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Clinical Study of First Trimester Abortions in a Tertiary Care Centre

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ABSTRACT

Background: First-trimester abortions are a significant public health concern globally, with substantial medical and social implications. Unsafe abortions contribute to maternal mortality and morbidity, particularly in low- and middle-income countries with limited access to safe services. This study aimed to analyse the characteristics and outcomes of first-trimester abortions in a tertiary care centre in central India and identify gaps in knowledge and services.

Methods: A prospective cross-sectional study (August 2022-January 2024) at a tertiary care centre (n=260). Women ≤12 weeks with diagnosed/suspected first-trimester abortions were included. Data on demographics, gestational age, presentations, diagnosis, treatment, outcomes and complications were collected and analysed.

Results: Among 260 women with first-trimester abortions, 45.4% were aged 21-25, 97% were married, and 55% were from urban areas. Spontaneous abortions (66.5%) were more common than induced (33.5%), with incomplete abortions being the most frequent (52.6%). Only 20.6% of induced cases sought hospital care, while 79.3% used over-the-counter medication. Natural contraception, with high failure rates, was used by 78.2%. Nearly 40% had an inter-pregnancy interval of under a year, with 44.6% leading to induced abortions. Incomplete and self-managed abortions had the highest complication rates, including ICU admission, septic abortion, and mortality.

Conclusion: This study emphasizes the prevalence of different types of abortions, and highlights self-managed abortions with complications and unmet need for contraception and hence the need for improved access to comprehensive contraceptive counselling, safe abortion services, and early prenatal care to reduce maternal morbidity and mortality.

Key-words: Abortion, First Trimester Abortions, Medical Termination of Pregnancy (MTP), World Health Organization

INTRODUCTION

Abortion, particularly in the first trimester, is a critical public health issue with significant socio-demographic and medical implications. The World Health Organization reports [1] approximately 73 million induced abortions annually worldwide, with about 45% being unsafe, lead to nearly 7 million hospital admissions due to complications such as hemorrhage, infection, and incomplete abortion [2]. Unsafe abortions significantly contribute to maternal mortality and morbidity, especially in low and middle-income countries where access to safe abortion services is limited [3].

In India, despite the Medical Termination of Pregnancy (MTP) Act of 1971, which aims to provide safe and legal abortion services, a substantial number of abortions still occur outside regulated medical frameworks. WHO estimates that South Asia, including India, accounts for approximately 3.4 million unsafe abortions annually [4]. Several barriers hinder access to safe abortion services in

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India, including socio-cultural stigma, lack of awareness, and inadequate healthcare infrastructure, particularly in rural areas [5,6]. This study focuses on understanding the specific characteristics and outcomes of first-trimester abortions in a hospital setting, offering a small-scale view of broader regional trends. By examining socio-demographic profiles, types of abortions, contraceptive practices, and associated complications, the study aims to identify critical gaps in knowledge and healthcare services. Given the high rates of self-managed abortions using over-the-counter pills without medical supervision, there is an urgent need to address these risks [7,8].
Understanding these factors is crucial for developing targeted interventions to improve reproductive health outcomes and reduce the incidence of unsafe abortions. The study also emphasizes the importance of pre-conception contraceptive counseling and the role of healthcare providers in offering safe and accessible abortion services [9,10].

MATERIALS AND METHODS

Place of study- This hospital-based cross-sectional observational study was conducted over 18 months, from August 1, 2022, to January 30, 2024, at the Department of Obstetrics & Gynecology, NSCB Medical College, Jabalpur, MP. The study included only patients willing to participate, selecting cases from both the outpatient department (OPD) and admissions.

Research design- The research aimed to analyze the characteristics, management, and outcomes of first-trimester abortions among patients who sought termination of pregnancy in a tertiary care setting. Data were collected from patients who underwent medical or surgical abortion, using structured case records. The study explored socio-demographic factors, reasons for abortion, type of abortion procedure, and associated complications. The findings provided insights into the patterns of abortion-seeking behavior, gaps in contraceptive use, and potential healthcare interventions to improve reproductive health outcomes.
A questionnaire-based proforma collected detailed data on their knowledge, attitudes, and practices regarding abortion types, safety, and history of any abortion methods. Patients seeking medical termination of pregnancy or presenting with incomplete abortions received appropriate treatment.

