

Contraception continuation rates and reasons for discontinuation in Zahedan, Islamic Republic of Iran

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معدلات الاستمرار في تعاطي مانعات الحمل وأسباب توقيفها في زاهدان بجمهورية إيران الإسلامية
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الخلاصة: قمنا بتقييم معدلات الاستمرار في تعاطي مانعات الحمل وأسباب توقيفها في زاهدان لدى 1741 امرأة في الفترة بين 1998 و2000. وقد بلغت معدلات الاستمرار في تعاطي مانعات الحمل بحسب طريقة كابلان وماير 92% عند استعمال حبوب مانعات الحمل الهرمونية المشتركة المنخفضة الجرعة، فيما بلغت 86% عند استعمال نظام الغرائس المُطْلِقة لليفونوغيستريل، وبلغت 82% عند استعمال اللولب، و53% عند استعمال أسيتات الميديروكسي بروجسترون في السنة الأولى. وبعد 3 سنوات، بلغت معدلات الاستمرار 78% عند استعمال الغرائس المُطْلِقة لليفونوغيستريل، و70% عند استعمال حبوب مانعات الحمل بالفم، و60% عند استعمال اللولب و44% عند استعمال أسيتات الميديروكسي بروجسترون. وقد كان السبب الأكثر شيوعاً لتوقيف موانع الحمل بالفم وأسيتات الميديروكسي بروجسترون هو تغيير الطريقة، أما بالنسبة للولب ونظام الغرائس المُطْلِقة لليفونوغيستريل فإن السبب الأكثر شيوعاً هو الآثار الجانبية. وباستعمال نموذج التحوُّف بحسب كوكس فإن معدلات الاستمرار في تعاطي موانع الحمل ونمط هذه الموانع ترابطاً ترابطاً ملحوظاً من الناحية الإحصائية، ولو أن ذلك يختلف من مركز صحي لآخر. ومن خلال التشاور يوصى باختيار موانع الحمل لمدة ستة أشهر قادمة.

ABSTRACT We evaluated contraception continuation rates and discontinuation reasons in Zahedan among 1741 women from 1998–2000. By Kaplan–Meier technique continuation rates were 92% for low dose combined hormonal oral contraceptives (OC), 86% for a levonorgestrel-releasing implant, 82% for intrauterine devices (IUD) and 53% for medroxyprogesterone acetate at the first year. After 3 years, continuation was 78% for levonorgestrel implant, 70% for OC, 60% for IUD and 44% for medroxyprogesterone acetate. The commonest reason for discontinuing OC and medroxyprogesterone acetate was changing method; for IUD and levonorgestrel-releasing implant, the commonest reason was side-effects. By Cox regression model, continuation rate and contraceptive type were significantly related to health centre.

Taux de poursuite de la contraception et raisons d'abandon à Zahedan (République islamique d'Iran)

RESUME Nous avons évalué les taux de poursuite de la contraception et les raisons d'abandon à Zahedan chez 1741 femmes durant la période de 1998 à 2000. Le taux de poursuite, calculé selon la technique de Kaplan-Meier, s'élevait à 92 % pour la pilule contraceptive orale combinée à faible dosage hormonal, à 86 % pour les implants libérant du lévonorgestrel, à 82 % pour les dispositifs intra-utérins (DIU) et à 53 % pour l'acétate de médroxyprogestérone durant la première année. Après trois ans, la poursuite de la contraception était de 78 % pour les implants au lévonorgestrel, 70 % pour les contraceptifs oraux, 60 % pour les DIU et 44 % pour l'acétate de médroxyprogestérone. La raison la plus courante pour l'abandon des contraceptifs oraux et de l'acétate de médroxyprogestérone était le changement de méthode ; pour les DIU et les implants au lévonorgestrel, les effets secondaires constituaient le motif le plus courant. En utilisant le modèle de régression de Cox, le taux de poursuite et le type de contraceptif étaient significativement liés et ils différaient selon le centre de santé.

