. 29.4%, OR=1.33, 95% CI: 1.14 – 1.56) was significantly greater among women who had lived outside Afghanistan in the last five years.

In univariate analysis of prior contraceptive use among women with a pregnancy prior to the presenting gestation, demographic variables positively related to prior contraceptive use include being older, current employment, higher educational level, having a husband with any education, and having lived outside of Afghanistan in the last five years. Women who had a skilled attendant at the last birth, had at least one prenatal care visit this pregnancy, had more living children, had a prior pregnancy complication, had ever seen a doctor before, and had a longer last and mean birth interval were also more likely to have used a contraceptive method in the past. Desiring a pregnancy in the next six months, stating that the current pregnancy was planned or desired, or stating that the reason for coming to the hospital is that the family believed hospital delivery was best were negatively associated with prior contraceptive method use (Table 3).

In multivariable logistic regression analysis, prior contraceptive method use was independently associated with having lived outside of Afghanistan in the last five years, a skilled birth attendant at last delivery, greater number of current living children, greater mean birth interval, and a higher level of education. Desiring a pregnancy within six months, desiring the current pregnancy, family belief that hospital delivery was safe, and a greater number of female children were independently negatively associated with prior contraceptive use in multivariable analysis (Table 4).

4. Discussion

Results of this study suggest that, despite some recent improvements, the contraceptive prevalence rate in Kabul, Afghanistan, remains low. An important distinguishing point to be made is that while our study queried the lifetime use of a contraceptive method, the CPRs, measures of current contraceptive use among reproductive aged women, previously measured in Kabul have been 23% in 2002 and 35.2% in 2005 [6,7]. Our findings of relatively lower reported lifetime contraceptive use may be due to the possibility that women using contraception are less likely to deliver in public hospitals where our study recruitment took place or that women from rural areas may come to Kabul city to deliver and thus reduce the observed contraceptive utilization. Alternately, women who successfully use contraception may have fewer deliveries and were thus less likely to be captured within this study.

The associations between prior contraceptive use and longer interval between deliveries, and higher level of education echo findings reported among Kabul antenatal patients in 2002 [6]. However, in our study, several new correlates of prior contraceptive use were detected, including having a skilled attendant at a previous delivery, likely a reflection of greater awareness of and access to health care, and having lived outside Afghanistan in the last five

years. One explanation for the latter finding is that those who left the country may have had more resources with which to afford contraception, and the relationship between contraception and socioeconomic status. A second explanation may be that those who lived outside Afghanistan were exposed to societies with greater availability and utilization of contraception and may have been more likely to adopt these aspects of their temporary home [10,14,15].

The potential effect of acculturation and access in societies with higher CPR deserves special focus as more than four million Afghans have repatriated in the last five years, most from the neighboring countries of Iran and Pakistan [16]. The Islamic Republic of Iran has an established, successful family planning program, with an increase in contraceptive prevalence from 49% to 73.3% in 10 years, largely due to support of family planning by religious officials [10,15,17]. A qualitative study assessing male Afghan refugees in Iran noted that, over time, exposure to Iranian society, with religious and community leader support for contraception, led to changes in Afghan refugees' attitudes about family planning and greater utilization of contraception [14]. While we could find no studies that assessed family planning attitudes among Afghan refugees in Pakistan, the national CPR in Pakistan is 28%, which is nearly twice the national CPR of 15.4% in Afghanistan; therefore, it is possible that former refugees who lived in Pakistan had greater access to and awareness of contraception [18,19]. We found that women were more likely to have used a contraceptive method, particularly condoms, and to intend to use a method postpartum if they had lived outside Afghanistan in the last five years. This may reflect greater awareness or availability of methods in neighboring countries; we did not quantify duration spent outside the country and so cannot determine whether duration of exposure increased strength of association. However, programs in the neighboring countries appear to have made some impact and may be useful as models for evolving programs within Afghanistan.

The family's belief that hospital delivery is safer than home delivery was negatively associated with prior contraceptive method use, suggesting that, for these women, the family influences which medical services, including contraception, women are allowed to access. Further, contraception may not have gained sufficient social recognition as a means of preventing maternal morbidity and mortality in Afghanistan [20,21]. In many cases, women are required to have permission from a male family member to even seek medical care, making family approval of care essential to ensuring access [5,6,22,23]. That spousal or family disapproval accounted for one-third of the stated reasons why women were not planning to use a contraceptive method after delivery lends further support to the importance of contraception awareness programming targeted not only at the woman, but also at her family and spouse. By working with religious and community leaders who accept and promote contraception and by involving men in family planning decisions, Iranian public health officials developed a culturally acceptable program [10,15]. The "Accelerating Contraceptive Use Project" in rural Afghanistan has used a similar approach and promoted contraceptive methods through dialogue with religious teachers and community leaders and ensured that health messages promoting contraception are consistent with religious teachings and information is directed to both the husband and his wife [20]. The program measured interval increases in contraceptive utilization in a variety of culturally-divergent areas, suggesting this approach may be successful within Afghanistan.

