

## Continuation Rates and Reasons for Discontinuing Tcu380<sub>A</sub> IUD Use in Isfahan, Iran

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### Abstract

**Objective:** IUD is a highly effective, safe, private, long-acting, and rapidly reversible method of contraception with few side effects. The aim of this study was to assess the continuation rate and cause of IUD discontinuation in Isfahan, Iran.

**Materials and methods:** This historical Cohort study was carried out on 12 randomly selected health centers of Isfahan province in 2007. 244 literate married reproductive aged women (15–49 years old) who had chosen IUD as a contraceptive method in 2002 enrolled the study by census sampling. After explaining the aim of study and taking informed consent, women completed the questionnaire for demographic characteristics, menstrual characteristics before and after IUD insertion and cause of IUD discontinuation. Data were analyzed by SPSS 11 software, descriptive statistics and Kaplan–Meier analysis.

**Results:** Continuation rates at the end of 1, 2, 3, 4, 5 and 6 years were 100, 92, 87, 76, 66 and 65 per 100, respectively. Since 2001–2007, 60% (146) preserved and 40% (98) removed their IUD. 27.6% (27) discontinued IUD use due to occurring medical problems that the most common cause was infection (29.6%). 72.4% (71) had voluntary IUD removal and the most common cause was tendency to planned pregnancy (38%).

**Conclusion:** These findings indicate that health care providers should give more emphasis to counseling programs for women desiring IUD insertion.

**Keywords:** IUD, Continuation rate, Cause of removal, Isfahan

### Introduction

Intrauterine devices (IUDs) to prevent pregnancy are one of the oldest methods of contraception. IUD is a highly effective, safe, private, long acting, and rapidly reversible method of contraception with few side effects. It does not interfere with the spontaneity of sex, offers several no contraceptive health benefits, and

can be used by women who want or need to avoid exogenous estrogen. In addition, it represents an effective alternative to surgical sterilization, which many American women choose in order to avoid the side effects and frequent attention required by most reversible methods of contraception.

FDA has approved 10 years duration of use for Tcu 380<sub>A</sub> IUD (1) and pregnancy rate in the first year of use is less than 1 percent (2).

We suggest that the findings of this study could form the basis for more effective counseling program for women desiring IUD insertion.

Cumulative pregnancy rate after 7–10 years are

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1.6 and 2.2, respectively (1).

Reported side effects that led to IUD use discontinuation includes: expulsion, displacement, string not visible, dysmenorrhea, abnormal bleeding associated with increased menstrual flow both in length of menses and in amount of blood loss, infection and pregnancy (2).

In a study that was conducted in China being younger at IUD fitting [ $<25$  versus  $\geq 35$  years, hazard ratio 5.9, CI<sub>95%</sub>: 4.3–7.7] and having a larger number of alive children [ $\geq 3$  versus,  $<2$  children, hazard ratio 1.2, CI<sub>95%</sub>: 1.1–1.4] predicted higher risk of IUD failure when controlled for each other (3).

In Sari, since May 1999 to May 2006, continuation rates at the end of 1, 2, 3, 4 and 5 years were 96.3, 81.5, 79.2 and 18 per 100, respectively. Median survival time was about 37 months and among women using the Tcu 380<sub>A</sub> IUD, the rate of termination due to bleeding was significantly higher than the rate of termination due to other causes (4).

In a 60 month study on the use of Tcu380<sub>A</sub> IUD among women in Tabriz, Continuation of IUD use at 1 month, 6 month, 1, 2, 3, 4 and 5 years was 98.2, 89.3, 79.3, 68.3, 57.6, 49.5 and 45 per 100, respectively.

Among women using the Tcu380<sub>A</sub> IUD, the rate of termination due to pain / bleeding was significantly higher than the rate of termination due to other causes. Two pregnancies were reported within 5 years after insertion. A third pregnancy occurred on year 6 (5).

The result of a study in Zahedan showed that continuation rate for IUD was 82% at the first year and After 3 years, continuation was 60%. The commonest reason for discontinuing was side effects (6).

In another study the cumulative pregnancy rate was 0.8%. The main cause for discontinuation of the study was loss to follow-up (21.3%). Other reasons for the withdrawal of the device were personal option (13.6%), dislocation (11.7%) and pregnancy wish (3.4%). There was no withdrawal by pelvic inflammatory disease.

Bleeding (0.8%) was not an important cause for withdrawal, and there were no withdrawals due to pain. The continuation rate at 5 years was 46.7% (7).

The results of another study in Kuwait showed that the cumulative probability of continuation of IUD at the end of 8, 12, 18, 24, 30 and 36 months were 94%, %87, %80, %75, %69 and 60% respectively. The main cause of IUD discontinuation was tendency to pregnancy (8).

