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# Contraceptive knowledge and attitudes among women seeking induced abortion in Kathmandu, Nepal

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**Objective:** To map the knowledge about and attitudes toward birth control methods among women in Kathmandu, Nepal, and to compare the results between women seeking an induced abortion and a control group.

**Method:** This was a cross-sectional cohort study with matched controls. Women aged 15–49 years seeking medical care at the Department of Gynecology and Obstetrics at Kathmandu Medical College were included and interviewed. A case was defined as a woman who sought an elective medical or surgical abortion. A control was defined as a woman who sought medical care at the outpatient department or had already been admitted to the ward for reasons other than elective abortion. A questionnaire developed for the study – dealing with different demographic characteristics as well as knowledge about and attitudes toward contraceptives – was filled out based on the interview.

**Results:** A total of 153 women were included: 64 women seeking an abortion and 89 controls. Women seeking an abortion had been pregnant more times than the control group and were more likely to have been informed about contraceptives. Women with higher education were less likely to seek an abortion than women with lower education. There was no significant difference in knowledge about and attitudes toward contraceptives between cases and controls. The women considered highest possible effectiveness to be the most important feature when deciding on a birth control method.

**Conclusion:** Women seeking abortion in Kathmandu had shorter education and a history of more pregnancies and deliveries than women in the control group. Education and counseling on sex and reproduction as well as on contraceptive methods probably need to be improved in Nepal to avoid unwanted pregnancies. Attitudes about contraceptives need to be further investigated to develop better and more effective methods to educate women about family planning in order to increase reproductive health.

**Keywords:** abortion, contraceptive knowledge, family planning, Nepal

## Introduction

From 1996–2011, the total fertility rate in Nepal decreased from 4.6 to 2.6 births per woman. During the same time, the use of modern contraceptive methods increased by 66%. In 2011, the contraceptive prevalence rate was 50% among married women and 38% among all women.<sup>1,2</sup>

Family planning services in Nepal are provided by government-run health care facilities as well as by nongovernmental organizations, private facilities, and pharmacies.<sup>1,3</sup> Contraceptive methods are financially supported by the government, and in 2006 about 70% of women obtained their contraceptives free of charge.<sup>4</sup>

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According to a national health survey, almost all Nepalese women of fertile age (99%), including women seeking abortion, know about at least one modern contraceptive method.<sup>1,5</sup> The most well-known methods include female and male sterilization, condoms, Depo-Provera® (intramuscular progestin injection) and combined oral contraceptives. Knowledge of long-acting reversible methods has been reported by a high percentage (83% for intrauterine copper devices and 90% for subcutaneous progestin implants), whereas only 29% have heard of emergency contraception (progestin-only emergency contraceptive pills). Despite the good knowledge about modern contraceptive methods, more than every fourth married woman is considered to have an unmet need for contraception.<sup>1</sup>

More than 50% of Nepalese women stop using their birth control method within 12 months of starting, most often due to the experience of side effects, eg, poor bleeding control.<sup>1,4,6-8</sup> However, women who received high levels of information about the contraceptives and their side effects were more likely to continue using them.<sup>6</sup>

Induced abortion was legalized in Nepal in 2002, and the first comprehensive abortion care service was started in Kathmandu in 2004. Still, 2 years later, only 50% of comprehensive abortion care clients seeking an abortion were aware that abortion was legal in Nepal.<sup>9</sup> There are both government-run services and private clinics. According to a national facility-based abortion study by the government of Nepal, almost all clients were married, had at least primary education, and had at least one living child.<sup>9</sup> Common reasons for terminating the pregnancy were economic problems and that the family was considered completed and there was no desire for additional children. The majority of the comprehensive abortion care clients had used a birth control method, most commonly a condom, before the pregnancy. Almost all clients received post-abortion contraceptive counseling, the most commonly accepted method being Depo-Provera.<sup>9</sup>

Khanal et al studied practices and perceptions on contraception in a small sample of Nepalese women seeking abortion.<sup>5</sup> They concluded that the knowledge of available methods was generally good, whereas the knowledge and acceptance of side effects was poor, leading to discontinuation and risk of unwanted pregnancies. Repeated abortions are emerging as a major public health issue in Nepal, where every third abortion is a repeat abortion.<sup>10</sup> In a study by Thapa et al, almost every fifth woman undergoing her first abortion did not have any contraceptive method dispensed by the time of discharge, which of course contributes to the risk of repeated abortions.<sup>11</sup> A better understanding of the women's

knowledge of and attitudes toward contraception is crucial in the efforts to avoid unwanted pregnancies.