Inclusion Criteria- Patients up to 12 weeks of gestation report to the OPD with diagnosed or newly diagnosed abortions.

Exclusion Criteria- Patients presenting after 12 weeks of gestation and those unwilling to participate.

Sample Size and Technique- The study included 260 patients, selected via simple random sampling over 18 months. The sample size calculation used the formula n=z2 x p(1-p) / l2 where n is the required sample size. z=1.96 at 95% Confidence limit, 5% alpha and 80% power (1-beta) p=0.371 (assumed probability) l=Precision (marginal error) which was considered 25% relative to the assumed probability (0.92) resulting in a sample size of 242. Data were entered into Microsoft Excel and analyzed using SPSS version 24.

Statistical Analysis- Quantitative data were analyzed using SPSS version XX. Descriptive statistics such as mean, standard deviation, frequencies, and percentages were calculated. Chi-square and logistic regression tests were applied to examine associations between socio-demographic factors and abortion outcomes. $p<0.05$ was considered statistically significant.

Ethical Approval- The ethical approval no from the Institutional Ethics Committee of Netaji Subhash Chandra Bose Medical College, Jabalpur is IEC/2022/8629-96.

RESULTS

Table 1 presents the socio-demographic and clinical characteristics of the study participants, categorized based on induced and spontaneous abortions. A significant association (p=0.007) was observed with marital status, as most induced abortions occurred among married women (94.3%). No significant difference was found concerning the area of residence (p=0.33) and education level (p=0.205). However, contraceptive use (p=0.000) and parity status (p=0.000) showed strong associations, with natural contraception being more common in spontaneous abortions (95.4%) and multigravida women predominating in induced abortions (85.1%). These results highlight the impact of reproductive history and contraceptive choices on abortion types.

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Table 1: Socio-Demographic and Clinical Characteristics of Study Participants

Characteristic	Induced (n=87)	Spontaneous (n=173)	Total (n=260)	Chi-Square	p-value
Marital Status					
Married	82 (94.30%)	172 (99.40%)	254 (97.70%)	10.604	0.007(S)
Separated	1 (1.10%)	0 (0.00%)	1 (0.40%)		
Un-Married	4 (4.60%)	0 (0.00%)	4 (1.50%)		
Widow	0 (0.00%)	1 (0.60%)	1 (0.40%)		
Area					
Rural	37 (42.50%)	80 (46.20%)	117 (45.00%)	0.323	0.33(NS)
Urban	50 (57.50%)	93 (53.80%)	143 (55.00%)		
Education					
Illiterate	0 (0.00%)	1 (0.60%)	1 (0.40%)	8.279	0.205(NS)
Primary	8 (9.20%)	6 (3.50%)	14 (5.40%)		
Middle	31 (35.60%)	75 (43.40%)	106 (40.80%)		
Intermediate	26 (29.90%)	59 (34.10%)	85 (32.70%)		
High School	6 (6.90%)	7 (4.00%)	13 (5.00%)		
Graduate	15 (17.20%)	20 (11.60%)	35 (13.50%)		
Professional	1 (1.10%)	5 (2.90%)	6 (2.30%)		
Pre-Conception Contraceptive Usage					
Inj DMPA	3 (3.40%)	0 (0.00%)	3 (1.20%)	20.364	0.000(S)
Natural	68 (78.20%)	165 (95.40%)	233 (89.60%)		
OCPs	2 (2.30%)	2 (1.20%)	4 (1.50%)		
PPIUCD	14 (16.10%)	6 (3.50%)	20 (7.70%)		
Parity Status					
Primigravida	13 (14.90%)	84 (48.60%)	97 (37.30%)	27.963	0.000(S)
Multigravida	74 (85.10%)	89 (51.40%)	163 (62.70%)		

Table 2 presents the distribution of abortion types among the study participants. Out of the total 260 cases, 173 (66.5%) were categorized as spontaneous abortions, while 87 (33.5%) were induced abortions. This data highlights that spontaneous abortions were more prevalent than induced abortions in the studied population. Understanding the proportion of spontaneous versus induced abortions is crucial for assessing reproductive health trends and identifying the need for medical intervention and counseling services.

