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Evaluation of Subdermal Birth Control Implants Use among Married Women of Reproductive Age in a Metropolitan City of Bangladesh

*B Islam[1], T Jannat[2], A Begum[3], TH Sharmee[4], MK Luna[5]

Abstract

Background: Long-term hormonal birth control implant is the way of achieving optimal birth spacing in our country where high birth rate is one of the major concerns. **Aims & objectives:** To evaluate the knowledge, attitude, usage & feedback that influences the use of subdermal implants. Methods: This cross-sectional study was conducted in different maternity centers in Dhaka city. A total of 200 married women of reproductive age (18-45 years) were included in the study, whereas women beyond this age range & having co-morbidities were excluded. Data were collected through a standardized questionnaire and analyzed using Microsoft Excel 2007 spreadsheet. **Results:** In this study, 60% of women were in the age group ranging from 27 to 35 years, 27.5% were educated up to SSC/HSC level, 37% were housewives, 46% had poor socioeconomic conditions and 57.5% came from rural areas. The majority (71%) had heard about implants and 29% didn't know about the implant. Overall attitude was positive in 33% of respondents. About 39.70% quit due to desired pregnancy. Among 59% of users, there was a negative attitude due to some adverse effects. **Conclusion:** Despite some negative attitudes regarding subdermal implants, the use of this method is progressively gaining positivity regarding knowledge, attitude and other associated factors among women of reproductive age.

Keywords: Subdermal implant, Knowledge, Attitude

Introduction

Contraceptives play a significant role in reducing the incidence of induced abortion, miscarriage, stillbirth and improving the management of antenatal care in Bangladesh so that the maternal mortality rate may be decreased.[1,2] National family planning programs and non-government organizations in Bangladesh are playing an important role in the effort to lower the fertility rate and to increase the prevalence of contraceptive use.[1,2]

The use of long-acting methods like implants in a country shows that the family planning (FP) program is highly effective in spacing and limiting births similarly to other developing countries of the world.[2,3] These reversible contraceptives have higher continuation rates and higher user satisfaction than short-term methods (such as pills, injectables, and condoms).[4-6] Subdermal implants are effective, safe and long-acting reversible hormone-releasing forms of contraception for an extended period after a single administration.[3,4] These consist of small, thin flexible matchstick-sized rods inserted under

1. Dr. Baishakhi Islam, Associate Professor & Head, Department of Pharmacology & Therapeutics, Gazi Medical College, Khulna. Email: drbaishakh@gmail.com
2. Dr. Tamanna Jannat, Assistant Professor, Department of Pharmacology & Therapeutics, Bikrampur Bhuiyan Medical College, Munshiganj.
3. Dr. Arifa Begum, Assistant Professor, Department of Physiology, Gazi Medical College, Khulna.
4. Dr. Tania Hussain Sharmee, Assistant Professor, Department of Ophthalmology, Shaheed Suhrawardy Medical College & Hospital, Dhaka.
5. Dr. Mahfuja Khanam Luna, Assistant Professor & Head, Department of Ophthalmology, Gazi Medical College & Hospital, Khulna.

the skin on the upper arm and release small amounts of progestin hormone to prevent pregnancy for 3 to 5 years.[3-5] The primary mode of action of all subdermal implants is to suppress ovulation by altering the hypothalamo-pituitary-ovarian axis and secondarily thickening of the cervical mucus & preventing implantation by thinning the endometrium.[7-9] Women with several risk factors like lactation, diabetes, post-abortion state, HIV infection, cigarette smoking, cardiovascular diseases (including those with high blood pressure), and also adolescents can safely use implants.[4]

Despite the impressive gains in the contraceptive prevalence rate (CPR) in Bangladesh, there has been a decline in the use of long-acting and permanent methods over the last two decades.[10] The prevalence of use of implants remains low considering around 18% worldwide due to its slow take off.[7,11] Different studies around the world have identified factors attributed to low uptake of long-acting reversible contraceptives (LARCs) such as limited knowledge, awareness of LARCs among women, cost and a limited number of healthcare providers trained to provide LARCs. Some adverse effects are also considered the reasons for high rates of discontinuation of implants.[12,13] Changes in the menstrual pattern (amenorrhea, frequent and prolonged menstruation) are one of the more likely reasons for the early discontinuation of this method.[7] Other side effects of progestin-releasing contraceptive implants include gastrointestinal difficulties, headaches, acne, mastalgia, vaginitis, and weight gain.[7,9]

The study aims to describe the current evidence about contraceptive implants in clinical practice, in terms of their utilization, efficacy, and adverse events (AEs) in married reproductive-aged women.

Methodology

This prospective cross-sectional study was conducted among reproductive-aged married women attending different maternity centers in Dhaka city. These maternity centers were selected because of their peri-urban settings. A total of 200 users attending within the study period from 1st January to 31st December 2019 were enlisted in this study based on selection criteria.