Having a greater number of female children was also negatively associated with having used a prior contraceptive method. In several countries in the region (e.g., Pakistan and Egypt), a preference for sons has been found to influence family size and reduce contraceptive use [24, 25]. Among women in Pakistan, a married woman's status within the family is affected by her childbearing abilities and experiences [24]. A woman's inability to produce children or more specifically, male children, decreases her value to her husband and his family, with whom she resides. Increased educational attainment may reduce a woman's preference for sons and

increase her employment opportunities so that she is perceived as less of a financial burden by her family [26]. Efforts in Afghanistan that are focused on increasing female education and literacy may also increase family planning acceptance.

Past method choice as compared to intended methods for postpartum use displayed some variation when looking at the entire study population. The IUCD was relatively more popular as an intended postpartum method, which may reflect either greater exposure to this method in neighboring countries or greater awareness of local availability of the method. Injectable medroxyprogesterone acetate was relatively less popular for intended methods; we believe that the irregular bleeding and oligo/amenorrhea occurring for many women who use this method is an intolerable sideeffect in this context. This intolerance is potentially augmented by limited provider awareness and counseling that might mitigate concerns with irregular or missed bleeding. A qualitative study is in progress that will elicit local opinions about different contraceptive methods and reasons for discontinuation.

The present study has important limitations. First, because participants were women accessing care at urban public hospitals, they may be a self-selected group, and may not be representative of the general population. Additionally, approximately 20% of the intrapartum patients presenting during the study period were not eligible for enrollment, largely due to imminent delivery, and their contraceptive practices and intentions may have differed from those who were enrolled. Those women excluded from participation had a greater number of prior pregnancies and their inclusion may have increased the proportion of women having utilized contraception in the past. Second, socially-desirable responses or truncation of answers may have occurred in this interviewer administered survey. The administration of this survey while in labor may have resulted in decreased information relay due to discomfort; however, as the postpartum stay for uncomplicated deliveries tends to be very brief, many patients would have been inaccessible for questionnaire administration during that time.

Afghanistan is a conservative country and the use of contraception may be believed to be in opposition to religious teachings by some and therefore unacceptable [23]. This may have resulted in the under-reporting of prior contraceptive use. We attempted to minimize this by conducting all interviews in a private setting with a female interviewer. Last, there is the possibility that participants misinterpreted the question of “prior contraceptive use” to only include methods used by the women themselves, and to exclude condoms and/or withdrawal (male initiated methods). We attempted to minimize this effect by careful training of the study representatives

In summary, findings of this study indicate that the CPR in Kabul may be lower than previously believed. Younger women who are nulligravid and less educated are more likely to have never used a contraceptive method. Additionally, women not having a skilled birth attendant at delivery and women reporting a need for family input to access hospital care are also less likely to have ever used contraceptives. The postpartum period affords excellent opportunity for family planning education and counseling, especially given that a sizeable minority of the participants reported that this admission for delivery was their sole point of health care access during the pregnancy. As well, the high percentage of women stating a desire to use a contraceptive method postpartum, contrasted with their limited experience in using a contraceptive method, and points to the need for postpartum family planning counseling and support. Due to the suboptimal contraceptive utilization in Afghanistan, further research is indicated to explore how postpartum women and their husbands, particularly those unlikely to otherwise utilize contraceptive methods, may be effectively reached to improve contraceptive utilization.

Acknowledgements

The authors wish to thank the Ministry of Public Health and the directors of the three maternity hospitals, Drs. Najia Tariq, Najeeba Seeamak, Nafisa Nassiry, and Hafiza Amarkhail and their staff for permitting and facilitating the study activities. We acknowledge the efforts of our local advisory group (Dr. Kavitha Viswanathan, Dr. Malika Popol, Ms. Sheena Currie, Dr. Linda Bartlett, and Dr. Naqib Safi) on instrument design and translation. We thank Drs. Mark Appelbaum and J. Allen McCutchan for their guidance on interpretation of results. We appreciate the diligent work of our study representatives and support staff. Last, we thank the participants for their time and trust. This study was funded by the Fogarty International Center of the United States National Institutes of Health (1K01TW007408-01).

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Table 1

Demographic differences between women with no pregnancy prior to presentation and participants with pregnancy prior to the presenting gestation from Kabul maternity hospitals, 2006.