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Introduction

The quality of family planning services is an important determinant of contraceptive use because it is likely to affect contraceptive continuation [1]. By controlling reproduction, women will be able to reach other goals besides having children [2]. All personnel involved in family planning projects are aware that to attract new users, they must keep previous users. The rate at which users discontinue a method of contraception is one of the major indicators of quality of use [3]. High discontinuation rates can increase the number of unwanted and high-risk pregnancies. In 15 Asian countries more than half of unwanted fertility was due to either a contraceptive failure or discontinuation of a method [1].

Many studies have investigated the continuation of contraceptive methods. A study in Egypt revealed that the continuation rate of contraceptive methods was 88% for the first 6-months, 75% for 12-months and 56% for 24-months. Three predictive factors were important for discontinuation: side-effects, female age and method type. In Benin and Eastern Africa, the continuation rate of contraceptive injections was 51.9% for the first year [3]. In a study in the United Kingdom, the continuation rates for a levonorgestrel-releasing implant system (Norplant, Wyeth Laboratories, Taplow, United Kingdom) and IUD were 72% and 55% respectively after 24 months [4].

A comparative multicentre clinical trial of oral contraceptives was conducted in Malaysia, Egypt, Thailand and Mexico and revealed that the 11-month discontinuation rate was 28.8% [3]. Discontinuation rates due to menstrual problems, side-effects and other medical reasons were 7.1%, 5.1% and 3.8% respectively [3]. In the United States of America, 36% of injection

consumers discontinued the method because of side-effects and menstrual disorders and 39% because of weight increase, headache, mood change and acne [3].

The main goal of family planning projects is to improve the quality of contraceptive methods; therefore, the rate of discontinuation of contraceptive methods is one of the main indicators of quality of usage. Because high rates of discontinuation are major problems for family planning programmes, an evaluation of their effective factors is necessary [2].

Zahedan is in the province of Sistan and Baluchistan in the south-eastern part of the Islamic Republic of Iran. The province borders Pakistan and Afghanistan on the east and the Oman Sea on the south. There are 7 towns in the province and Zahedan is central. Zahedan has a population of approximately 500 000 people. About 60% of the people use contraceptive methods. Family planning indices in this province are lower than for the country as a whole. In our country, the national health system is based on the primary health care (PHC) approach and one of the reproductive health strategies is to enhance the quality of services in family planning programmes.

There is not enough information about continuation rates of contraceptive methods in Zahedan, so our aim was to study contraception use, continuation and discontinuation and their causes. Understanding the causes of discontinuation can facilitate consultations with clients and improve the quality of service.

Methods

This was a historical cohort study, which used documents in the health centres in Zahedan in 2001. All women in our study were Iranian and had started a contracep-

tive method, including low dose combined hormonal oral contraceptive pills, intrauterine devices (IUD), medroxyprogesterone acetate or levonorgestrel implant between early 1998 and late 2000. We divided the city into 5 areas and randomly chose 1 health centre from each area. All necessary information was gathered from these 5 centres. Files without the required information were excluded from the study (6%). A total of 1741 samples were studied. Of these, 388 (22.3%) who used mini pills (lynestronol) were excluded from the analysis. Therefore, 1353 women were included: 853 women who started with low dose combined contraception, 224 with medroxyprogesterone acetate, 222 with IUD and 54 with levonorgestrel implant. Chi-squared, one-way analysis of variation, log-rank, Cox regression model and Kaplan–Meier were used for data analysis.

Results

The mean ages of women and their husbands were 27 ± 5.7 years and 33 ± 8.2 years respectively. Of the women, 53.6% were illiterate or with elementary education

and 89.6% were housewives. The mean number of children was 2.8 ± 1.9 . The mean age of the last child was 2.8 ± 1.7 years. Overall 71.2% of women used different kinds of oral contraceptive pills, 12.9% used medroxyprogesterone acetate, 12.7% used IUD and 3.1% used levonorgestrel implant. One-way ANOVA showed a significant relation between women's age and number of children to method type ($P < 0.05$). The mean age and the mean number of children were lower for women who used low dose combination hormonal oral contraceptive pills and IUD than for those who used medroxyprogesterone acetate and levonorgestrel-releasing implant systems. Chi-squared analysis did not show any significant relationship between job and method type, but there was significant relation between education and method type ($P < 0.001$). Women with higher education were more likely to use IUD and levonorgestrel-releasing implant systems whereas women with less education were more likely to use medroxyprogesterone acetate.