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Table 2: Types of abortions

Categories	Frequency	Percentage
Spontaneous	173	66.5
Induced	87	33.5
Total	260	100

Table 3 categorizes the different types of spontaneous abortions observed in the study. Among the 173 cases, the most common type was incomplete abortion (91 cases, 52.6%), followed by missed abortion (60 cases, 34.7%). Less frequently observed types included threatened (9 cases, 5.2%), complete (9 cases, 5.2%), inevitable (3 cases, 1.7%), and septic abortion (1 case, 0.5%). These findings highlight the varying clinical presentations of spontaneous abortions and emphasize the need for timely diagnosis and appropriate medical management to reduce complications.

Table 3: Types of spontaneous abortions

Types	Frequency	Percentage
Missed	60	34.7
Threatened	9	5.2
Inevitable	3	1.7
Incomplete	91	52.6
Complete	9	5.2
Septic	1	0.5
Total	173	100

Table 4 categorizes the 87 cases of induced abortions based on the method of termination. The majority of cases (69 cases, 79.3%) resulted from self-medication**,** indicating a high prevalence of unsupervised abortion practices. In contrast, only 18 cases (20.6%) were conducted in a hospital setting, where medical supervision ensured safer procedures. These findings highlight the urgent need for increased awareness, accessibility, and regulation of safe abortion services to reduce the risks associated with self-managed abortions.

Table 4: Types of induced abortions

Types	Frequency	Percentage
Termination in a hospital setting	18	20.6
Self-medication	69	79.3

Table 5 presents the different management approaches used for abortion cases in the study. The most commonly performed procedure was manual vacuum aspiration (MVA), accounting for 200 cases (76.9%), followed by cervical priming followed by MVA in 40 cases (15%). Symptomatic management was provided in 23 cases (8.84%), while medical management using MMA (4 cases, 1.53%) and spontaneous expulsion (3 cases, 1.15%) were less frequently observed. These findings indicate that MVA was the predominant method for managing abortion cases, underscoring its role as a preferred and effective intervention in clinical settings.

Table 5: Management Approaches and Their Frequency

Management	frequency	Percentage
Symptomatic	23	8.84
MMA	4	1.53
Cervical priming f/b MVA	40	15
MVA	200	76.9
Spontaneous expulsion	3	1.15
Total	260	100

The bar chart illustrates the frequency (blue) and percentage (red) of various post-abortion management interventions. Blood transfusion was the most common intervention, followed by ICU admission, inotropic support, ventilatory support, treatment for sepsis, and parenteral interventions, while death was the least frequent outcome. The data highlights the severity of complications in some abortion cases, emphasizing the need for timely medical care (Fig. 1).

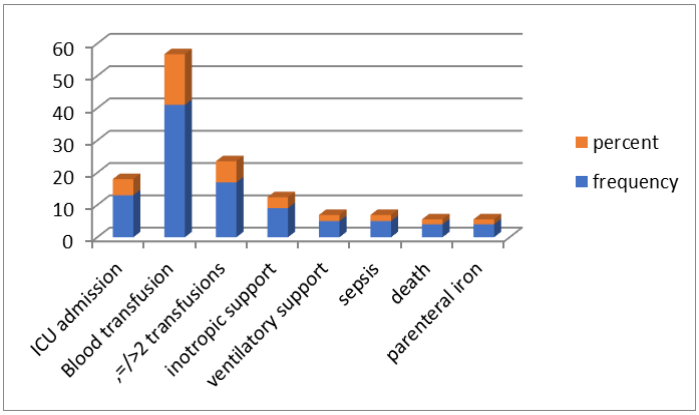

Fig. 1: Complications and Outcomes

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DISCUSSION

This study on first-trimester abortions provides significant insights into the age distribution, socio-demographic profiles, types of abortions, contraceptive practices, and complications faced by women. The majority of participants were aged 21-25 years, with a notable 45.4% in this age group, reflecting similar findings from previous studies that also noted a concentration of cases among younger women. However, this study diverges by highlighting a considerable proportion of induced abortions among urban women with diverse educational backgrounds (likely due to easier access to services and potentially explained by the location of the institute), contrary to some previous studies [11,12].

