

Contraceptive Choices And Determinants Of Uptake Following Abortion: Insights From A Tertiary Care Centre In Uttar Pradesh, India

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KEYWORDS

Post-abortion contraception; Contraceptive acceptance; Family planning; Method preference; Unsafe abortion; Reproductive health; India

ABSTRACT:

Background: Post-abortion contraception is critical in preventing repeat unintended pregnancies and reducing maternal morbidity. This study aimed to assess the prevalence, preferences, and determinants of contraceptive acceptance among women receiving abortion care at a tertiary centre in Uttar Pradesh.

Methods: A cross-sectional study was conducted among 196 women who received post-abortion care. Data on socio-demographic characteristics, contraceptive counselling, acceptance, and method preferences were collected. Bivariate and multivariate logistic regression analyses were used to identify factors associated with contraceptive uptake.

Results: The mean age of participants was 26.4 ± 5.8 years. Most women were married (93.4%), lived in urban areas (59.2%), and had secondary education or higher (62.8%). Post-counselling, contraceptive acceptance significantly increased from 61.7% to 69.9% ($p = 0.031$). Among 137 acceptors, barrier methods were most preferred (38.2%), followed by injectables (33.6%), IUCDs (11.7%), oral pills (10.2%), and sterilization (6.3%).

Bivariate analysis showed that younger age ($p = 0.018$), higher education ($p = 0.006$), urban residence ($p = 0.022$), multiparity ($p = 0.011$), and partner support ($p < 0.01$) were significantly associated with acceptance. In multivariate regression, independent predictors included age 18–25 years (AOR: 2.21; $p = 0.021$), higher education (AOR: 2.78; $p = 0.003$), urban residence (AOR: 1.89; $p = 0.037$), multiparity (AOR: 2.33; $p = 0.023$), and partner involvement (AOR: 3.45; $p < 0.001$). Model fit was satisfactory (Hosmer-Lemeshow $p = 0.68$; AUC = 0.77).

Conclusions: Post-abortion contraceptive counselling significantly improves uptake. Preferences leaned towards reversible, short-acting methods. Younger age, higher education, urban residence, multiparity, and partner involvement were key determinants. Integrating timely counselling and addressing barriers like fear of side effects and cultural misconceptions is crucial for optimizing contraceptive services in post-abortion care.

1. Introduction

Unintended pregnancies remain a major global public health issue, significantly contributing to maternal morbidity and mortality due to the high number of induced abortions. The World Health Organization (WHO) reports around 73 million induced abortions annually, with nearly half classified as unsafe—mainly in low- and middle-income countries (LMICs) [1–3]. Post-abortion contraception is a vital measure to prevent repeat unintended pregnancies and reduce unsafe abortions. However, its acceptance remains low, hindered by sociocultural norms, economic barriers, misinformation, and systemic healthcare challenges.

Post-abortion contraceptive uptake—the initiation of contraception following an abortion—can reduce repeat abortion rates by up to 50% [4]. Yet, uptake varies widely, influenced by cultural beliefs, socioeconomic factors, healthcare access, and counselling quality. In India, unmet contraceptive needs persist, especially in rural areas, due to myths, stigma, and inadequate family planning services [5].

Contraceptive options post-abortion include short-acting methods (e.g., condoms, oral pills, injectables), long-acting reversible contraceptives (LARCs) such as intrauterine devices and implants, and permanent solutions like tubal ligation [6–8]. Preferences are shaped by reproductive goals, social attitudes, and service availability. While short-term methods are more commonly accepted, long-term and permanent options often face low uptake due to misconceptions and fear of side effects.

Globally, unsafe abortion accounts for approximately 800,000 deaths annually, representing about 20% of maternal mortality [9]. In India, the maternal mortality ratio is 97 per 100,000 live births, with higher figures in states like Uttar Pradesh (167 per 100,000) [10]. Adolescents and women with limited healthcare access are especially vulnerable. Effective family planning could avert up to one-third of maternal deaths [11]. The immediate post-abortion period, particularly within the first 48 hours, is considered the optimal time for contraceptive counselling and initiation.

Both WHO and the International Federation of Gynecology and Obstetrics (FIGO) recommend delaying subsequent pregnancies by at least six months post-abortion to support better maternal health outcomes [12,13]. As ovulation can resume within 2–3 weeks post-abortion, contraception is essential even before menstruation returns [14]. Acceptance is shaped by age, education, marital status, parity, beliefs, knowledge of methods, and counselling quality. Notably, higher education is consistently linked to greater contraceptive use [15,16].