Table 1 shows the continuation rates of contraceptive methods during the 3 years from 1998–2000 in Zahedan. In the first 12

Table 1 Continuation rates of contraceptive methods used in Zahedan from early 1998 until late 2000

Levonorgestrel-releasing implant (%)	IUD (%)	Medroxyprogesterone acetate (%)	Low dose combined OC pills (%)	Duration of use (months)
86	82	70	92	6
78	76	54	83	12
78	74	47	78	18
78	68	44	73	24
78	68	44	72	30
78	60	44	70	36

IUD = intrauterine device.
OC = oral contraceptive.

months, medroxyprogesterone acetate was least likely to be continued and low dose combined hormonal oral contraceptive pills were most likely to be continued. At 18 months low dose combined hormonal oral contraceptive pills and levonorgestrel implants were the most likely to be continued. From 24 to 36 months, levonorgestrel implants had the highest continuation rate, followed by low dose combined hormonal oral contraceptive pills, IUD and medroxyprogesterone acetate respectively. The continuation rate for levonorgestrel implants levelled off at 78% after 12 months.

The continuation rates of the 4 contraceptive methods were not significantly related to age, age of husband, education, education of husband, number of children or age of last child by log-rank test. However, log-rank test showed a significant difference in continuation rates of different

contraceptives ($P < 0.001$) (Figure 1). Continuation rates among the 5 health centres were also significantly different ($P < 0.001$) (Table 2). Levonorgestrol was not entered into the analysis because the sample size was not adequate. A Cox proportional hazards model was used to evaluate the possible effects of contraceptive methods on the continuation rate adjusted for the centre effect. In this way, we could calculate the odds ratios for contraceptives adjusted for centre in the model.

Based on the Cox regression model, the chance of discontinuing medroxyprogesterone acetate was 3.3 times that of oral contraceptive pills ($P < 0.001$); discontinuing IUD was 6 times that of oral contraceptive pills ($P = 0.006$); and discontinuing the levonorgestrel implant was 1.3 times that of oral contraceptive pills ($P = 0.55$). Among all studied women, 31% discontin-

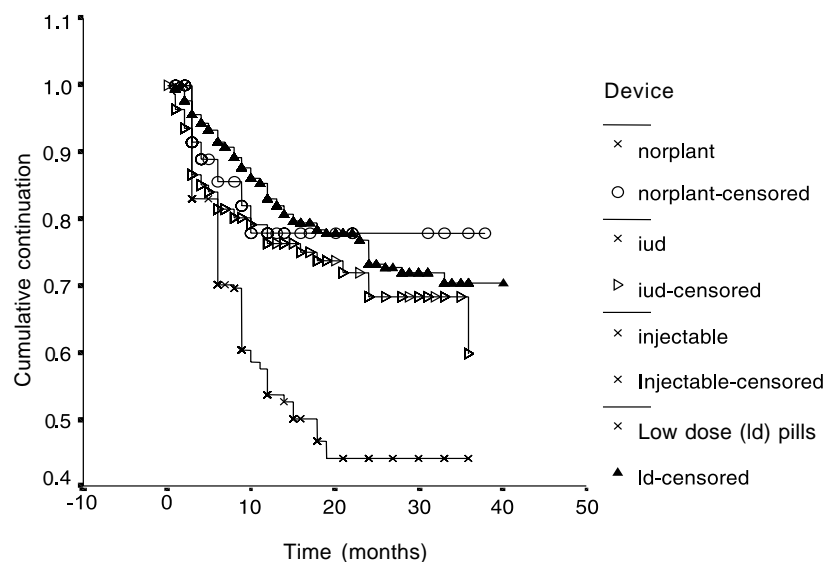


Figure 1 Comparison of continuation rates of 4 contraceptive methods over 3 years (log rank = 70.98, $df = 3$, $P < 0.0001$)