Because in different regions, continuation rate and reasons for discontinuing IUD differs from others, so

this study was conducted to assess a sample of women in Isfahan who requested removal of their IUD, continuation rates and reasons for discontinuation.

## Methods & Materials

This was a historical cohort study on 248 women. We randomly selected 12 health centers with active obstetric unit. At each selected center, we sampled all IUD subjects whose insertion had occurred in 2001. They were followed for 75 months.

At the time of IUD insertion, demographic characteristics (age, job, education, date of IUD insertion in 2001, number of living child) and menstrual characteristics (length of menses, amount of blood loss, pain intensity) were asked and registered. Amount of blood loss was categorized as mild, moderate and severe according to women opinion. Pain intensity was categorized as below:

- < no pain
- < mild tolerable pain without need to use analgesic
- < pain in  $< 1/2$  of day and night and need to use analgesic
- < pain in  $> 1/2$  of day and night and need to use analgesic
- < Severe pain need to use regular analgesic in first days of menstruation

Inclusion criteria were: each woman with selecting IUD as the contraceptive method in 2001 in selected health centers.

Exclusion criteria were: IUD expulsion in fewer than 1 month after insertion. Follow up duration was 75 months and at each time of the follow up duration that a woman referred for removal of her IUD, menstrual characteristics after IUD insertion (length of menses duration, amount of blood loss, pain intensity); date and cause of IUD removal were registered. Causes of IUD removal were categorized to medical (contraindication for continuing) and non-medical (no contraindication for continuing) cause.

Medical causes were: unplanned pregnancy, infection, no-visible string, doctor recommendation, IUD displacement.

Non-Medical causes were: planned pregnancy, changing contraceptive method, fear of complication, pain, menstrual abnormality and husband disagreement. Data analysis was done by *SPSS 11* software, descriptive statistics, T-test, chi-square Mann-Whitney and Kaplan-Meier analysis.

**Table 1:** Mean and median duration of IUD Continuation in IUD preserved and removed women

IUD status	Mean IUD continuation (mo)	Median IUD continuation (mo)
Preserved	67.79 ± 3.12	68
Removed	42.96 ± 15.27	45

## Results

248 women were enrolled in study. Four of them were excluded due to IUD expulsion in first month of IUD insertion. Since IUD insertion in 2001 till end time of the study (after 75 months), 60% (146) women preserved and 40% (98) removed their IUD.

Mean and median duration of IUD continuation were 57.82 ± 15.73 and 65 months, respectively. Minimum and maximum month of IUD continuing was 20 and 73 months, respectively.

Continuation rates at the end of 1, 2, 3, 4, 5 and 6 years were 100, 92, 87, 76, 66 and 56 per 100, respectively (Figure 1). 27.6% (27) women removed their IUD due to medical causes. The most common cause of IUD discontinuation in this group, was infection (29.6%). Other causes of IUD discontinuation were doctor recommendation (22.2%), unplanned pregnancy (18.52%), not-visible string (14.81%) and IUD displacement (14.81%).

72.4% (71) women discontinued IUD use due to non-medical causes. The most common cause of IUD discontinuation was planned pregnancy (38%). Other causes were menstrual abnormality (36.6%), changing the contraceptive method (12.86%), pain (8.57%), husband disagreement (1.43%) and fear of complication (1.43%).

Mean and median duration of IUD continuation in IUD preserved and removed women are shown in table

1. Demographic characteristics of IUD user are shown in table 2. Menstrual characteristics of IUD user are shown in table 3.

There weren't significant difference in mean age ( $P=0.23$ ), Job status ( $P=0.38$ ), educational level ( $P=0.73$ ) and median number of living child ( $P=0.75$ ) between women that had removed their IUD due to medical or non-medical causes.

Also, There weren't significant difference in mean duration of menses before ( $P=0.94$ ) and after ( $P=0.56$ ) IUD insertion, median pain intensity before ( $P=0.52$ ) and after ( $P=0.87$ ) IUD insertion, bleeding amount before ( $P=0.69$ ) and after ( $P=0.67$ ) IUD insertion between women that had removed their IUD due to medical or non-medical causes.