	All participants (n= 4452)	Pregnancy prior to the presenting gestation participants (n=2958)	Nulligravid participants (n=1494)	P-value for Pregnancy prior to the presenting gestation as versus Nulligravidas
Patient age	25 (5.7)	27 (5.4)	21 (3.4)	p<0.001
Gestational age	38.7 (2.1)	38.8 (3.4)	38.6 (2.2)	p=0.077
Country of birth				p<0.001
Afghanistan	4420 (99.3)*	2948 (99.7) [¶]	1472 (98.5) [^]	
Other (including Iran, Pakistan)	19 (0.2)	5 (0.2)	14 (0.9)	
Province of birth				p=0.696
Kabul and surrounding	3492 (79.0) [‡]	2323 (78.8) ^θ	1169 (79.3) ^π	
Other	930 (21.0)	625 (21.2)	305 (20.7)	
Tribal affiliation				p=0.716
Tajik	3158 (71.1) [‡]	2109 (71.4) [¥]	1049 (70.4) [€]	
Hazara	339 (7.6)	227 (7.7)	112 (7.5)	
Pashtun (non-nomad)	923 (20.8)	605 (20.5)	318 (21.4)	
Koochi	1 (0.0)	1 (0.0)	0	
Turkman	7 (0.2)	3 (0.1)	4 (0.3)	
Other	16 (0.4)	10 (0.3)	6 (0.4)	
Education				p=0.11
None	2996 (67.4) ^{\$}	2010 (68.0) [¥]	986 (66.1) [£]	
1–2 years	179 (4.0)	123 (4.2)	56 (3.8)	
Finished primary school	404 (9.1)	254 (8.6)	150 (10.1)	
Some secondary school	326 (7.3)	208 (7.0)	118 (7.9)	
Finished secondary	349 (7.8)	221 (7.5)	128 (8.6)	
Some university	113 (2.5)	77 (2.6)	36 (2.4)	
Finished university or more	80 (1.8)	62 (2.1)	18 (1.2)	
Education of husband				p=0.30
None	1937 (43.5) [¶]	1308 (44.2) [¶]	629 (42.2) [£]	
1–2 years	97 (2.2)	59 (2.0)	38 (2.5)	
Finished primary	400 (9.0)	269 (9.1)	131 (8.8)	
school	505 (11.4)	316 (10.7)	189 (12.7)	
Some secondary school	905 (20.3)	593 (20.1)	312 (20.9)	
Finished secondary	225 (5.1)	156 (5.3)	69 (4.6)	
Some university	379 (8.5)	255 (8.6)	124 (8.3)	
Finished university or more				
Age at marriage	19 (3.3)	19 (3.4)	20 (3.2)	p<0.001
Current job				P=0.061
None	2047 (46.1) ^{\$}	1361 (46.1) [¥]	688 (46.1) [£]	
Housewife	2141 (48.1)	1423 (48.2)	718 (48.1)	
Cleaner	8 (0.2)	7 (0.2)	1 (0.1)	
Health worker	28 (0.6)	20 (0.7)	8 (0.5)	
Teacher	145 (3.3)	105 (3.6)	40 (2.7)	
Farmer	2 (0.0)	1 (0.0)	1 (0.1)	
Other	74 (1.7)	38 (1.3)	36 (2.4)	
Number of times per week family eats meat				p<0.001
None	361 (8.1) ^{\$}	277 (9.4) [¶]	84 (5.6) [£]	
One or more	4086 (91.9)	2679 (90.6)	1407 (94.4)	
Usual type of transportation				p<0.001
Taxi	1366 (30.7) [‡]	887 (30.0) [¥]	479 (32.2) [€]	
Family's car	1171 (26.7)	727 (24.6)	444 (29.8)	
Bus/Town/Ace	1848 (41.6)	1294 (43.8)	554 (37.2)	
Horse or donkey-drawn cart	4 (0.1)	4 (0.1)	0	
Motorcycle	9 (0.2)	9 (0.3)	0	
On foot	39 (0.9)	29 (1.0)	10 (0.7)	
No answer	5 (0.1)	4 (0.1)	1 (0.1)	

Values are mean (standard deviation) or n (%).

* Values based on n= 4450

[†] Values based on n= 4422

[‡] Values based on n= 4444

[§] Values based on n= 4447

^{||} Values based on n= 4448

[¶] Values based on n= 2956

[¥] Values based on n= 2955

^θ Values based on n= 2948

[^] Values based on n=1472

[¤] Values based on n=1474

[€] Values based on n=1489

[£] Values based on n=1492

^ℳ Values based on n=1491

Table 2

Reasons stated for not using postpartum contraception among hospitalized obstetric patients in Kabul, Afghanistan (n=1194).