Table 2 Continuation rates of contraceptives by health centre from 1998–2000

Centre	Low dose combined OC			Medroxyprogesterone acetate			Intrauterine device		
	6 m %	12 m %	18 m %	6 m %	12 m %	18 m %	6 m %	12 m %	18 m %
1	83	72	71	57	29	22	82	74	74
2	98	83	75	79	73	64	92	–	–
3	99	95	90	92	81	74	82	75	71
4	96	86	79	65	36	–	78	76	76
5	85	74	68	48	29	19	75	75	63
	LR = 35.14, df = 4, $P < 0.001$			LR = 45.3, df = 4, $P < 0.001$			(Too few events to analyse)		

OC = oral contraceptive pills.

m = months.

LR = log rank; df = degrees of freedom.

used the methods for different reasons and 56.3% continued. There was no information available about the outcome of the other 12.7%. Overall 21.7% of the women changed their methods 1–3 times during those 3 years.

Table 3 shows reasons for discontinuation. The commonest reason for low dose combined hormonal oral contraceptive pills (84.9%) and for medroxyprogesterone ac-

etate (84.9%) was to change contraceptive method and the commonest reason for IUD (68%) and for levonorgestrel implant (62.5%) discontinuation was side-effects.

Discussion

The most commonly used method in the Zahedan was oral contraceptive pills,

Table 3 Frequency distribution of discontinuation reasons based on methods used

Reason for discontinuation	Low dose combined OC		IUD		Medroxyprogesterone acetate		Levonorgestrel-releasing implant	
	No.	%	No.	%	No.	%	No.	%
Change of method	337	84.9	8	16	73	84.9	3	37.5
Pregnancy while using	41	10.4	3	6	3	3.5	–	–
Desire to have a child	10	2.5	3	8	–	–	–	–
Side-effects	6	1.5	34	68	8	9.4	5	62.5
Other reasons	1	0.7	1	2	3	2.2	–	–
Total	395	100	49	100	87	100	8	100

OC = oral contraceptive pills.

IUD = intrauterine device.

which is similar to the United States of America and 15 Asian countries, whereas the commonest method in Egypt was IUD [1,3,5]. In Zahedan medroxyprogesterone acetate and IUD are the most commonly used methods after oral contraceptive pills. In our study women with more years of education were more likely to use levonorgestrel implant and IUD and women with fewer years of education were more likely to use medroxyprogesterone acetate. In Egypt, methods were not significantly related to education [3]. A larger proportion of women in our Zahedan study were educated than in the Egyptian study; therefore, the difference might have been due to education in Egypt that affected the behaviours of uneducated and educated women similarly.

There was no significant relation between method and type of job in our study, which is similar to results from the Egyptian study [3]. Women who used levonorgestrel implant and medroxyprogesterone acetate were older than users of other methods in this study and in Egypt [3]. This was probably due to the relationship of number of children to method used; women with more children may look for more effective methods even though they are not interested in using permanent methods.

The continuation rate of low dose combined hormonal oral contraceptive pills was 92% in Zahedan and 72% in the USA in the first 6 months [5]. It rose to 83% in Zahedan after 1 year and was 52% in Egypt and 40.8% at Benin after 1 year [3,6]. The continuation rates of low dose combined hormonal oral contraceptive pills were 73% and 70% after 2 and 3 years in Zahedan, which were higher than in similar studies. A study in Tehran found that the highest percentage of duration of use was > 4 years (33%) [7].

Medroxyprogesterone acetate continuation rates are 54% at 12 months, 44% at 24 months and 44% at 36 months. In Egypt, they were 43% at 1 year and 40% at 2 years. In Benin, they were 51.9% in the first year and in a cohort study 42% at 1 year and 21% at 2 years [3,8]. These results indicate low continuation rates of injection among women in various countries. These rates may be due to side-effects that prompt women to change the method. Women with less education were initially more interested in this method because they were not aware of its side-effects and when they encountered the first side-effect, they discontinued use.

