ARTICLE

Community-based distribution and contraception usage in Iran

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Abstract

Objective Despite the availability of free contraception from family planning clinics, the rate of unwanted pregnancy in Iran is still high. The effectiveness of other methods for contraceptive supply should, therefore, be evaluated. The aim of this study was to determine the effects of community-based distribution (CBD) on contraceptive usage in Iran.

Methods This controlled field trial study involved 297 individuals (100 subjects in the CBD group and 197 subjects in the control group) from four major remote areas of Hamedan, Iran. Stratified random sampling was used.

Results Data analysis suggested that using CBD has four major effects: (1) it increases the level of contraceptive knowledge ($p<0.0001$), (2) it enhances correct contraceptive choice by couples ($p<0.0001$), (3) it improves contraceptive usage ($p<0.0001$) and (4) it improves contraceptive continuation rates ($p<0.0001$).

Conclusions CBD facilitates better knowledge, proper choice, and correct and continuous usage of contraception. This method should, therefore, be adopted for family planning services in remote areas of Iran.

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Key message points

- **Community-based distribution (CBD) resulted in improved knowledge and suitability of contraceptive choice.**
- **Contraceptive usage and continuation rates were significantly improved by CBD.**
- **Choice of personnel involved is important to the success of CBD.**

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Introduction

Worldwide, of the 91 000 births that occur every day, 20% are unwanted.[1] Multicentre research has shown that the overall prevalence of unwanted pregnancy in Iran is about 28.6%.[2] Various contraceptive distribution techniques have been used to decrease this rate of unwanted pregnancy and one of the most effective is community-based distribution (CBD).

CBD refers to family planning services that use community organisations, structures, institutions and family planning outreach methods, such as home visits by trained agents, to promote the use of safe contraceptive techniques.[3] Community-based family planning programmes typically focus on the provision of oral contraceptives, foam tablets and condoms.[4] CBD programmes have already been adopted in some African countries to provide dual protection against pregnancy and sexually transmitted diseases.[5,6] CBD may be included as a component of community health outreach and in some CBD projects local village volunteers distribute family planning supplies and information door-to-door or from health centres.

Limited access to family planning results in high rates of unintended pregnancy, unsafe abortions, maternal and child deaths.[7] CBD, however, could bring family planning services to clients' homes through distributors. The Ministry of Health in Iran has already trained and employed locals as 'Volunteer Health Messengers' to deliver knowledge on breastfeeding and maternal health. In Iran, contraception is distributed through family planning clinics (FPCs) and some remote areas have mobile family planning couriers visiting mosques and schools. However, to date, the public in Iran has never received family planning services in the comfort of their own home.

This study, therefore, aimed to investigate the effects of CBD, through a carefully planned programme of service delivery, on contraception usage in Iran.

Methods

This was a controlled field trial study approved by the ethical committee of the Department of Research Affairs at the Iran University of Medical Science. All the subjects signed consent forms. Subjects were non-pregnant married women aged between 15 and 45 years and chosen from four different geographical suburbs of Hamedan City (North, South, East and West). According to previous studies, the rate of unwanted pregnancy in Hamedan is 25%.[7] This study proposed to reduce the rate by 10% as part of a national family planning programme. A sample size of 300 was calculated. Subjects were divided into two groups: the experimental group (100 subjects) and a control group (200 subjects).

A stratified random sampling technique was adopted using the following variables: age, occupation, level of education and number of children.

Subjects were interviewed at home. For each subject in the experimental group, two subjects were chosen from the control group. Exclusion criteria were as follows: a medical or paramedical education, delivery or abortion less than 6 weeks prior to the study, and pregnancy before or during the study. However, none of the subjects fell into these categories. Three subjects withdrew from the control group during the study period due to change of address.