Reason	Number (%)
Desire for another pregnancy immediately	592 (49.6)
Husband forbids use of contraception	346 (29.0)
Dislike side effects	89 (7.5)
Not informed/unaware of contraception	44 (3.7)
Fear of future infertility	40 (3.4)
Too expensive	18 (1.5)
Fear of consequences if family aware/family forbids	14 (1.0)
Believe contraception does not work	8 (0.7)
Other/unspecified reasons	43 (3.6)

Table 3

Univariate analysis of factors related to prior contraceptive method use among pregnancy prior to the presenting gestation women in Kabul, Afghanistan.

	Prior contraceptive method use, %	No prior contraceptive method use, %	Odds ratio (95% Confidence interval)
Desire a pregnancy in 6 months (n=2880)	2.2 (977)	7.7 (1903)	0.26 (0.17 – 0.42)
Age (mean±SD)	29.7±5.18	27.1±5.23	1.10 (1.08 – 1.11)
Current pregnancy planned/desired (n=2229)	30.2 (673)	69.8 (1556)	0.53 (0.44 – 0.63)
Having a current job (n=171)	47.4 (81)	52.6 (90)	1.82 (1.34 – 2.49)
Having a skilled attendant at the last birth (n=2283)	36.4 (831)	63.6 (1452)	1.65 (1.36 – 2.01)
Having at least one prenatal care visit this pregnancy (n=2615)	35.0 (915)	65.0 (1700)	1.60 (1.24 – 2.08)
Number of male children (mean±SD)	1.99±1.30	1.38±1.16	1.48 (1.39 – 1.58)
High risk pregnancy (n=337)	41.8 (141)	58.2 (196)	1.47 (1.17 – 1.85)
Husband with any amount of education (n=1650)	37.6 (621)	62.4 (1029)	1.47 (1.26 – 1.72)
Having lived outside of Afghanistan in the last 5 years (n=1125)	38.9 (438)	61.1 (687)	1.44 (1.23 – 1.68)
Family belief hospital delivery was safest (n=2244)	32.0 (717)	68.0 (1527)	0.71 (0.59 – 0.84)
Number of children currently alive (mean±SD)	3.41±1.77	2.37±1.76	1.37 (1.31 – 1.43)
Mean birth interval (mean±SD)	2.21±0.79	2.01±0.87	1.34 (1.21 – 1.49)
Number of female children (mean±SD)	1.62±1.34	1.23±1.30	1.24 (1.17 – 1.31)
Having ever seen a doctor before (n=2203)	35.0 (771)	65.0 (1432)	1.22 (1.02 – 1.46)
Last birth interval (mean±SD)	2.21±1.03	2.00±1.00	1.22 (1.12 – 1.33)
Education (as categorical variable)			
(0) No formal education (n=2010)	30.8 (619)	69.2 (1391)	1.52 (1.30 – 1.79)
(1) 1–2 years formal education (n=123)	35.8 (44)	64.2 (79)	1.25 (0.86 – 1.83)
(2) Finished primary school (n=254)	42.1 (107)	57.9 (147)	1.64 (1.25 – 2.14)
(3) Some secondary school (n=207)	36.1 (75)	63.9 (133)	1.27 (0.94 – 1.71)
(4) Finished secondary school (n=221)	40.7 (90)	59.3 (131)	1.54 (1.16 – 2.05)
(5) Some university (n=77)	48.1 (37)	51.9 (40)	2.08 (1.32 – 3.28)
(6) Finished university or higher (n=62)	46.8 (29)	53.2 (33)	1.98 (1.19 – 3.28)
Education (overall, as continuous variable, mean±SD)	0.87±1.55	1.20±1.76	1.13 (1.08 – 1.18)

Table 4

Multivariable analysis of factors related to prior contraceptive use in pregnancy prior to the presenting gestation women in Kabul, Afghanistan.

Variables	Adjusted odds ratio (AOR)	95% Confidence Interval
Number of children currently living	1.31	1.20– 1.42
Increasing level of education (as continuous variable)	1.16	1.10– 1.23
Increasing level of education (as categorical variable, reference category= no formal education)		
(1) 1–2 years formal education	1.43	0.90– 2.28
(2) Finished primary school	1.85	1.34– 2.54
(3) Some secondary school	1.44	1.00– 2.07
(4) Finished secondary school	1.70	1.20– 2.39
(5) Some university	2.57	1.39– 4.75
(6) Finished university or higher	2.08	1.14– 3.76
Increasing number of female children	0.83	0.76– 0.91
Greater mean birth interval	1.25	1.12– 1.40
Desired this pregnancy	0.70	0.57– 0.86
Desire a pregnancy within 6 months	0.41	0.25– 0.69
Had lived outside of Afghanistan in the last 5 years	1.36	1.13– 1.64
Family belief that hospital delivery is safest	0.74	0.60– 0.91
Had a skilled attendant at last delivery	1.36	1.08– 1.72
Age (years)	1.015	0.99– 1.04