Inclusion criteria:

- Users who were willing to adopt family planning strategy with sub-dermal implants.
- Users with ages ranging from 18 to 45 years.
- Users who attended the maternity centers within the study period.

Exclusion criteria:

- Users who were not willing to take part in the study
- Users who adopt family planning with other long-acting contraceptive methods.
- Users with associated conditions like thrombo-embolic disorders, liver tumors, active liver disease, undiagnosed abnormal genital bleeding, breast & other progestin-sensitive carcinomas
- Participants who did not attend follow-up visits.

Before starting the study, we received ethical approval from Institutional Ethics Committee. We also obtained oral & written consent from participants initially and verbal consent during the subsequent interview rounds. Demographic characteristics of the study population were collected in a preformed data collection sheet. Besides this, other information that aims to identify the level of knowledge of the implant as a contraceptive method and determine key characteristics of this study were also collected in the allotted questionnaire. This long-acting reversible contraceptive was free of cost given by the clinic authority. After receiving subdermal implants inserted by an expert physician, participants were interviewed with follow-up after 6 months and 12 months to collect data on their experiences. At each follow-up interview, some questions were asked to the participants regarding positive and negative aspects of the method used, side-effects and bleeding changes, compliance with uses, removal intentions or experiences and subsequent contraceptive method use.

After collecting all the information required for the study, data were collated in the form of different tables and figures by using Microsoft Excel 2007 spreadsheet and the results were expressed in percentages.

Results

A total of 200 married women of childbearing age (18-45 years) fulfilled the inclusion criteria and consented to the study. When age was categorized, it was found that the majority of respondents [120 (60%)] belonged to the age group of 27-35 years followed by the age group of 18-26 years [47 (23.5%)]. Among the respondents, 27.5% were educated up to SSC/HSC level, while 22% were educated till the primary level only. Also, 20% had no formal education & only 13.5% were graduates. 37% of respondents were housewives & 27% were working different jobs including daily wage earners, and contractual or permanent job holders. 21% were involved in different working places while 15% remained in the unemployed category. The majority of respondents (57.5%) came from rural areas and 46% belonged to lower socioeconomic class. All these socio-demographic features are shown in Table 01.

Table 01: Socio-demographic characteristics of the population

Characteristics of the population		Total number n= 200	Percentage (%)
Age (years)	18-26	47	23.5%
	27-35	120	60%
	36-45	33	16.5%
Level of education	No formal education	40	20%
	Primary	44	22%
	Secondary	34	17%
	SSC/HSC	55	27.5%
	Graduate	27	13.5%
Residence	Rural	115	57.5%
	Urban	85	42.5%
Occupation	Housewife	74	37%
	Unemployed	30	15%
	Service holder	54	27%
	Others	42	21%
Socioeconomic status	Low	92	46%
	Medium	72	36%
	High	36	18%

Figure 01 & **Figure 02** respectively show the attitude and knowledge of the respondents regarding the use of subdermal implants. Overall attitudes are shown in Figure 01. 59% of women were in the negative category, 33% were in the positive & only 8% were in the neutral category.

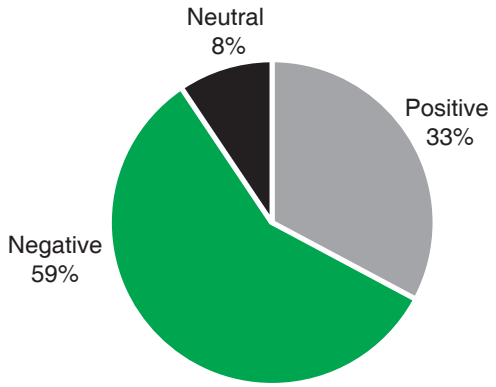

Figure 01: Overall attitude regarding implant use

And **Figure 02** reveals that 24% of respondents had good knowledge, 47% had average knowledge and 29% had inadequate knowledge about implants as a choice of contraception.

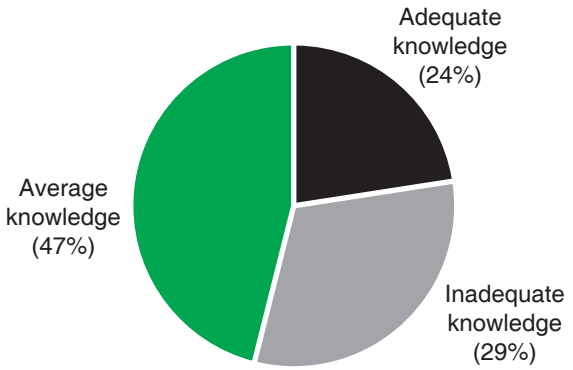

Figure 02: Overall knowledge about subdermal implant use

The distribution of participants' different variables regarding implant use showed in **Table 02.** 142 (71%) participants had information or idea about implants. 58 (29%) women did not even know about subdermal birth control implants as a method of contraception. Out of 142 participants, a maximum of 84 (59.15%)

received information from their neighbors, followed by health workers 52 (36.61%), relatives or friends 40 (28.16%). Almost three-fourths of the participants (78%) took permission from their husbands regarding the use of implants for birth spacing (66.5%). During the follow-up visit, most of the women provided negative (59%) rather than positive (41%) feedback on implant use. 32% of respondents wanted to continue the method but 68% chose to quit.

