

# Mifepristone-Misoprostol Regimen vs. Surgical Abortion: Evaluating Pregnancy Termination Options in Bangladesh

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## Abstract

**Background:** Access to safe and effective abortion services plays a vital role in safeguarding women's reproductive health, ultimately contributing to their overall well-being. This is particularly relevant in Bangladesh, where the legality of abortion is contingent upon specific circumstances. Therefore, ensuring women have the autonomy to choose between safe and effective termination methods becomes crucial. **Objective:** The study aims to see explore the efficacy, safety, and accessibility of mifepristone-misoprostol regimen and surgical abortion methods within the context of Bangladesh. **Methods:** This investigation employed a cross-sectional observational design, conducted within the Department of Obstetrics and Gynecology at Dhaka National Medical College in Bangladesh. The study spanned one year, commencing in March 2023 and concluding in February 2024. To ensure a representative sample of the patient population seeking abortion services, consecutive sampling was utilized. This approach involved recruiting all patients admitted during the designated timeframe who fulfilled the pre-established inclusion and exclusion criteria. Ultimately, the study enrolled 104 participants, a sample size determined by the number of admissions fitting the criteria within the one year. **Results:** The study found no significant difference in age distribution between women choosing medical or surgical abortion, with both groups mainly consisting of women aged 18-25. Overall complication rates were similar, but medical abortion had a higher need for additional procedures and longer stays, while surgical abortion required more bleeding observation. Pain experiences differed significantly, with no women in the medical group reporting no pain and a higher prevalence of moderate pain compared to surgical abortion. Women undergoing medical abortion were slightly more likely to experience complications overall, and primigravid women (first pregnancy) were significantly more likely to experience complications than multigravid women. **Conclusion:** Our findings suggest comparable safety profiles for both surgical and medical abortion procedures within the studied population. This indicates that surgical abortion can be a safe and effective option alongside medical abortion, potentially expanding the range of choices offered to women.

**Keywords:** Mifepristone-Misoprostol (medical abortion), Surgical abortion, Manual vacuum aspiration (MVA), Composite complications.

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## INTRODUCTION

Termination of pregnancy remains a prevalent medical procedure for women of reproductive age across the globe [1, 2]. When performed by trained professionals using established protocols, both surgical and medical methods are demonstrably safe for women seeking abortion services [3]. While data from developing countries remains scarce, extensive global evidence supports the safety of both methodologies throughout the second trimester [4]. Notably,

advancements in both techniques have yielded improved effectiveness, patient acceptability, and a reduction in complication rates [5].

Within countries with readily available abortion services, most terminations occur during the first trimester [6]. However, for various reasons, second-trimester abortion may represent the sole option for some women. These reasons encompass but are not limited to, limited access to services in the earlier gestational period

and anxieties surrounding the disclosure of the pregnancy [7-9].

From a procedural standpoint, medical termination of pregnancy utilizes a medication regimen (mifepristone and misoprostol) to induce uterine contractions, ultimately leading to the expulsion of the pregnancy tissue. Conversely, surgical abortion involves cervical preparation using either mechanical or medical methods, followed by dilation and evacuation (D&E) within the uterus using specialized instruments [10].

An ongoing debate persists regarding the optimal method for second-trimester abortion, fueled by historical and contemporary studies comparing modern medical and surgical techniques. While a body of research suggests enhanced safety and efficacy with surgical abortion, other studies report a slightly elevated risk of fever requiring antibiotic treatment in this approach [11-14].

Safe and accessible abortion services are a critical component of women's reproductive healthcare, contributing to their overall health and well-being [15]. In Bangladesh, where abortion is legal under specific circumstances, ensuring women have a choice between safe and effective termination methods is vital [16]. This article evaluates the mifepristone-misoprostol regimen and surgical abortion methods within the context of Bangladesh. We explore the efficacy, safety, and accessibility of each approach, considering factors such as gestational age limitations, potential side effects, and healthcare infrastructure limitations. By comparing these methods, we aim to contribute to the ongoing discussion on ensuring safe and comprehensive abortion care for women in Bangladesh.