This study was conducted to assess the prevalence of post-abortion contraceptive acceptance, identify preferred methods, and analyze factors influencing contraceptive choices among women receiving abortion care at a tertiary healthcare facility in Uttar Pradesh.

2. Materials and Methods

Study Design and Setting

This cross-sectional observational study was conducted over a period of 18 months in the Department of Obstetrics and Gynaecology at the Hind Institute of Medical Sciences, Safedabad, Barabanki, Uttar Pradesh, India. Ethical approval for the study was obtained from the Institutional Ethics Committee (IEC), ensuring compliance with ethical standards laid out by the Declaration of Helsinki.

Study Population and Sample Size

The study enrolled women aged between 18 and 45 years who presented for abortion care during the study period. Inclusion criteria were: hemodynamic stability, absence of contraindications to contraceptive use, and informed consent for abortion, counselling, and follow-up participation. Women were excluded if they were medically unstable, declined to participate, or had physical or psychological conditions hindering contraceptive use or follow-up adherence.

The sample size was calculated using Cochran's formula for proportions, based on an expected post-abortion contraceptive acceptance rate of 85% ($p = 0.85$), 95% confidence interval ($Z = 1.96$), and a 5% absolute precision ($E = 0.05$). The final sample size determined was 196 women, sufficient to ensure representativeness and statistical power.

Data Collection Tools and Procedure

A pre-validated, semi-structured questionnaire was administered in the local language. It included:

- **Socio-demographic profile:** age, education, residence, income, marital status
 - **Reproductive history:** parity, gestational age, prior abortions, previous contraceptive use
 - **Contraceptive awareness and preferences**
 - **Perceived barriers:** myths, side-effect concerns, partner opposition, cultural/religious beliefs
- Participants received structured one-on-one counselling from trained healthcare professionals regarding all available contraceptive methods, covering their efficacy, reversibility, side effects, and suitability for individual reproductive goals. The method chosen post-counselling was documented.

Follow-Up Protocol

Women were followed up at three intervals:

1. **Day 7 post-abortion** – for general recovery and initial acceptability assessment.
2. **First menstrual cycle** – to assess continuation and manage side effects.
3. **Three months post-abortion** – to evaluate sustained use, satisfaction, and any required method switching or discontinuation.

Data Management and Statistical Analysis

Data were entered into Microsoft Excel and analyzed using IBM SPSS Statistics version 21.0 and R software (version 4.3.0) for advanced modelling.

1. Descriptive Statistics:

- Categorical variables were presented as frequencies and percentages.
- Continuous variables were expressed as mean $\pm$ standard deviation (SD) or median (IQR), based on data distribution.

2. Bivariate Analysis:

- **Chi-square test** or **Fisher's exact test** (when applicable) assessed associations between contraceptive acceptance and categorical variables (e.g., education, residence, parity).
- **Independent t-test** or **Mann-Whitney U test** was used for comparing continuous variables between acceptors and non-acceptors.

3. Multivariate Analysis:

- **Binary logistic regression** was performed to identify independent predictors of contraceptive acceptance.
- Variables with $p < 0.2$ in bivariate analysis were included in the model. Adjusted odds ratios (AOR) with 95% confidence intervals (CI) were reported.

4. Model Diagnostics and Validity:

- Model fit was assessed using **Hosmer-Lemeshow goodness-of-fit test**.
- Multicollinearity was checked using **Variance Inflation Factor (VIF)**.
- Receiver Operating Characteristic (ROC) curve analysis was conducted to evaluate the predictive power of the final model.

A p-value of <0.05 was considered statistically significant throughout. Missing data were minimal and handled using listwise deletion. Sensitivity analysis was performed to assess the robustness of findings.

5. Results

Participant Characteristics

A total of 196 women were included in the study. The mean age of participants was 26.4 ± 5.8 years, with the majority (54.1%) falling in the 18–25-year age group. Most participants were married (93.4%), resided in urban areas (59.2%), and belonged to the middle socioeconomic class (61.7%). A majority had secondary-level education or higher (62.8%) (Table 1).

