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Knowledge and Acceptance of Subdermal Contraceptive Implants among Mothers of Reproductive age group: A Cross-Sectional Study from a Selected Hospital in New Delhi, India

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Abstract

Subdermal contraceptive implants are a highly effective, safe, and long-acting reverible contraceptive method that provides protection against unintended pregnancy for 3–5 years. Despite their proven effectiveness and convenience, awareness and acceptance of this contraceptive method remain low among women in India. Limited knowledge regarding the benefits, effectiveness, safety, and availability of subdermal contraceptive implants may negatively influence their acceptance and utilization. Assessing mothers' knowledge and acceptance is therefore essential for planning appropriate educational interventions to improve informed family planning decisions.

The present study aimed to assess the knowledge and acceptance regarding subdermal contraceptive implants among mothers in the reproductive age group, examine the association between knowledge and acceptance, identify factors influencing acceptance, and develop an informational booklet to address identified knowledge gaps.

A quantitative descriptive cross-sectional research design was adopted. The study was conducted among 100 mothers in the reproductive age group attending Pandit Madan Mohan Malviya Hospital, New Delhi. Participants were selected using a non-probability convenient sampling technique. Data were collected using a structured questionnaire to assess knowledge, a Likert scale to assess acceptance, and a socio-demographic proforma. An informational booklet was provided after data collection. Data were analyzed using descriptive and inferential statistics, including frequencies, percentages, mean, standard deviation, chi-square test, independent sample t-test, and one-way ANOVA.

The majority of participants were aged 23–30 years (57%), homemakers (90%), and belonged to nuclear families (51%). About 65% of mothers had never heard about subdermal contraceptive implants. Most participants demonstrated inadequate knowledge (65%) and low acceptance (65%) regarding subdermal contraceptive implants. A highly significant association was observed between knowledge and acceptance ($\chi^2 = 117.14$, $p < 0.001$). Knowledge was identified as the strongest predictor of acceptance. Religion,

occupation, and monthly family income showed a significant influence on acceptance, whereas age, educational qualification, type of family, number of living children, age at marriage, and duration of marriage were not significantly associated.

The study concluded that mothers of reproductive age group had inadequate knowledge and low acceptance regarding subdermal contraceptive implants. Improving knowledge through structured health education, counselling, and informational booklets can significantly enhance acceptance and promote informed family planning decisions, thereby improving reproductive health outcomes.

Keywords: Subdermal Contraceptive Implants, Knowledge, Acceptance, Mothers, Reproductive Age Group, Family Planning, Informational Booklet.

1. Introduction:

Family planning is an essential component of reproductive healthcare that promotes healthy birth spacing, reduces unintended pregnancies, and improves maternal and child health outcomes. The Government of India provides a range of contraceptive methods through the National Family Planning Programme to enable couples to make informed reproductive choices. Among these methods, subdermal contraceptive implants are highly effective long-acting reversible contraceptives (LARCs) that provide safe, reversible, and long-term protection against unintended pregnancy for three to five years.

Despite their proven effectiveness and safety, the utilization of subdermal contraceptive implants remains limited in India. Inadequate knowledge, misconceptions regarding side effects, insufficient counselling, cultural beliefs, and limited awareness continue to influence women's acceptance of this contraceptive method. Consequently, the use of subdermal contraceptive implants remains low despite their potential to improve reproductive health and promote effective birth spacing.

Educational interventions play an important role in improving women's knowledge and acceptance of modern contraceptive methods. Information booklets provide simple, accurate, and evidence-based information that women can refer to repeatedly, thereby supporting informed decision-making regarding family planning. Previous studies have shown that structured health education and counselling improve awareness and acceptance of long-acting reversible contraceptive methods, emphasizing the importance of educational interventions in reproductive healthcare.

The present study was therefore undertaken to assess the knowledge and acceptance of subdermal contraceptive implants among mothers in the reproductive age group in a selected hospital of New Delhi and to provide an informational booklet to enhance their understanding regarding subdermal contraceptive implants. The findings of the study are expected to provide baseline information for nursing professionals to plan appropriate educational interventions and promote the utilization of subdermal contraceptive implants, thereby contributing to improved reproductive health outcomes.