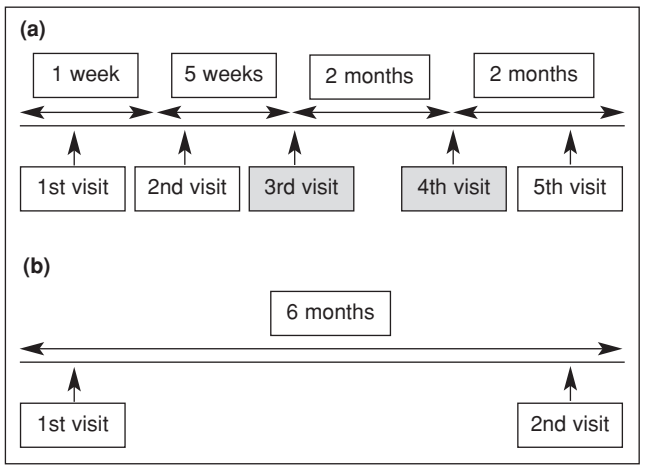

Figure 1 *Number of visits and the interval between each successive visit by the midwife and distribution agent (DA) for (a) the community-based distribution group and (b) the control group. Visits made by the DA alone are indicated by a tinted box*

A midwife trained 12 distribution agents (DAs) for 2 weeks. Training included an introduction to study design, instruction on the various types of contraceptive available, their benefits and side effects, and consultation skills. The World Health Organization criteria for filling out the Johns Hopkins University checklists for family planning programmes were explained and the GATHER (Greet, Ask, Tell, Help, Explain, Return) guidelines were introduced.[8] Pamphlets and written materials were provided for distribution to clients.

Each subject in the CBD group received five visits. The first two visits and the last visit were made by a midwife, and the remainder by a DA. For the control group, the same midwife made the first and the last visit. The interval between each successive visit was 2 months except for the second visit (for the CBD group), which was made 1 week after the first visit (Figure 1).

During the first CBD group visit the following steps were taken:

1. A preliminary introduction to the study was given.
2. A consent form was signed by the client.
3. Demographic data were gathered using a standard questionnaire.
4. The level of contraceptive knowledge was evaluated using a standard questionnaire with 23 questions (pre-test).
5. Different methods of contraception were explained to each client using a prepared illustrative package.
6. A physical examination was performed. Blood pressure and weight were measured to assess client suitability for particular contraceptive methods.
7. A list of carefully chosen contraceptive methods was given to the client. If the client was already using a contraceptive, its suitability was evaluated.
8. The client was then given an educational pamphlet and was asked to discuss the choice of a suitable contraceptive with her husband.
9. A referral card was given to the client to keep for her next visits, a copy of which was later given to the DA. The card included information on menstrual history, weight, blood pressure, date of visits and contraceptive method used. Clients had access to the midwife consultation services free of charge provided they kept the card. The card would also help the DA with follow-up.

The following steps were taken during the second visit:

1. The method chosen by the couples was recorded.
2. The oral contraceptive pill, condom or injectables were given if required. Subjects who chose the intrauterine device, tubectomy or vasectomy were directed to the nearest FPC with a referral letter. When a natural or withdrawal method was chosen, the correct procedure was explained in detail after the client had been reminded of the high failure rate of these methods.

At each visit, a checklist for the contraceptive used was marked. At the last visit for each group, the midwife completed the post-test questionnaire to evaluate the subjects and referred them to the nearest FPC for further follow-up since the study period was only 6 months.

The control group were visited twice by the midwife. During the first visit, step numbers 1 to 4 were taken. No contraceptives were provided. At the last visit, a post-test questionnaire was completed. The subjects in the control group had access to FPCs.

For both study groups, the following factors were measured: (1) the level of contraceptive knowledge (pre-test and post-test), (2) suitability of chosen contraception, (3) correct usage of contraception, (4) continuity of contraceptive usage and (5) occurrence of unwanted pregnancy.

Statistical analysis was done using SPSS software (SPSS Inc., Chicago, IL, USA). Quantitative variables were compared using the Chi-square test and qualitative variables were compared using the *t*-test. The Fisher test was used in cases where the number of subjects was less than five in 2 × 2 cross-tabulations. Values of $p<0.05$ were considered significant.

Results

Demographic data for both group studies are shown in Table 1. Some 48% of subjects in the CBD group and 49.3% in the control group were aged between 25 and 35 years. Additionally, the following factors were similar between the two groups: number of pregnancies ($p = 0.95$), delivery ($p = 0.65$), abortion ($p = 0.73$), number of girls ($p = 0.24$), number of boys ($p = 0.49$), duration of marriage ($p = 0.64$), age of the youngest child ($p = 0.03$) and history of unwanted pregnancy ($p = 0.26$).