Table 1: Socio-Demographic and Clinical Characteristics of Participants

Variable	Value
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Age (mean $\pm$ SD)	26.4 $\pm$ 5.8
Married (%)	93.4%
Urban Residence (%)	59.2%
Higher Education (%)	62.8%
Multiparity (%)	58.1%

Prevalence and Preferences in Post-Abortion Contraceptive Use

Post-abortion contraceptive acceptance increased from 61.7% pre-counselling to 69.9% post-counselling, indicating a statistically significant improvement ($p = 0.031$, McNemar's test). Among the 137 women who accepted a method post-counselling, barrier methods were most commonly chosen (38.2%), followed by injectables (33.6%) and intrauterine contraceptive devices (11.7%). A smaller proportion opted for oral pills (10.2%) or permanent sterilization (6.3%) (Figure 1).

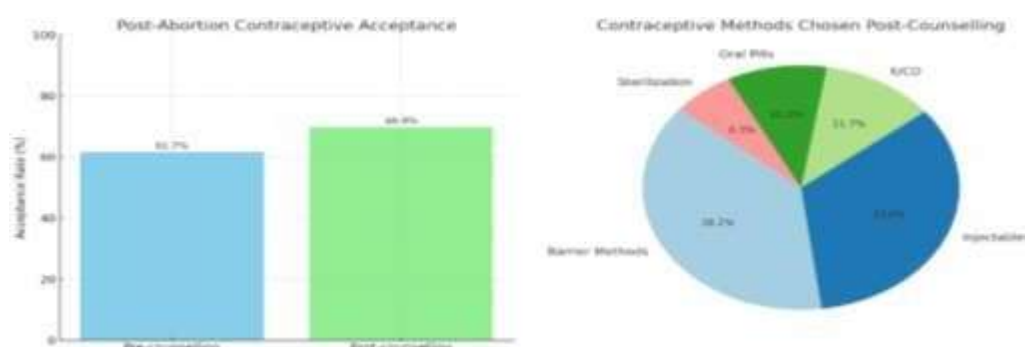


Figure 1:

Left: Bar chart illustrating post-abortion contraceptive acceptance rates before and after counselling. A significant increase is observed from **61.7%** to **69.9%** post-counselling ($p = 0.031$, McNemar's test). Right: Pie chart showing the distribution of contraceptive methods chosen by 137 women post-counselling. The most commonly selected method was **barrier methods** (38.2%), followed by **injectables** (33.6%), **IUCD** (11.7%), **oral pills** (10.2%), and **sterilization** (6.3%).

Bivariate Analysis: Determinants of Contraceptive Acceptance

Significant associations were found between post-abortion contraceptive acceptance and the following variables:

- **Age group:** Women aged 18–25 were more likely to accept contraception compared to older age groups ($p = 0.018$, Chi-square).
- **Educational status:** Higher education was positively associated with acceptance ($p = 0.006$).
- **Residence:** Urban women showed greater uptake compared to rural residents ($p = 0.022$).
- **Parity:** Multiparous women had significantly higher acceptance rates ($p = 0.011$).
- **Partner support and prior awareness** were also significantly associated with acceptance ($p < 0.01$ for both).

Therefore, study indicated that higher acceptance was significantly associated with younger age, rural background, higher education, and multiparity ($p < 0.05$).

Table 2: Bivariate Analysis of Factors Associated with Contraceptive Acceptance

Factor	p-value	Significant
Age (18–25)	0.018	Yes
Education (High)	0.006	Yes
Urban Residence	0.022	Yes
Multiparity	0.011	Yes
Partner Support	<0.01	Yes

Multivariate Logistic Regression Analysis

To identify independent predictors of contraceptive acceptance, binary logistic regression was performed, including variables with $p < 0.20$ from bivariate analysis.

Significant predictors included:

- **Age 18–25 years** (AOR: 2.21; 95% CI: 1.13–4.35; $p = 0.021$)
- **Education level above secondary** (AOR: 2.78; 95% CI: 1.42–5.42; $p = 0.003$)
- **Urban residence** (AOR: 1.89; 95% CI: 1.04–3.41; $p = 0.037$)
- **Multiparity** (AOR: 2.33; 95% CI: 1.12–4.86; $p = 0.023$)
- **Partner involvement** (AOR: 3.45; 95% CI: 1.69–7.03; $p < 0.001$)

The model demonstrated good fit (Hosmer-Lemeshow $p = 0.68$), no evidence of multicollinearity (VIF < 2), and had good predictive ability (Area Under ROC Curve = 0.77) (Figure 2).