Table 02: Distribution of different variables regarding implants

Variables		Frequency n=200	Percentage (%)
Information /idea	Yes	142	71%
	No	58	29%
Sources of informatio* (n=142)	Neighbor	84	59.15%
	Health worker	52	36.61%
	Relatives/friends	40	28.16%
	Social media	24	16.90%
Discussion/ permission with husband	Yes	156	78%
	No	44	22%
Purpose of using	Spacing	133	66.5%
	Limiting	67	33.5%
Patient feedback	Positive	82	41%
	Negative	118	59%
Intentions to discontinue	No	64	32%
	Yes	136	68%

*In many cases, participants selected more than one option.

Table 03 shows various reasons for giving positive and negative feedback by respondents. Bleeding disturbances (29.66%) followed by increased bleeding (23.72%), and menstrual abnormalities (18.64%) were more common negative feedback from the respondents. On the other hand, 39% of women benefitted from its long-lasting property; other positive aspects were effectiveness (31.70%), few or no side effects (26.82%), regular menstruation (24.39%), etc.

Table 03: Patients' feedback on implant utilization

Types	Reasons	Number & Percentage (%)
Negative feedback	Bleeding disturbances	35 (29.66%)
	Increased bleeding	28 (23.72%)
	Menstrual abnormalities	22 (18.64%)
	Painful insertion	18 (15.25%)
	The device lasts too long	14 (11.86%)
Positive feedback	Longer lasting	32 (39.02%)
	Effective	26 (31.70%)
	Few or no side effects	22 (26.82%)
	Regular menstruation	20 (24.39%)
	Convenient	15 (18.29%)
	Reduced or no bleeding	09 (10.97%)

N.B: In many cases, participants selected more than one option. So the sum of the percentage is >100%

Figure 03 reveals some reasons for the discontinuation or removal of implants. 39.70% of women wanted to discontinue due to desired pregnancy. Menstrual disturbance (18.38%) was the second most common cause of removal followed by pain or discomfort (16.17%), increased bleeding (11.02%), etc.

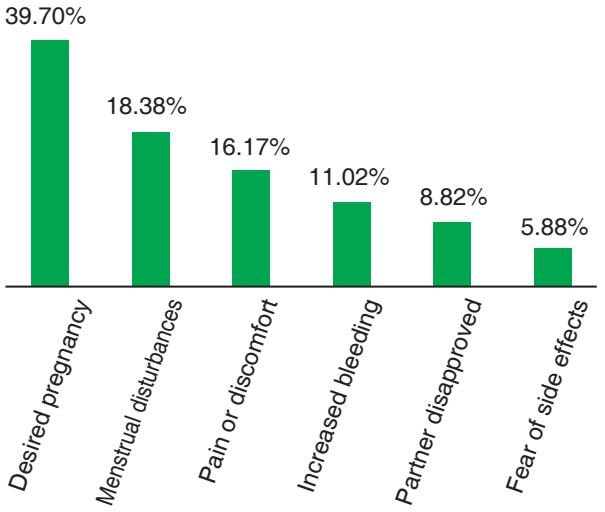

Figure 03: Reasons for removal or discontinuation of subdermal implants

Discussion

This is a cross-sectional descriptive study where a total of 200 participants who received subdermal implants were recruited. Most of them were in the age group between 27 to 35 years (60%) followed by 18 to 26 years (23.5%). This finding is consistent with other studies.[3,4,12,14-16] Most of the women (27.5%) had education up to SSC/HSC level and 22% had no formal education. This finding is similar to a study done by Mubarik et al.[16] which reflects the education status of women in rural areas of Pakistan. The majority of participants in our study belonged to rural areas (57.5%). A similar finding was found in a study done in Pakistan.[16] We found from the observation that three-fourths of women were housewives (37%) which is relevant to a study done in Pakistan also.[16] Most of the participants came from lower-class families. Our study results are in concordance with other studies in that majority of study subjects were from the lower socioeconomic condition.[4,16]