Table 2 shows the level of contraceptive knowledge at the first and last visits for each group. The mean ± SD value for the level of knowledge was 9.1 ± 3.7 for the CBD group and 9.5 ± 3.2 for the control group. A comparison of pre-tests showed no significant difference between the two groups ($p = 0.31$). In both groups, more than 75% of subjects at the first visit had a poor level of contraceptive knowledge. The results of the post-test at the last visit, however, demonstrated that about 75% of the subjects in the CBD group had a good or fairly good level of knowledge, whilst 63.6% of the subjects in the control group had a poor level of knowledge. A comparison of the post-test results revealed that the CBD group had a higher level of knowledge (mean ± SD of 14.56 ± 4.45) than the control group (10.63 ± 3.56) ($p<0.0001$).

Suitability of the chosen contraceptive was found to be 99% in the CBD group compared to 70.3% in the control group ($p<0.0001$). Modern contraceptive methods such as pills and condoms were used more frequently by subjects in the CBD group, reflecting a 16% reduction in the use of traditional methods (Table 3). In the control group, the use of modern methods was also less. The use of irreversible family planning methods (tubectomy or vasectomy) increased in the CBD group from 12% to 17% as opposed to only a 1% increase in the control group.

Correct usage of contraception was 83% in the CBD group vs 73.5% in the control group ($p<0.0001$).

Table 1 *Demographic data for the community-based distribution (CBD) and control groups*

Demographic data	CBD group (%) (n = 100)	Control group (%) (n = 197)
Woman's age (years) (mean ± SD)	29.6 ± 6.6	29.5 ± 6.7
Husband's age (years) (mean ± SD)	34.6 ± 7.6	35.4 ± 7.7
Woman's education		
Illiterate	14.0	12.8
Literate	7.0	2.1
Primary	35.0	41.8
Secondary	20.0	21.9
High school	8.0	8.2
Diploma	12.0	11.7
University degree	4.0	1.5
Husband's education		
Illiterate	8.1	8.6
Literate	1.0	2.0
Primary	39.3	33.5
Secondary	30.3	32.0
High school	6.1	4.1
Diploma	9.1	13.7
University degree	6.1	6.1
Woman's occupation		
Housewife	95.0	97.0
Working	5.0	3.0
Husband's occupation		
Labourer	21.0	23.9
Office worker	16.0	21.8
Shop-keeper	61.0	50.2
Unemployed	2.0	4.1

Table 2 *Level of contraceptive knowledge for the community-based distribution (CBD) and control groups at the beginning (pre-test) and end (post-test) of the study period*

Level of knowledge*	CBD group (%) (n = 100)	Control group (%) (n = 197)
Pre-test		
Good	4.0	1.0
Fairly good	19.0	23.4
Poor	77.0	75.6
Mean ± SD	9.1 ± 3.7	9.5 ± 3.2
Test result	p = 0.31	T = 1.02
Post-test		
Good	31.0	4.1
Fairly good	40.0	32.3
Poor	29.0	63.6
Mean ± SD	14.56 ± 4.45	10.63 ± 3.56
Test result	p<0.0001	T = 8.22

*There were 23 questions on contraceptive knowledge. Each correct answer scored 1 point. The level of knowledge categories were as follows: Good = 18–23 points, Fairly good = 12–17, Poor = 0–11.

Continuity of contraception usage was 98.9% in the CBD group vs 84.5% in the control group (p<0.0001). There was no reported case of unwanted pregnancy in the CBD group but two such cases were reported in the control group. However, no significant difference was found between the two groups (p = 0.44) for unwanted pregnancy rates.

Discussion

This study aimed to evaluate the effects of CBD on contraceptive usage. Five variables were measured including level of knowledge, suitability of the contraceptive chosen, correct contraceptive usage and continuity and, finally, the occurrence of unwanted pregnancy.