The aim of this study was to map the knowledge of and attitudes toward contraceptives among a sample of women aged 15–49 years seeking medical care in Kathmandu, Nepal. The primary question was if the knowledge of and attitudes toward contraceptives differed between women seeking induced abortion and women of the same age seeking other medical care at Kathmandu Medical College Teaching Hospital (KMC; Kathmandu, Nepal). The hypothesis was that women seeking induced abortion have a poorer knowledge of contraceptive methods compared to women seeking gynecological care for other reasons.

## Methods

This was a cross-sectional cohort study with matched controls. Women included in the study sought medical care at the outpatient Department of Gynecology and Obstetrics (OPD) at KMC. They were recruited either at the OPD or at the ward when they had been admitted. A case was defined as a woman who sought an elective medical or surgical abortion, or who came to undergo a previously planned elective abortion. A control was defined as a woman who sought medical care at the OPD or had already been admitted to the ward for reasons other than elective abortion. The inclusion criteria were age 15–49 years and ability to speak Nepali. The exclusion criteria were known infertility, including previous sterilization, and serious illness that impaired the subject's ability to answer questions.

Parts of three previously validated questionnaires were used to construct a suitable questionnaire in English for the study.<sup>12-14</sup> The questions dealt with demographic characteristics and contraceptive knowledge. Thus, questions were asked about which contraceptives and birth control methods the woman knew of, and at what stage in the fertilization process different contraceptives work. Questions were also asked about how effective different methods were believed to be and if the methods were assumed to affect the ability to become pregnant after terminating its use. The women got one point per correct answer about the efficiency of five different contraceptives. To test attitudes toward contraceptives, questions were asked about how important they considered different features of birth control methods to be. When collection of data had started in Kathmandu, 17 questions were excluded because of too scant knowledge about the fertilization process among the study subjects. The final questionnaire used in the study consisted of 29 questions.

Data were collected from January to April 2013 by two of the authors (EB and MS). All women seeking an elective abortion during this period were invited to participate in the study. Women seeking medical care at KMC for reasons other than unwanted pregnancy were used as controls. The original plan was to invite and include the controls by interviewing the next patient in the OPD after a case and the patient in a bed next to a case in the ward. Because of practical problems, this was not always possible; hence, as many controls as possible were collected. To minimize the risk of selection bias, the examiners were not informed by the local staff on why the woman sought medical care.

The women were informed orally about the project and gave their informed consent to participate in an interview based on the questionnaire. Doctors and nurses helped to conduct the interviews by orally translating the English questionnaire into Nepali. The questionnaire was filled out by two of the authors (EB or MS) or the doctor/nurse in accordance with the answers given by the woman. The questionnaires were handled confidentially and not coded, and could not afterwards be associated with any individual. The study was approved by the local ethical committee and the head of Gynecology and Obstetrics at KMC.

## Statistical analyses

IBM® SPSS® Statistics 20.0 (IBM Corporation, Armonk, NY, USA) was used for analysis. Student's *t*-test and analysis of variance were used for analysis of normally distributed parametric data, whereas the Mann–Whitney *U*-test and Kruskal–Wallis test were used in cases where data were not normally distributed. The Mann–Whitney *U*-test was used as a post-hoc test for the Kruskal–Wallis test, and Bonferroni correction was used to confirm significance. Pearson's chi-square test and risk ratio was used to compare categorized data. A 95% confidence interval and  $P \leq 0.05$  were used to define significance. Most analyses compared results between cases and controls, but to analyze the knowledge of contraceptives in relation to demographic data, results from both groups were summarized and handled as one group. To analyze correlations between variables, linear regression with Pearson's correlation coefficient was used.