The knowledge & attitude regarding implants is of key importance as the current study was conducted to assess the level of knowledge and attitude, usage, feedback, etc about subdermal contraceptive implants among females of reproductive age groups. Overall positive attitude toward implants was found among 33% and a negative attitude was found among 59% of the participants. Only 8% of people remained neutral. Other studies, like a study from Pakistan, by Mubarik et al. found that positive attitudes about implants significantly increased with an increasing level of education.[16] The attitude of women usually depends on parity, education, socioeconomic status, employment; compliance, etc. It was found that higher parity, higher education, employment, and higher monthly income (middle socioeconomic status) were associated with more cases of discontinuation of implants. Our study results revealed that 24% of participants had adequate knowledge whereas 29% had inadequate and 47% had average knowledge regarding subdermal implant use. Contrary to this, a study conducted by Mubarik et al. reported that 14.2% of women had good knowledge of implant[16], and another study in Malaysia also showed that 72.1% of women had sufficient knowledge of implants.[17]

In this study, we found about 142 (71%) participants had adequate information or idea about subdermal implants which is in concordance with other studies.[3,4,18] But another study done by Mubarik et al. in Pakistan showed that implant was used by a very little proportion of women which was only 21%.[16] This probably makes implant the least used contraceptive method in Pakistan. Among 142 (71%) participants, 59.15% of users gained information from their neighbors, 36.61% from health workers, 28.16% from relatives/friends and 16.90% from social media. Similar findings with different percentages were also observed in other studies.[4,19,20]

In this study, 78% of participants discussed with their husbands about taking implants as observed in other studies.[3,4,18] Birth spacing was the main reason for using implants among 66.5% of participants in this study. This is similar to the studies done by Elias et al. & Bista where birth spacing was the main reason for using the implants.[4,20]

We have found that women in the 3rd and 4th decade of life constitute a major part of contraceptive users all over the world. The reason is that most of them at this age have at least one to two children and those women then want birth spacing.[16-18]

In our study, we obtained positive feedback from 41% of users and negative feedback from 59% of users regarding implants. 68% of people did not want to continue rather they wanted to remove implants. A similar finding was seen in another study done by Brunie et al. where different percentages of values regarding the continuation of implant use had been shown in Nigeria & Zambia.[14] In our study, 68% of participants wanted to discontinue the implants whereas only 32% did not want to remove them. Some negative issues of implants like bleeding disturbances (29. 66%), increased bleeding

(23.72%), menstrual abnormalities (18.64%), insertion pain (15.25%) and the device lasting too long (11.86%) were the important reasons for negative feedback. On the other hand, many of the participants had given positive feedback also as longer lasting (39.02%), effective (31.70%), few or no side effects (26.82%), regular menstruation (24.39%), convenient (18.29%), reduced or no bleeding (10.97%). Another study from Nigeria and Zambia by Brunie et al. also found the self-reported negative & positive aspects of this method with different proportions.[14] The major reason for discontinuation was the desire for pregnancy among 39.70% of participants in our study. This result is similar to those of other studies.[9,10,17,19,21] There are some other negative reasons for discontinuation like menstrual disturbances (18.38%), pain or discomfort (16.17%), increased bleeding (11.02%), etc. Some other studies revealed some reasons for discontinuation such as discontent with the bleeding pattern, switching to another method, pain or discomfort, inconvenience to use, husband disapproval, etc with different percentage values.[4,10,14,17,19] In Southern Ethiopia there were some other reasons for removal like fear of side effects, husband disapproval, fear of child death, to replace dead children, the happiness of relatives with many children, etc.[4]

The current study had some limitations. Firstly, it was a questionnaire-based study in which the participants who had quit the implant use or who wanted to switch to another contraceptive method were not interviewed thoroughly. Secondly, due to limited financial support and inadequate time, we had to conduct the study in limited areas, with a small sample size, and in a short duration. Despite these limitations, the study reveals overall attitude, knowledge, and associated factors toward subdermal birth control implants as an effective family planning program.

Conclusion

Along with some limitations, this study concludes that the use of subdermal implants was partially well accepted among women of reproductive age despite an incidence of irregular bleeding which was found to be a major concern among the discontinuers.

Recommendations

Based on the findings of this study, the following recommendations have been made:

- To enhance the utilization of implants, government & non-government organizations should take effective and widely spreading awareness programs among the rural people as well as in suburban areas.
- To increase implant contraceptive utilization, an adequate number of health service providers and health extension workers should be trained in the safe removal of the implants as timely as possible.
- To mitigate the health problems related to unwanted pregnancies, trained health professionals should advocate the minimal risk or side effects associated with implant contraceptive methods.
- Further research is needed to evaluate the extent of use of implants in different population groups including high social class, working married women & the urban populations, and also on the adverse effects of implant use.

Conflict of interest

None of the authors declared any conflict of interest regarding this article.

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