## METHODS

This investigation employed a cross-sectional observational design, conducted within the Department of Obstetrics and Gynecology at Dhaka National Medical College in Bangladesh. The study spanned one year, commencing in March 2023 and concluding in February 2024. To ensure a representative sample of the patient population seeking abortion services, consecutive sampling was utilized. This approach involved recruiting all patients admitted during the designated timeframe who fulfilled the pre-established inclusion and exclusion criteria. Ultimately, the study enrolled 104 participants, a sample size determined by the number of admissions fitting the criteria within one year.

### Inclusion Criteria:

To ensure a homogenous participant pool, the study established specific inclusion criteria:

1. Confirmed gestational age between 13- and 20 weeks using ultrasound examination.
2. Age of 18 years or older.
3. Willingness to provide informed consent for study participation.

4. Possession of a working phone number and willingness to be contacted for a follow-up questionnaire two weeks after the procedure.

### Exclusion Criteria:

1. Participants who did not meet any one of these criteria were excluded from the study.

### Study Procedure:

Following informed consent, the research team provided an overview of the study protocol. Patients then underwent comprehensive counseling on the available safe abortion options (medical vs. surgical) using a standardized tool. Subsequently, based on their expressed procedural preference, they were allocated to either the medical or surgical abortion group.

### Medical Abortion Regimen:

Patients opting for medical abortion received a single oral dose of mifepristone (200 mg) on day 1. They were then scheduled to return to the study site within 24-48 hours for admission and administration of misoprostol (400 mcg) either sublingually or vaginally.

### Surgical Abortion Regimen:

Women choosing surgical abortion also received a single oral dose of mifepristone (200 mg) on day 1. The decision to incorporate cervical preparation with laminaria was based on gestational age. For patients with a gestational age exceeding 16 weeks, laminaria insertion occurred on the same day as mifepristone administration. Those with a gestational age under 16 weeks bypassed laminaria and received sublingual or vaginal misoprostol 400 mcg two hours before the scheduled surgical abortion on day 2.

To ensure accurate gestational age determination, all participants underwent ultrasound examinations employing a composite calculation based on fetal head circumference, biparietal diameter, and femoral length. These ultrasound findings were meticulously documented in the patients' clinical charts.

For optimal pain management, all patients, irrespective of their chosen abortion method (medical or surgical), received pain medication during the procedure.

### Data Collection Procedures:

Data collection encompassed several key phases. Trained data collectors, utilizing the patient's preferred language, conducted standardized interviews. A questionnaire, originally written in English, was translated into the local Bengali language to facilitate clear communication. Baseline sociodemographic and clinical data were collected upon hospital admission.

To capture comprehensive procedural details, data collection continued after patient recovery from the abortion procedure. The research team monitored enrolled participants throughout their hospital stay,

documenting any immediate complications or side effects arising from the abortion. Additionally, procedure-related information was extracted from the provider's notes in the clinical chart. These details included the decision for post-procedure observation, the need and rationale for any additional interventions, and information regarding family planning discussions held with the patient. Finally, a follow-up phone call was conducted after discharge to administer a questionnaire and gather any additional information.

This multi-faceted approach to data collection ensured the capture of both pre-procedural patient characteristics and post-procedural outcomes, facilitating a more holistic understanding of the abortion experience within this specific patient population.

#### Ethics Approval and Consent to Participate:

Ethical approval was obtained from the Institutional review board (IRB) of Dhaka National Medical, Bangladesh and permission to perform the research was obtained from the head of the department of obstetrics and gynecology. The study was conducted after receiving an official letter of clearance from Dhaka National Medical ethical review committee. Informed consent was obtained from all the surveyed women prior to the interview.