IUD continuation rates were 76% at 12 months, 68% in at months and 60% at 36 months in Zahedan. In Isfahan they were 79% at 1 year and 59% at 2 years [9]. IUD continuation rates were 72% at 1 year and 63% at 2 years in Egypt [3]. In Scotland the IUD discontinuation rate was 55% at 1 year, in India it was 65% at 4 months, and in Papua New Guinea it was 92% at 1 year [4,7,10]. The IUD continuation rate in Zahedan therefore was higher than in other places. Most IUD users in Zahedan had higher education and probably chose the method with more initial knowledge; therefore, they were less likely to change the method.

Levonorgestrel implant continuation rates were 78% at 1 year, 78% at 2 years and 78% at 3 years. Levonorgestrel implant continuation rates were 79% at 1 year and 69% at 2 years in Egypt. In Singapore, they were 90%, 78%, 70%, 61% and 42% for the first year and each year up to 5 years [4]. In Scotland, it was 72% for 24 months [4]. The results of our study, therefore, are similar to other studies perhaps because the women in our study who used this method were more educated. Continuation rates

were constant from month 12 onwards; we conclude that those who use the levonorgestrel implant for 1 year are likely continue it from then on. In our study only 54 women used the levonorgestrel implant and perhaps the small number of users affected the results. With a larger sample, we might observe different results.

Log-rank test showed that the continuation rates of the 4 studied methods were not related to the woman's education, husband's education, number of children, or age of the last child. In the USA, variables such as specific side-effects, age, quality of patient-provider interaction and psychological variables were not predictive of oral contraceptive discontinuation [5].

In Zahedan, 31% of women discontinued methods during the 3 years of our study and the commonest reason was changing method. During the 3 years, 21.7% of women changed their methods 1–3 times. Discontinuation is a common event in all countries as 9%–34% of women discontinue methods due to service quality [1]. In Egypt, side-effects and health concerns of the method were the commonest reasons for discontinuation [3]. Common user complaints and side-effects were the reasons for discontinuation that were related to the methods, but these types of reasons also included misperceptions regarding relative risks of methods and low tolerance for a method's disadvantages [6].

In Zahedan, the main reason for low dose combined hormonal oral contraceptive pills discontinuation was changing method, but in Tehran it was medical reasons [7]. In other studies the main reason of discontinuation was menstrual disorders [3]. Side-effects were the main reason for discontinuation in the USA [5]. Discontinuation

of oral contraception and its later re-use indicates hurried selection of methods.

The commonest reason for IUD discontinuation in Zahedan was side-effects; this was similar to Egypt and 15 Asian countries, whereas in Isfahan the main reason for discontinuation was changing the method [1,3,9].

The commonest reason in Zahedan for medroxyprogesterone acetate discontinuation was changing method. Only 9% changed because of side-effects, whereas side-effects were the commonest reason for its discontinuation in Mashhad, Egypt and the USA [3,11]. In another cohort study menstrual disorders were the main reason for discontinuation [7]. Levonorgestrel implant discontinuation in Zahedan was due to side-effects, which is similar to studies in Isfahan, Egypt and India [3,7,12]. Since only 8 of 54 women discontinued levonorgestrel implant in Zahedan, we cannot draw a clear conclusion.

The continuation rates of contraceptive methods in the health centres in Zahedan were significantly different. With the Cox model we even observed a difference by type of method at each centre. Some reasons for these differences might be varying styles of communication in the initial interview with a new client, the quality of field-worker care, and client and staff expectations and interactions in the centres [10,13,14]. It has been reported that proper consultations when a woman is choosing the injection method of contraception is an effective strategy to decrease discontinuation [7]. We need more studies to understand effective factors so that we can make changes towards improving continuity of contraceptive methods.

Counselling should emphasize the possibility of side-effects and inform women

that most side-effects are transient. Consultations should also identify backup methods for women. Follow-up visits should be scheduled for 6 months after a prescription is written.

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