2. Review of Literature

A literature review is a systematic and critical evaluation of existing research related to a specific topic. It synthesizes published evidence to provide the background and rationale for the present study, identify gaps in current knowledge, and support the need for further research. By examining previous findings, a

literature review establishes the theoretical and empirical foundation of the study, highlights key concepts and trends, and places the current research within the context of existing scientific evidence.

Kabir et al. (2026) reported that 31.35% of women discontinued contraceptive implants early. The major reasons included menstrual irregularities, dysmenorrhea, desire for pregnancy, husband's opposition, side effects, and switching to other contraceptive methods. This study highlights that continuation of implants is influenced not only by clinical side effects but also by reproductive intentions and sociocultural factors.

Figueiroa et al. (2025) examined factors influencing adherence to IUDs and subdermal implants among adolescent postpartum women. The study identified fear of insertion, concerns about side effects, fear of infection, and doubts regarding effectiveness as important barriers. The authors emphasized that comprehensive health education and counseling can improve acceptance and adherence to long-acting contraceptive methods.

Gupta et al. (2025) assessed knowledge and acceptability of long-acting reversible contraceptive methods among 200 women attending contraception counseling sessions. Although awareness of implants was only 27%, acceptability improved substantially after counseling, with 58% of women expressing preference for subdermal implants. These findings demonstrate the important role of structured counseling in overcoming misconceptions and improving acceptance.

Tegegne (2025), in a study among 272 married women in Ethiopia, found high awareness of implants (87.6%) but low actual utilization (20.6%). Negative attitudes were primarily related to misconceptions regarding irregular bleeding, pain, and insertion or removal procedures. The study emphasized the importance of accurate information, counseling, and provider training to improve implant uptake.

Vachhani et al. (2025), in a cross-sectional study among 200 women in Ahmedabad, reported very low awareness of contraceptive implants, with only 17% of participants being aware of the method and 15% considering it safe. Awareness was significantly associated with education, religion, and gravidity, highlighting the influence of sociodemographic factors on contraceptive knowledge and acceptance.

3. Materials and Methods

Research Design

A quantitative descriptive cross-sectional research design was adopted.

Study Setting

The study was conducted at the Family Planning and Antenatal Care Outpatient Department of Pandit Madan Mohan Malaviya Hospital, New Delhi.

Study Population

The study population consisted of mothers aged 18–45 years attending the Family Planning and ANC OPD.

Sample Size

A total of 100 mothers participated in the study.

Sampling Technique

Non-probability convenient sampling was used.

Inclusion Criteria

Participants included:

- Mothers aged 18–45 years.
- Mothers attending the Family Planning and ANC OPD.
- Mothers willing to participate.
- Mothers able to understand Hindi.

Exclusion Criteria

- Mothers unwilling to participate.
- Women who were not mothers or were outside the age group of 18–45 years.

Research Instrument

The structured questionnaire consisted of three sections:

Section A: Socio-demographic Profile

Included age, religion, educational status, occupation, monthly family income, number of living children, age at marriage, duration of marriage, previous contraceptive use, and obstetrical history.

Section B: Knowledge Assessment

A structured questionnaire assessed knowledge regarding subdermal contraceptive implants.

Section C: Acceptance Assessment

A five-point Likert scale assessed acceptance regarding subdermal contraceptive implants.

Validity and Reliability

Content validity was established through expert review by nursing and obstetrics & gynaecology specialists. Reliability was established using Spearman's rank correlation coefficient ($\rho = 0.94$), indicating high reliability.

Ethical Considerations

Institutional permission was obtained before data collection. Written informed consent was obtained from all participants. Confidentiality and anonymity were maintained throughout the study.

Data Analysis

Data were analyzed using descriptive and inferential statistics. Frequencies, percentages, mean, standard deviation, and Chi-square test were used to analyze the data.

4. Results

Socio-Demographic Characteristics:

A total of 100 mothers in the reproductive age group participated in the study. The majority (57%) were aged 23–30 years. Most participants were Hindus (67%), homemakers (90%), and had completed higher secondary education or above (42%). More than half belonged to nuclear families (51%), and 65% had never heard about subdermal contraceptive implants.