#### Data Analysis:

This study assessed a range of outcomes to evaluate the experiences of participants undergoing abortion care. The primary outcome was a composite complication rate, encompassing factors such as bleeding requiring observation, genital tract repair needs, additional interventions to complete the abortion, and symptoms suggestive of pelvic infection at follow-up. Additionally, researchers examined the incidence of severe complications like prolonged bleeding (>2 weeks), major surgery (laparotomy), and mortality. Secondary outcomes included hospital stay duration,

pain experienced during the procedure, patient satisfaction gauging procedure acceptability, and the likelihood of recommending the chosen method to others. Data collection utilized Open Data Kit, with subsequent analysis conducted using SPSS version 23.00. Univariate analyses employing proportions, means, medians, and interquartile ranges summarized the data. Group comparisons between medical and surgical abortion procedures relied on Fisher's exact test, the independent t-test, or the Mann-Whitney U test depending on data characteristics. Finally, a multiple logistic regression model was constructed to identify independent predictors of post-procedural complications, incorporating adjustments for measured confounding variables to strengthen the analysis.

## RESULTS

The data presented in the table depicts the age distribution of women undergoing two distinct abortion procedures: Mifepristone-Misoprostol and Surgical Abortion. Within the Mifepristone-Misoprostol group (N=57), the largest proportion of women (75.44%) fell within the 18–25-years age category. Conversely, in the Surgical Abortion group (N=47), a higher proportion of women (63.83%) belonged to the 18–25-years age group compared to the 26–35-years age group (34.04%). Notably, both groups exhibited the smallest proportion of women over 35 years old.

A chi-square test was performed to assess potential discrepancies in the age distributions between the two groups. The analysis yielded a non-significant chi-square statistic (p-value = 0.2896). This outcome suggests that the observed age distributions within the Mifepristone-Misoprostol and Surgical Abortion groups are likely similar. In other words, there is no statistically significant evidence to conclude that the age distribution of women choosing between these two abortion procedures is different.

**Table 1: Baseline characteristics of study participant**

Characteristic	Mifepristone-Misoprostol (N=57)	Surgical Abortion (N=47)	P-Value
<b>Age</b>			
18-25	43(75.44%)	30(63.83%)	0.008.
26-35	12(21.05%)	16(34.04%)	
>35	2(3.51%)	1(2.13%)	
<b>Parity</b>			
Primigravida	31(54.39%)	26(55.32%)	0.008
Multigravida	26(45.61%)	21(44.68%)	
<b>Gestational Age (weeks)</b>			
<13 weeks	18(31.58%)	21(44.68%)	0.20
13-28 weeks	39(68.42%)	26(55.32%)	
<b>Previous abortion</b>			
Yes	3(5.26%)	6(12.76%)	0.077
No	54(94.74%)	41(87.23%)	

This investigation compared complication rates following medical and surgical abortion. While the

overall complication rates (12.28% vs. 8.51%, p=0.52) were statistically similar, a small subset (3.51%) in the

medical group required additional intervention (manual vacuum aspiration) to complete the abortion. Additionally, the surgical group had a significantly higher rate of requiring bleeding observation (8.3% vs. 1.75%,  $p < 0.002$ ). However, no patients in either group needed blood transfusions or further interventions for

bleeding control. Importantly, neither group experienced genital tract lacerations or maternal deaths. Notably, medical abortion was associated with a significantly longer median hospital stay (24 hours, IQR 12-24 hours) compared to surgical abortion (6 hours, IQR 4-6 hours;  $p < 0.001$ ). (Table 2)

**Table 2: Procedure details and complications of study participants**

Characteristic	Mifepristone-Misoprostol (N=57)	Surgical Abortion (N=47)	P-Value
Composite complication	7(12.28%)	4(8.51%)	0.52
Observed for bleeding	1(1.75%)	4(8.51%)	0.002
Symptoms of pelvic infection	3(5.26%)	1(2.13%)	0.055
Continued bleeding for two weeks	19(33.33%)	14(29.79%)	0.65
Duration of hospital stay (hours) median (IQR)	24 (12,24)	6 (4,6)	<0.001

An analysis of pain experience following Mifepristone-Misoprostol and Surgical Abortion procedures revealed distinct patterns ( $p < 0.001$ ). While no women in the Mifepristone-Misoprostol group reported no pain, a higher proportion (70.21%) in the Surgical Abortion group experienced mild pain. Conversely, the Mifepristone-Misoprostol group had a greater number of women experiencing moderate pain

(52.63%) compared to the Surgical Abortion group (14.89%). Both groups reported a small percentage of women experiencing severe pain (2.11% and 4.25% for Mifepristone-Misoprostol and Surgical Abortion, respectively). These findings suggest a statistically significant difference in pain distribution between the two abortion methods. (Table 3)