## Results

A total of 173 women 15–49 years old were invited to the study. Three women declined, 13 were excluded (four did not speak Nepali, nine due to their state of health), and four withdrew after the interview had started. This generated

**Table 1** Characteristics of participants

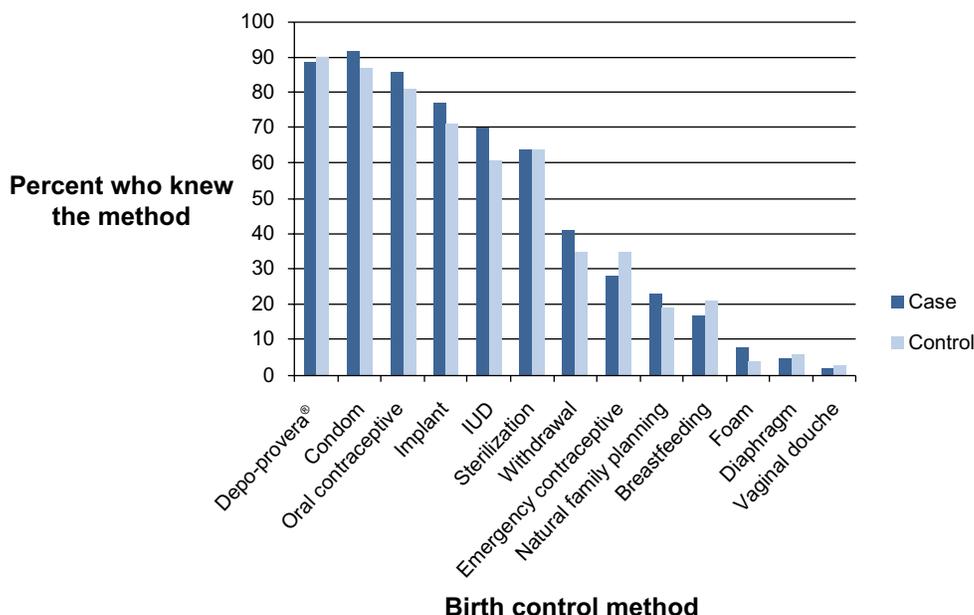
Case/control	N	Mean/median (25th–75th percentile)	P-value (95% CI)
Age (years)			
Case	64	28.14 (SD 5.5)	0.99
Control	89	28.16 (SD 7.4)	
Income (1,000 NPR/year)			
Case	60	196 (120–420)	0.11
Control	87	180 (100–240)	
Total number of pregnancies			
Case	64	2.0 (1–4)	0.01
Control	89	2.0 (1–3)	
Number of live births			
Case	64	1.0 (0–2)	0.02
Control	89	1.0 (0–2)	
Number of miscarriages			
Case	64	0.0 (0–0)	0.04
Control	89	0.0 (0–1)	
Number of previous elective terminations of pregnancy			
Case	64	0.0 (0–0)	0.86
Control	89	0.0 (0–0)	
Number of birth control methods known			
Case	64	5.5 (3.25–7)	0.13
Control	89	6.0 (4.5–8)	
Number of correct answers about birth control's efficiency (maximum 5)			
Case	64	1.0 (0–2)	0.15
Control	89	2.0 (1–2)	

**Notes:** For all variables the median is listed, except for the age variable which was normally distributed and therefore the mean was used. One NPR ≈ 0.01 USD.  
**Abbreviations:** CI, confidence interval; NPR, Nepalese Rupee; SD, standard deviation.

153 women consisting of a case group of 64 women and a control group of 89 women.

Demographic and obstetric data are summarized in Table 1. There was no significant difference between the two groups regarding age, marital status, or income even though the income varied substantially within each group. Almost all women (94.8%) stated they were married; 88.2% were Hindus and 7.8% were Buddhists. Women seeking an abortion had a significantly higher number of total pregnancies (mean value 2.7 versus 2.0) and live births (mean value 1.3 versus 0.8) compared to the control group (Table 1).

Eighty-two percent of controls and 71.1% of cases had at least primary education (nonsignificant). Women in the control group were more likely to have a high education (School Leaving Certificate and above) than women seeking an abortion at KMC ( $P=0.018$ ). In total, 96.1% of the participants knew about at least one modern method of birth control (93.8% of cases and 97.8% of controls), but traditional methods like withdrawal and breastfeeding were less known (Figure 1). The mean number of birth control methods the women knew about was 5.9. The method best known by



**Figure 1** The percentage of women familiar with different methods of contraception.  
**Abbreviation:** IUD, intrauterine device.

the women was Depo-Provera (89.5%), followed by condom (88.9%) and oral contraceptives (81.7%).