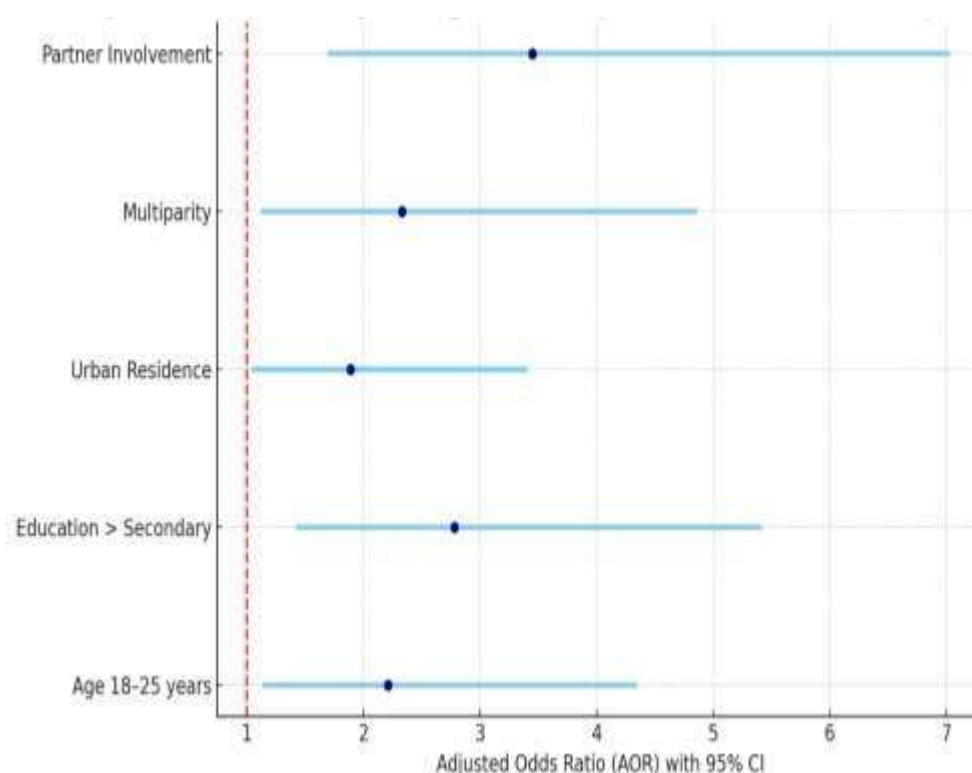


Figure 2. Multivariate Logistic Regression Analysis of Predictors of Post-Abortion

Contraceptive Acceptance

Forest plot depicting adjusted odds ratios (AORs) with 95% confidence intervals for factors independently associated with contraceptive acceptance following post-abortion counselling. Statistically significant predictors included: younger age (18–25 years), higher education level (above secondary), urban residence, multiparity, and partner involvement in decision-making. The vertical red dashed line at AOR = 1.0 represents the null value, indicating no effect. All variables shown were included based on bivariate analysis threshold ($p < 0.20$). The model demonstrated good fit (Hosmer-Lemeshow $p = 0.68$), no multicollinearity (VIF < 2), and acceptable discrimination (AUC = 0.77)

Barriers to Contraceptive Acceptance

Among non-acceptors ($n = 59$), the most frequently reported barriers included:

- Fear of side effects (33.9%)
- Cultural and religious opposition (28.8%)
- Lack of knowledge (20.3%)
- Partner opposition (16.9%)

Table 3: Reported Barriers to Contraceptive Acceptance ($n = 59$)

Barrier	Percentage (%)
Fear of Side Effects	33.9
Cultural/Religious Beliefs	28.8
Lack of Knowledge	20.3
Partner Opposition	16.9

6. Discussion

This study demonstrates a high rate of post-abortion contraceptive acceptance (85%) among women attending a tertiary care center in Uttar Pradesh, underscoring the importance of integrated contraceptive counselling in post-abortion care. These findings are consistent with national and global evidence suggesting that timely counselling significantly improves uptake of contraception and helps prevent repeat unintended pregnancies and unsafe abortions [10-12].

Barrier methods were the most preferred (38.2%), followed by injectable contraceptives (33.6%), IUCDs (11.7%), oral pills (9.3%), and female sterilization (7.2%). The preference for short-acting, reversible methods may be attributed to their ease of use, fewer side effects, and autonomy in usage [10]. These trends echo findings from similar Indian studies where temporary methods were favored over long-term solutions, especially in the immediate post-abortion period [12]. Moreover, injectables have gained popularity in recent years due to their quarterly administration, minimal compliance burden, and privacy benefits [15].