The results showed that CBD is a successful intervention and that it has a significant role in upgrading subjects' contraceptive knowledge. Mita and Simmons[9] showed similar results with the use of DAs for CBD intervention. Martin[10] suggests that cultural similarity between distributors and clients can significantly upgrade the educational results when using CBD. Frequency of education (five visits), using the GATHER programme, as well as the short interval between visits (every 2 months), were major characteristics of our CBD programme and probably the reasons for its success. In the study by Caldwell and Khuda[11] CBD was also found to be effective in terms of enhancing clients' knowledge on contraceptive methods. Another study showed that distributors in CBD programmes should be chosen from volunteers in order to enhance their motivation to educate clients.[12]

As shown in Table 3, distributors in our study have been successful in motivating the subjects to use a safe and modern technique of family planning. Conversely, in the control group the use of pills or condoms provided by the FPCs has declined. This suggests that subjects have changed their contraceptive or neglected to use any contraception at all probably because of complications, lack of information and/or deteriorating motivation. Routh *et al*.[13] showed that CBD could increase the usage of pills and condoms by 70%. An African study also showed the effectiveness of CBD in promoting higher usage of condoms through an AIDS prevention programme.[14]

The present study was unique in providing access to irreversible contraception. As stated in the Results section, CBD could increase the percentage of clients using irreversible methods in appropriate cases.

Correct usage of contraceptive methods is the result of several factors. CBD provides a better opportunity for educating women in the comfort of their own home. Women do not have to travel and they gain time for other important family matters and also save on travelling costs.[15] In order to attend FPCs, women are often forced to leave their children unsupervised at home or in the care of a neighbour or inexperienced family member. This causes anxiety during the clinic visit and thus reduces learning ability. Additionally, CBD gives the women a chance to ask questions and not be rushed by time constraints at busy, crowded FPCs.

This study showed the effectiveness of CBD in the promotion of correct contraceptive usage. A study conducted by Bankole and Akinrinola[16] came to the same conclusions.

Table 3 *Contraception used by study participants within the community-based distribution (CBD) and control groups during the first and last visits*

Contraceptive method	First visit (%)		Last visit (%)	
	CBD group (n = 100)	Control group (n = 197)	CBD group (n = 100)	Control group (n = 197)
Withdrawal/natural	16.0	14.2	1.0	23.6
Condom	10.0	16.2	29.0	12.3
Oral contraceptive pill	43.0	33.0	31.0	27.0
Injectables	5.0	4.1	8.0	3.5
Intrauterine device	14.0	17.8	14.0	17.3
Tubectomy	12.0	12.2	15.0	12.7
Vasectomy	0.0	2.5	2.0	3.0
Test results	p = 0.43*	χ^2 = 4.85	p = 0.0001*	χ^2 = 34.8

*Degrees of freedom = 5.

Continuity of contraceptive usage also was studied by Hossain and Phillips.[17] Although the frequency of visits in that study was every 3 months, the continuity of contraceptive use was quite high (95%). In-depth interviews with subjects in that study revealed that easier access to contraception has been the most important characteristic of CBD leading to its success. A 1-year study conducted in Morocco concluded that the continuity of contraceptive usage is increased by using CBD programmes.[18]

In our study, the incidence of unwanted pregnancy was not found to be significantly different between the two study groups. However, it should be noted that two unwanted pregnancies were reported in the control group and none in the CBD group. A longer or larger study may have shown a significant difference in unwanted pregnancies.

Another unique characteristic of our study was that midwives and DAs were both working on the project, whereas in other CBD programmes DAs are mainly used to distribute the contraceptives. Trained midwives in Iran can handle family planning matters quite well. Considering the recent high unemployment rate amongst medical personnel in Iran, it is suggested that the government could use this valuable human resource for maintaining family planning programmes through CBD. CBD can be cost-effective in the long term.

Conclusions

CBD can be used successfully to introduce family planning methods into suburbs where access to FPCs is limited. CBD enhances the level of women's knowledge, which can, in turn, lead to the right choice of contraceptive. In addition, continuity of contraceptive usage can be guaranteed by CBD programmes. CBD programming requires detailed planning, a well-designed network of supervision and evaluation, and well-trained volunteers. It needs dedicated personnel, motivated clients and close cultural connection between the client and contraceptive distributors in addition to strong and continuous funding resources. These variables should be examined further in a comprehensive study.

Statements on funding and competing interests

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Competing interests. None identified.

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