There was no significant difference between cases and controls in number of methods known, knowledge of the efficiency of different contraceptives, or whether oral contraceptives affect the ability to become pregnant after termination of use. Significantly more of the cases than controls considered themselves having received information from their doctor or other health care provider about birth control methods (73.4% of cases versus 49.4% of controls;  $P=0.003$ ) but there was no difference regarding number of contraceptive methods known between the women claiming they had been informed and those who had not. Women who had previously given birth or undergone an elective abortion were more than two times more likely to have been informed by their doctor or provider about contraceptives (75% versus 36%; risk ratio 2.56; confidence interval 1.71–3.82).

Ten percent of controls and 20% of cases claimed they had become pregnant despite using a birth control method. There was no significant difference between the cases and controls concerning whether they had ever used any birth control methods.

There was no significant correlation between age and number of birth control methods known or between age and correctly believed efficiency of different contraceptives. Neither was there any significant correlation between income and number of birth control methods known or

between income and correctly believed efficiency of different contraceptives.

Women with a high education (School Leaving Certificate and above) on average knew about 6.9 birth control methods compared to 4.7 among women lacking formal education ( $P<0.001$ ) and 4.2 in women with only primary education ( $P<0.001$ ). On the other hand, women with a high education did not have more correct answers than women without formal education about the efficiency of different methods.

There was no significant difference between cases and controls regarding how important different features of birth control were considered to be when choosing a birth control method. The three features that had the highest total proportion of women answering that it was important (above 90% for all three) were the features: easy to use, easy access, and highest possible effectiveness.

## Discussion

The results from this study show that contraceptive knowledge among Nepalese women did not differ significantly between women seeking an abortion and a control group. The general knowledge of contraceptive methods was good, although not as good as has previously been described.<sup>5</sup> Previous studies indicate that women seeking an abortion have a lower contraceptive knowledge than women intending to give birth.<sup>15</sup> The hypothesis that contraceptive knowledge among women seeking abortion would be lower than in a control group of

women could not be confirmed. On the contrary, this study shows that women seeking an abortion have received more information about birth control than the women in the control group, but they still do not seem to have better knowledge about contraceptives, including number of methods known, expected efficiency of different contraceptives, and whether oral contraceptives affect the fertility after termination of use. Similarly, there was no difference in contraceptive knowledge between women who had received information from their doctor or other health care provider about contraceptives and women who had not received information. These findings together indicate that the information about birth control given by doctors or other health care providers is insufficient and that contraceptive counseling needs to be improved. This is in line with findings from high resource countries, such as Sweden, where the rate of repeated abortion exceeds 40% and the contraceptive counseling in relation to the abortion visits most often is clearly insufficient.<sup>16</sup> Thus, it seems as if the quality of contraceptive information and counseling is more related to attitudes rather than resources.

There was no significant difference in attitudes about contraceptive methods between the two groups, which might be explained by the generally poor knowledge regarding the efficiency of different contraceptive methods. This could be a subject to focus on in contraceptive counseling. Regardless course of action, attitudes about birth control should be further investigated to find ways to increase contraceptive use and avoid unwanted pregnancies.

It was found that 75% of the women with at least one previous abortion or live birth had been informed about contraceptives by their doctor or provider compared to only 36% of women who had not delivered any children or gone through an abortion. These results support the theory that the major source of information about contraceptives in Kathmandu is counseling in relation to childbirth or abortion, as women with these experiences had a 2.5 times greater chance to have been informed about contraceptives compared to women pregnant for the first time. This is in line with the finding that more women in the case group than in the control group had been informed about contraceptives since they had more children than the control group. This also emphasizes the need for contraceptive counseling to women without a history of previous pregnancies.

This study showed no correlation between age and contraceptive knowledge. The feature associated with better knowledge about contraceptives was instead higher education, in line with the results of several previous studies.<sup>1,8,17</sup> Even though there was a higher proportion of women with a high education in the control group, the difference in contraceptive

knowledge between the cases and controls was not significant. This suggests that education is not the only factor affecting contraceptive knowledge. Previous studies conclude other important factors to be income and socioeconomic status.<sup>1,8</sup> Since this study showed no significant difference in income, this could be a reason why the contraceptive knowledge did not differ between cases and controls.