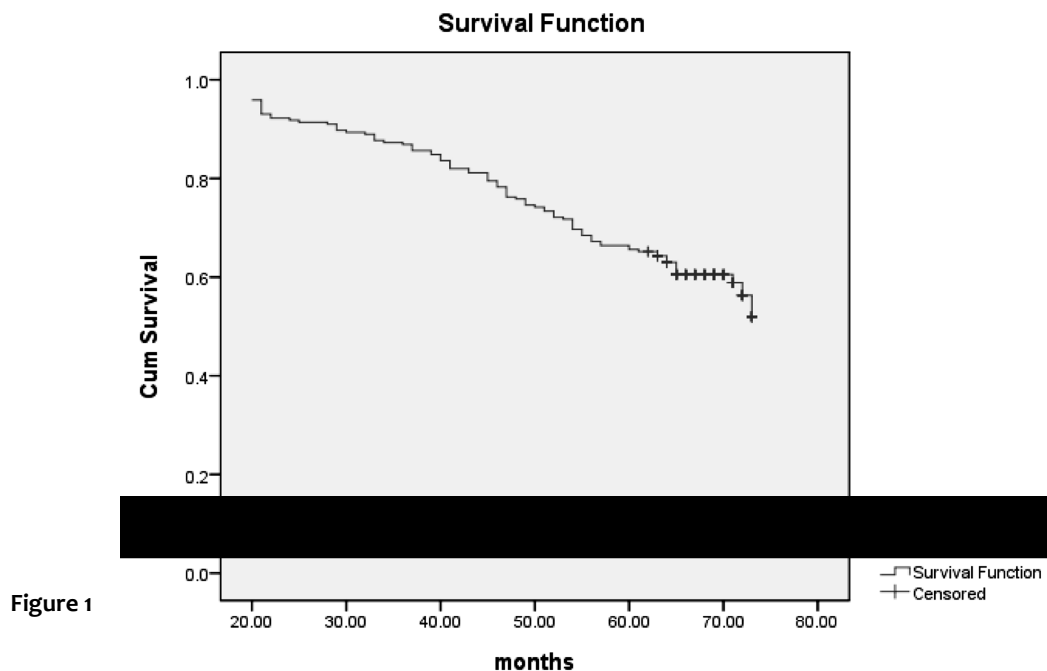
## Discussion

Our analysis indicated that three-fifth of IUD users, preserved it while only about two-fifth of them removed it during the study. On the other hand, continuation rates at the end of 1 (100%), 2 (92%) and 3 (87%) year was high but it decreased to 76%, 66% and 56% at the end of 4, 5 and 6 year of use, respectively. It indicates that most women take up contraception for relatively short periods. Such behavior is explained by the fact that contraception is started typically after the first or second child, and the primary motivation for it is to space children. But fortunately, continuation

**Table 2:** Demographic characteristics of IUD user participants

Variable	Total	Preserved IUD	Removed IUD	P-Value
<b>Mean age (year)</b>	31.82 ± 5.57	32.67 ± 5.86	30.56 ± 4.88	0.004
<b>Job status</b>				
• Occupied	%8.2 (20)	%8.2 (12)	%8.2 (8)	0.98
• Housewife	%91.8 (224)	%91.8 (134)	%91.8 (90)	
<b>Education level</b>				
• Sub diploma	%53.7 (131)	%66.4 (87)	%44.9 (44)	0.07
• Diploma & Technician	%43.4 (106)	%37.7 (55)	%52 (51)	
• License & over	%2.9 (7)	%2.7 (4)	%3.1 (3)	
<b>Median of alive child</b>	2	2	3	0.27

Independent T-Test, Mann-Whitney and Chi-square tests were used.



rates in our study was higher in comparison on with the results of other studies of Sari, Tabriz and Zahedan (4, 5, 6). So, it may be due to better case selection by health care provider before choosing IUD as a contraceptive method by volunteers. IUD preserved women were significantly older (mean age = 32.67 and 30.56 years, respectively) in comparison with IUD removed women. The possible cause of IUD continuation in older women is having desired number of child and necessity of using a contraception method.

The results of our study showed that for about one-third of women discontinue IUD use due to occurring medical problems and the most common cause was infection (29.6%). So, health care provider should and do an exact genital exam before inserting IUD and pay more attention to sterile since inserting IUD, because it is preventable easily.

Two-thirds of Women discontinued their IUD use due to causes that most of them like mild menstrual abnormality, changing the contraceptive method, pain, husband disagreement and fear of complication can be preventable if they receive correct information before choosing their method that able them to solve the possible problems.

On the other hand health care provider must pay attention to all aspects since offering IUD to women.

In this group the most common cause of IUD discontinuation was the desire for another child. Health

care providers can play a role in counseling IUD users that IUD is a long-time method of contraception to reduce the rate of discontinuation due to this reason.

Despite the result of other studies (4, 5, 6) pain and bleeding weren't the main cause of IUD discontinuation that reflects the probability of better counseling (educate women how to encounter pain and excessive bleeding) and case selection in comparison with others.

The results of our study showed that discontinuation rate was higher in women with longer duration of menses after IUD insertion, larger amount of bleeding before and after IUD insertion. So, these findings indicate that family planning educators and health care providers should give more emphasis to counseling programs for women desiring IUD insertion and during follow-up. We suggest that the findings of this study could form the basis for more effective counseling program for women desiring IUD insertion.

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