Regarding abortion types, 66.5% of cases were spontaneous abortions, with a significant proportion classified as incomplete. Induced abortions, which constituted 33.5% of the cases were often performed without medical supervision, leading to various complications. The majority of spontaneous abortions were incomplete, and complications were particularly severe in cases where women self-medicated with over-the-counter pills. This aligns with studies indicating a high rate of complications in self-managed abortions [13-15].

Preconception contraceptive practices were notably poor, with 78.2% of women using natural methods or no contraception, leading to high rates of unintended pregnancies. Comparatively, other studies have reported similar trends, with a significant proportion of women using inadequate contraceptive methods. The low uptake of modern contraceptives, such as oral contraceptive pills and intrauterine devices, was evident [16,17].

Inter-pregnancy intervals were also a contributing factor, with 39.9% of cases having intervals of less than one year. This short interval was associated with higher rates of anemia and blood transfusions. In a study by Milan das et al, of pregnancies with a known IPI duration, Compared with IPIs of 27–50 months, IPIs of <6 months are 31 times more likely to begin with a miscarriage, 16 times more likely to begin with a stillbirth, and 6 times more likely to begin with an induced abortion [18].

Recurrent miscarriages were observed in 6.8% of women, with 2.6% experiencing two or more losses. This finding is consistent with literature showing an increased risk of miscarriage with a history of recurrent losses [19]. The risk of miscarriage rises with each additional loss, highlighting the need for targeted care in such cases. In the study by Fee N, McEvoy A et al, the median age was 37 years, with 55.6% having a previous live birth. The subsequent live birth rate was 75.3%, and 22.0% had a further pregnancy loss [20].

Complications varied significantly between spontaneous and induced abortions. Among spontaneous abortions, 63.3% were managed with manual vacuum aspiration (MVA), while only 3% required blood transfusions. In contrast, complications were more frequent in induced abortions, particularly those performed without medical supervision. Self-medication with over-the-counter pills led to high rates of severe outcomes, including septic abortions and ICU admissions.

Most of the complications were seen in cases of incomplete abortions. 12.4% required blood transfusion, 11.1% required multiple blood transfusions, 7.84% required ICU admission and 3.26% were kept on ventilatory support. A total of 5 cases of septic abortions i.e. 3.26 % were diagnosed and 4 deaths (2.6%) were reported among the cases of incomplete abortions. Out of 10 patients who presented in shock, 9 were cases of incomplete abortions. In an article by Shivali Bhalla et al, a pill was consumed without any prior medical consultation by 73% of patients. The majority (49%) presented with incomplete abortion requiring surgical evacuation. Anemia was the most commonly associated co-morbidity in 80% of patients and 28% required blood transfusions. Twenty-four per cent of patients presented with life-threatening shock. Sepsis was noted in 3% of patients [21]. In a study by WHO, global estimates from 2010–2014 demonstrate that 45% of all induced abortions are unsafe. Of all unsafe abortions, one-third were performed under the least safe conditions, i.e. by untrained persons using dangerous and invasive methods [22]. The study underscores the dangers associated with unsupervised abortions and the critical need for professional medical intervention.

CONCLUSIONS

High rates of unsupervised abortions and related complications highlight the need for improved contraceptive access and awareness. Gynecologists must enhance counseling and care to prevent unintended pregnancies and thus preventable morbidities. Addressing these gaps is crucial to reduce unsafe

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abortions and promote maternal health. Effective contraception and awareness are key to preventing severe outcomes.