Unfortunately, systematic recruitment of controls in the OPD was not always possible as the doctors needed for translation were often busy performing more urgent tasks; thus, the study population could be considered as a convenience sample. Although this could mean a risk for bias, most demographic characteristics of participants, such as age, marital status, and income, were similar in the two groups, which decreases the risk of these features affecting the result. The age, marital status, religion, and level of education of the women in this study furthermore correlate well with earlier identified characteristics of women seeking an elective termination of pregnancy in Nepal.<sup>9</sup>

There is always a risk for bias when a questionnaire is translated, especially orally and by several people. Even though the questionnaire had been validated beforehand in Swedish, the translators could have interpreted the questions differently which could have affected the answers and further the results of the study. Not all of the doctors and nurses who translated the interviews had previous experience from research projects, and they could have performed the interviews differently. This feature could have been minimized by translating the questionnaire to Nepali prior to the interviews, which would have facilitated the interviewer asking the questions in a standardized way and thereby avoiding bias. The option to let the women fill out the questionnaire in Nepali on their own would probably not have succeeded as most women would have needed help anyway to read and understand the questions. It is important though to clarify that the same doctors and nurses helped conduct the interviews for both cases and controls so any deviations in interpreting the questions should not differ between the two groups, and consequently not impact the comparison performed.

Another aspect that may have influenced the results of this study is that two of the co-authors were present during the interviews. This could cause bias if the study constructors interpreted aspects of the answers in a direction that would strengthen the hypothesis of the study more than an independent interviewer would have done. However, it was important that the study constructors were present to clarify any ambiguities during the interviews because all patients were not admitted to the ward and thus would be unable to be reached

after the interview for clarification. Moreover, all questions in the questionnaire, except for the one regarding religious affiliation, had a predetermined alternative set of answers that the interviewees had to choose from. This makes the room for interpretation by the interviewer, and therefore bias, smaller than if the questions had been of a more open character. Also, the study constructors did not understand Nepali, which makes the risk for a biased interpretation of the answers low.

According to the Nepal Demographic Health Survey, the most commonly known contraceptive methods in Nepal are sterilization, condom, Depo-Provera, and oral contraceptives. This study showed mostly the same results, the difference being that only 64% of participants in the present study knew about sterilization, including both female and male sterilization, compared to 99% in the national study.<sup>1</sup>

The number of previous induced abortions of pregnancies and miscarriages was low. There is a possibility that the real number of previous abortions was higher since the women may have wanted to hide abortions done before the legalization in 2002. Also, in 2006, as many as 50% of women in Nepal were still unaware that induced abortions were legal and some of the previous abortions could instead have been reported as previous miscarriages.<sup>9</sup>

The study was conducted only in Kathmandu, the capital, and does therefore not represent the total female population of Nepal. Features such as education, income, and tradition differ a lot between people living in the suburbs and rural areas, and the material in this study has to be seen only to represent women in Kathmandu seeking medical care at KMC. Future studies should investigate the knowledge, attitudes, and availability of contraceptives in the rural areas of Nepal.

## Conclusion and implications

A worldwide goal within reproductive health is that all women should have the ability to control their fertility, which requires that they have access to reproductive education, modern contraceptives, and safe abortions.<sup>18</sup> This study shows that contraceptive knowledge among Nepalese women does not differ significantly between women seeking an induced abortion and a control group. Highly educated women knew about more birth control methods, and women in the control group had a higher education. Even though this study showed no significant correlation between better contraceptive knowledge and fewer unwanted pregnancies, other studies have done so, and information about family planning should be improved in the health sector and included in general education in Nepal to increase the use of contraceptives and thereby avoid unwanted pregnancies. Women should not

have to wait until after their first, and sometimes unwanted, pregnancy to receive information about birth control.

As this study shows that the efficiency of contraceptives is one of the most important features when choosing a birth control method, information about fertilization and how contraceptives work should be a focus when educating people about family planning. A previous study showed that only promoting contraceptive use is not enough, and education about the physiology of reproduction and fertilization is necessary for better compliance.<sup>19</sup> When this study was conducted, no difference in contraceptive knowledge was observed between women who had received information from their doctor about birth control and women who had not been informed, suggesting that the information was insufficient. In the future, attitudes about contraceptives have to be further investigated to develop better and more effective methods to inform and educate women on this subject to avoid unwanted pregnancies and increase reproductive health.

## Disclosure

The authors report no conflicts of interest in this work.

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