Table 1 Demographic Characteristics of Respondents

Variable	Category	Frequency (n)	Percentage (%)
1.Age (years)	18–22	11	11
	23–30	57	57
	31–38	21	21
	39–45	11	11
2.Religion	Hindu	67	67
	Muslim	32	32
	Christian	1	1
	Sikh	0	0
3.Educational qualification	No formal education	12	12
	Primary	6	6
	Secondary	40	40
	Higher secondary & above	42	42
4.Occupation	Homemaker	90	90
	Employed	8	8
	Self-employed	1	1
	Other	1	1
5.Monthly family income	≤₹10,000	32	32
	₹10,001–20,000	38	38
	₹20,001–30,000	20	20

	≥₹30,000	10	10
6.Type of family	Nuclear	51	51
	Joint	48	48
	Extended	1	1
7.Number of living children	One	43	43
	Two	44	44
	Three	10	10
	Four or more	3	3
8.Age at marriage	<18 years	13	13
	18–22 years	58	58
	23–27 years	28	28
	>27 years	1	1
9. Duration of marriage	<5 years	26	26
	5–10 years	47	47
	11–15 years	16	16
	>15 years	11	11
10. Heard about subdermal implants	Yes	35	35
	No	65	65

Knowledge Regarding Subdermal Contraceptive Implants

Most mothers (65%) had no knowledge regarding subdermal contraceptive implants, while only 14% demonstrated good knowledge.

Table 2 Level of knowledge regarding subdermal contraceptive implants

Knowledge level	Score	Frequency	Percentage (%)
Good	21–30	14	14
Average	11–20	19	19
Poor	1–10	2	2
No knowledge	0	65	65

Acceptance Regarding Subdermal Contraceptive Implants

Acceptance was generally low among participants. Most mothers (65%) had no acceptance because they lacked knowledge regarding subdermal contraceptive implants.

Table 3. Level of acceptance regarding subdermal contraceptive implants

Acceptance level	Score	Frequency	Percentage (%)
Highly positive	41–50	10	10
Positive	31–40	23	23
Neutral	21–30	2	2
Negative	11–20	0	0
Highly negative	10	0	0
No acceptance (No knowledge)	0	65	65

Association Between Knowledge and Acceptance

A statistically significant association was observed between knowledge and acceptance of subdermal contraceptive implants (χ^2 test, **$p < 0.001$**), indicating that mothers with better knowledge demonstrated greater acceptance.

Factors Influencing Acceptance

Religion, occupation, and monthly family income were significantly associated with acceptance of subdermal contraceptive implants, whereas age, education, family type, number of living children, age at marriage, and duration of marriage were not significantly associated.

Table 4. Association between knowledge and acceptance (Chi-square test)

Knowledge level	Highly Positive	Positive	Neutral	Negative	Highly Negative	No Acceptance
Good	4	10	0	0	0	0
Average	6	13	0	0	0	0
Poor	0	0	2	0	0	0
No knowledge	0	0	0	0	0	65

$\chi^2 = 117.14, p < 0.001$

Table 5. Association of selected demographic variables with acceptance

Variable	Categories (Mean ± SD)	Fvalue	Pvalue	Inference

1.Age group	18–22 yr (11.09 ± 19.23) 23–30 yr (11.98 ± 17.32) 31–38 yr (11.43 ± 18.64) 39–45 yr (25.27 ± 20.25)	1.829	0.147	Not significant
2.Religion	Hindu (10.12 ± 16.95) Muslim (19.16 ± 19.89) Christian (32.00 ± 0.00)	3.3	**0.041**	**Significant**
3.Education Qualification	No formal education (10.25 ± 18.58) Primary (12.67 ± 20.12) Secondary (13.05 ± 18.22) Higher secondary & above (14.33 ± 18.76)	0.155	0.926	Not significant
4.Occupation	Homemaker (10.72 ± 17.08) Employed (36.38 ± 15.52) Self-employed (31.00 ± 0.00) Others (36.00 ± 0.00)	6.578	**0.0004**	**Highly significant**
5.Monthly family income	₹10,000 or less (4.19 ± 11.53) ₹10,000–20,000(18.45± 19.93) ₹20,000–30,000(15.20±19.25) ₹30,000 or above (18.40± 19.68)	4.357	**0.006**	**Significant**
6.Type of family	Nuclear (12.25 ± 18.51) Joint (14.54 ± 18.40) Extended (0.00 ± 0.00)	0.449	0.639	Not significant
7.Number of living children	One (14.53 ± 18.53) Two (13.00 ± 18.41) Three (12.60 ± 20.39) Four or more (0.00 ± 0.00)	0.591	0.622	Not significant
8.Age at marriage	<18 years (18.77 ± 21.37) 18–22 years (10.88 ± 17.25)	1.139	0.337	Not significant