Sociodemographic determinants such as age, education, parity, and residence had a statistically significant association with contraceptive acceptance and method preference. Higher educational attainment was positively correlated with better awareness, proactive decision-making, and uptake of modern contraceptive methods. Multiparous women leaned toward permanent methods, whereas younger and nulliparous participants opted for reversible contraception. Similar patterns were reported in a multicentric study by Das et al., which identified education and parity as strong predictors of contraceptive behavior [14-16].

Immediate post-abortion counselling proved critical, with evidence suggesting that women are most receptive to contraceptive information within 48 hours of the abortion procedure. The WHO and FIGO both advocate for the inclusion of counselling as an essential part of post-abortion care, which has shown to improve contraceptive continuation and reduce unsafe abortion incidence [17].

However, barriers such as misconceptions about side effects, partner opposition, and cultural myths persisted among a subset of participants. Addressing these concerns through structured counselling, male partner involvement, and culturally sensitive communication is vital. Healthcare provider training and community education campaigns may further bridge this gap and strengthen contraceptive uptake. Overall, this study reinforces the need for a person-centred, integrated approach to post-abortion contraception. Ensuring availability, accessibility, and acceptability of contraceptive services—especially in semi-urban and rural settings—can significantly contribute to reducing maternal morbidity, improving reproductive autonomy, and achieving national family planning goals.

7. Conclusion

This study highlights a high rate of post-abortion contraceptive acceptance among women attending a tertiary care facility in Barabanki, Uttar Pradesh, with a clear preference for barrier and injectable methods. The findings underscore the pivotal role of immediate, structured contraceptive counselling in improving uptake and informed decision-making. Sociodemographic factors such as education, parity, and residence significantly influenced both acceptance and method selection. By integrating comprehensive contraceptive services into post-abortion care, healthcare systems can prevent repeat unintended pregnancies, reduce abortion-related morbidity, and empower women with reproductive autonomy.

Recommendations

- Routine Integration of Contraceptive Counselling** in all abortion services, particularly in primary and secondary health centres.

2. **Training for Healthcare Providers** in patient-centred contraceptive counselling and myth-busting communication strategies.
3. **Promotion of Long-Acting Reversible Contraceptives (LARC)** through awareness campaigns and accessibility enhancement.
4. **Inclusion of Male Partners** in counselling sessions to reduce opposition and improve joint decision-making.
5. **Monitoring and Evaluation** of post-abortion contraceptive services to ensure adherence and satisfaction.

Strengths:

- First study of its kind in this geographic region to explore post-abortion contraceptive preferences and predictors in detail.
- Use of a robust methodology, including prospective follow-up and multivariate logistic regression analysis.
- Practical implications for policy and program strengthening at the primary care level.

Limitations:

- Single-centre design may limit generalizability to other regions.
- Self-reported contraceptive use could be subject to social desirability or recall bias.
- Loss to follow-up at three months may have underestimated discontinuation rates or method switching.

Future aspect

Further multicentric and longitudinal studies are warranted to validate these findings across diverse populations. Qualitative research exploring personal, partner, and provider-level barriers to contraceptive use post-abortion would enrich understanding. Additionally, intervention-based studies comparing the effectiveness of different counselling models in improving uptake and continuation of contraception could inform national reproductive health policy.

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Ethics Approval and Consent to Participate

This study was approved by the Institutional Ethics Committee (IEC) of Hind Institute of Medical Sciences, Safedabad, Barabanki, Uttar Pradesh,. All procedures were conducted in accordance with the ethical standards of the IEC and the principles of the Declaration of Helsinki. Written informed consent was obtained from all participants prior to enrolment. For participants with limited literacy, the consent form was read aloud in the local language, and a thumb impression was obtained in the presence of an impartial witness.

Consent for Publication-Not applicable.

Authors' Contributions

- **Shreya Vashisht¹** — Conceptualization, Data Collection, Initial Draft Preparation.
- **Neha Sahu^{2*}** — Study Design, Data Analysis, Manuscript Drafting, Corresponding Author.
- **Nidhi Pandey³** — Data Collection, Data Interpretation, Literature Review.
- **Varsha Kumari⁴** — Patient Recruitment, Data Compilation, Review of Manuscript.
- **Anjana Agarwal⁵** — Critical Review, Manuscript Editing, Supervision.
- **Rinki Kumari⁵⁶** — Data Validation, Statistical Analysis, Final Review of Manuscript.

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Conflicts of Interest

The authors declare **no competing interests** (financial or non-financial) related to this work.

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