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Critical review- Shuchi Sehgal, Bharti Sahu
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REFERENCES

[1] World Health Organization. Abortion care guideline. Geneva: WHO; 2022.
[2] Ganatra B, Gerdts C, Rossier C, et al. Global, regional, and subregional classification of abortions by safety, 2010-2014. Lancet, 2017; 390(10093): 2372-81.
[3] Sedgh G, Bearak J, Singh S, et al. Abortion incidence between 1990 and 2014: global, regional, and subregional levels and trends. Lancet, 2016; 388(10041): 258-67.
[4] World Health Organization. Unsafe abortion: Global and regional estimates of the incidence of unsafe abortion and associated mortality. 6th ed. Geneva: WHO; 2011.
[5] Jejeebhoy SJ, Zavier AJ, Acharya R. Increasing access to safe abortion in India: Insights from a study on medical abortion. New Delhi: Population Council; 2011.
[6] Banerjee SK, Andersen KL. Exploring the pathways of unsafe abortion in Madhya Pradesh, India. Glob Public Health, 2012; 7(8): 882-96.
[7] Singh S, Shekhar C, Acharya R, et al. The incidence of abortion and unintended pregnancy in India, 2015. Lancet Glob Health, 2018; 6(1): e111-20.
[8] Srivastava A, Saxena M, Misra SK. Self-use of abortion pills in urban slums of India: A growing concern. J Obstet Gynaecol India, 2019; 69(5): 443-50.
[9] Chhabra R, Nuna SC: Abortion in India: An overview. New Delhi: Veerendra Printers; 2017.
[10] Kumar R, Singh P, Srivastava D. Barriers to access to safe abortion services in rural India: A qualitative study. BMC Women's Health, 2020; 20(1): 175.
[11] World Health Organization. Preventing Unsafe Abortion. 2019. Retrieved from https://apps.who.int/iris/bitstream/handle/10665/329887/WHO-RHR-19.21-eng.pdf.
[12] Sharma P, Pradhan MR. Abortion care seeking in India. Patterns and predictors. J Biosoc Sci., 2020; 52(3): 353-65.
[13] Bamniya A, Verma S. The study of knowledge, attitude, and practice about abortion and technology at the tertiary center in the region of Mewar, Rajasthan, India. Int J Reprod Contracept Obstet Gynecol., 2018; 7(8): 3320. doi: 10.18203/2320-1770.ijrcog20183338.
[14] Kumari L, Indhumati: Study of outcome of cases of self-medication with mifepristone with or without misoprostol for medical abortion. Int J Clin Obstet Gynaecol., 2020; 4(6): 760. doi: 10.33545/gynae.2020.v4.i6d.760.
[15] Bhalla S, Goyal LD, Bhalla S, Kaur B. Self-administered medical abortion pills: evaluation of the clinical outcome and complications among women presenting with unsupervised pill intake to a tertiary care hospital in Malwa region of Punjab, India. *Int J Reprod Contracept Obstet Gynecol.,* 2018; 7(4): 1537-42. doi:10.18203/2320-1770.ijrcog20181351.
[16] Linnakaari R, Helle N, Mentula M, et al. Trends in the incidence, rate, and treatment of miscarriage—nationwide register-study in Finland, 1998-2016. Hum Reprod., 2019; 34(11): 2120-28. doi: 10.1093/humrep/dez211. doi: 10.18203/2320-1770.ijrcog20181351.
[17] Yland JJ, Wesselink AK, Hernandez-Diaz S, et al. Preconception contraceptive use and miscarriage: prospective cohort study. BMJ Med., 2023; 2(1): e000569. doi: 10.1136/bmjmed-2023-000569.
[18] Alemu L, Ambelie YA, Azage M. Contraceptive use and associated factors among women seeking induced abortion in Debre Markos town, Northwest Ethiopia: A cross-sectional study. Reprod Health, 2020; 17: 97. doi: 10.1186/s12978-020-00945-4.
[19] Das M, Patidar H, Singh M. Understanding trimester-specific miscarriage risk in Indian women: insights from the calendar data of NFHS-5 (2019-21). BMC

doi: 10.21276/SSR-IIJLS.2025.11.2.21

Women's Health, 2024; 24(1). doi: 10.1186/s12905-023-02838-7.

[20]Fee N, McEvoy A, Cullen S, et al. Pregnancy outcomes following recurrent miscarriage. Ir J Med Sci., 2023; 192(5): 2255-58. doi: 10.1007/s11845-023-03305-w.

[21]Green DM, O'Donoghue K. A review of reproductive outcomes of women with two consecutive miscarriages and no living child. J Obstet Gynaecol., 2019; 39(6): 816-21.

[22]World Health Organization. Abortion. Retrieved from https://www.who.int/news-room/fact-sheets/detail/abortion.