	23–27 years (14.86 ± 19.01) >27 years (32.00 ± 0.00)			
9.Duration of marriage	<5 years (10.54 ± 17.88) 5–10 years (11.00 ± 17.31) 11–15 years (16.31 ± 19.48) >15 years (24.64 ± 19.69)	2.048	0.112	Not significant

5. Discussion

The study was conducted in selected hospital of New Delhi. For the present study sample size was 100 mothers of reproductive age group. The technique used was nonprobability convenient sampling. The tool developed for data collection was structured questionnaire.

- Majority of the mothers (57%) belonged to the age group of 23–30 years.
- Most of the mothers (67%) were Hindus.
- Majority of the mothers (42%) had higher secondary education or above, whereas (40%) had secondary education.
- Most of the mothers (90%) were homemakers.
- Majority of the mothers (65%) had no knowledge regarding subdermal contraceptive implants.
- Nineteen percent of mothers had average knowledge, 14% had good knowledge and 2% had poor knowledge regarding subdermal contraceptive implants.
- The mean knowledge score was 6.59 ± 9.38, with a median of 0 and mode of 0.
- The knowledge scores ranged from 0 to 27, indicating considerable variation in knowledge levels among the respondents.
- Overall, the findings indicated inadequate knowledge regarding subdermal contraceptive implants among mothers of reproductive age group.
- Majority of the mothers (65%) had no acceptance due to lack of knowledge regarding subdermal contraceptive implants.
- The mean acceptance score was 13.23 ± 18.35, with a median of 0 and mode of 0.
- The acceptance scores ranged from 0 to 48, indicating wide variation in acceptance levels among the respondents.
- Overall acceptance regarding subdermal contraceptive implants was low among mothers of reproductive age group.

- A highly significant association was found between level of knowledge and level of acceptance regarding subdermal contraceptive implants ($\chi^2 = 117.14$, $p < 0.001$). [Mothers with good and average knowledge demonstrated higher levels of positive acceptance towards subdermal contraceptive implants.
- Knowledge regarding subdermal contraceptive implants was identified as the strongest factor influencing acceptance among mothers of reproductive age group.

6. Nursing Implications

Nursing Education

The study on subdermal contraceptive implants has significant implications for nursing education. Nursing curricula should strengthen instruction on subdermal contraceptive implants to ensure that both student and practicing nurses develop the knowledge, clinical skills, and professional attitudes required to deliver safe, evidence-based family planning services and high-quality reproductive health care.

Nursing Practice

Nurses plays a vital role in promoting family planning services, counselling mothers.

Nursing Administration

Nurse administrators is ensuring effective family planning services, improving staff competency, and promoting quality reproductive health care.

NURSING RESEARCH

The study on subdermal contraceptive implants among mothers has important implications for nursing research. It provides valuable information that can guide future studies aimed at improving reproductive health services and family planning practices.

LIMITATIONS

The study is limited to:

* Many women may have limited prior exposure to information regarding subdermal contraceptive implants, affecting their ability to provide detailed responses. Studies show awareness of contraceptive implants is often low among women attending family planning clinics.

* Acceptance of contraceptive implants may be influenced by family pressure, cultural beliefs, myths, and misconceptions, which may not be fully explored in the study.

* Some participants may have difficulty understanding the questionnaire or booklet due to differences in literacy level or language proficiency.

7. Recommendations

* The study can be conducted on large sample tool validate and generalized it’s findings.

* A cross sectional study can be conducted to assess knowledge of subdermal contraceptive implants among nursing students.

* The similar study can be conducted in rural community.

* A similar study can be conducted to identify knowledge among nurses regarding subdermal contraceptive implants.

8. Conclusion

The findings revealed that the majority of mothers had Inadequate knowledge and low acceptance regarding subdermal contraceptive implants. More than half of the mothers had never heard about this contraceptive method, indicating a substantial gap in awareness. The findings emphasize the importance of providing accurate information and counselling regarding subdermal contraceptive implants through health education programmes, Informational booklets, family planning clinics, antenatal services, and postpartum Counselling. Improving awareness and knowledge among mothers can enhance acceptance, Support informed contraceptive decision-making, and contribute to improved family planning practices and reproductive health outcomes.

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