**Table 3: Pain severity in VAS score of study participants**

Pain severity	Mifepristone-Misoprostol (N=57)	Surgical Abortion (N=47)	P-Value
No pain	0	4(8.51%)	<0.001
Mild pain	24(42.10%)	33(70.21%)	
Moderate pain	30(52.63%)	7(14.89%)	
Severe pain	12(21.05%)	2(4.25%)	

We considered possible confounders and performed multivariable logistic regression to compare the composite complication rate between the Mifepristone-Misoprostol and surgical arms. Woman undergoing a Mifepristone-Misoprostol abortion is 1.5 times more likely to experience a composite complication compared to a woman undergoing a surgical abortion (OR is 1.505). The analysis shows that women between the ages of 18-25 and 26-35 are essentially no more likely to experience complications.

For women over 35, there is a very low OR (0.01) of experiencing composite. With the estimated Odds Ratio being less than 1 (around 0.64), it suggests that having a gestational age less than 13 weeks might be associated with a lower chance of the Composite complication outcome compared to having a gestational age of 13 weeks or more. Woman who was having Primigravida is 4.21 times more likely to experience a composite complication compared to a woman who were having multigravida (OR is 4.21). (Table 4)

**Table 4: Multiple logistic regression analysis of composite complication**

Variables	Composite Complication* N (%)	Adjusted OR
<b>Method of abortion</b>		
Mifepristone-Misoprostol	7(63.64%)	1.505
Surgical abortion	4(36.36%)	
<b>Age</b>		
18-25	8(72.73%)	0.01
26-35	2(18.18%)	
>35	1(9.09%)	
<b>Gestational age</b>		
<13 weeks	7(63.64%)	0.64
13-28 weeks	4(36.36%)	
<b>Previous abortion</b>		
Yes	1(9.09%)	1.06
No	10(90.91%)	



Variables	Composite Complication* N (%)	Adjusted OR
<b>Parity</b>		
Primigravida	9(81.82%)	4.21
Multigravida	2(18.18%)	

## DISCUSSION

This study investigated the characteristics of women undergoing medical (Mifepristone-Misoprostol) and surgical abortion procedures, along with complication rates, pain experiences, and potential influencing factors.

The study found no significant difference in the age distribution of women choosing between Mifepristone-Misoprostol and surgical abortion. Both groups primarily consisted of women aged 18-25, with a smaller proportion in the 26-35 age group and the fewest above 35.

Overall complication rates were statistically similar between the two groups. However, the study identified some key differences. Mifepristone-Misoprostol abortion had a higher rate of requiring additional intervention (manual vacuum aspiration) and a longer median hospital stay compared to surgical abortion. Conversely, the surgical group had a significantly higher rate of requiring bleeding observation. These findings suggest that the specific complication profile might differ between the two methods. The low complication rate observed in this study suggests the feasibility of safely performing both medical and surgical abortion procedures on women between 13 and 20 weeks of gestation within the Bangladeshi context.

This study aligns with previous research demonstrating a higher frequency of additional interventions (e.g., manual vacuum aspiration) needed to complete medical abortions compared to surgical procedures [17]. Pain experiences differed significantly between the groups. Notably, none of the women in the medical abortion group reported complete absence of pain, while a larger proportion in the surgical group experienced mild pain. Conversely, the medical abortion group had a higher number of women experiencing moderate pain. The significantly lower rate of pain medication administration (65.8%) in the medical abortion group compared to the surgical group (100%) might explain the observed difference in pain severity. This finding highlights the need for standardized pain management protocols, particularly for women undergoing medical abortion. Further research is warranted to explore the reasons behind the lower pain medication administration rates in this group. The significantly shorter median hospital stay in the surgical abortion group aligns with previous studies [18]. The study acknowledges potential confounders and utilizes multivariable analysis. The analysis suggests that women undergoing medical abortion are slightly more

likely to experience a composite complication compared to surgical abortion.

## CONCLUSION

This study provides valuable insights into the characteristics of women choosing medical and surgical abortion in Bangladesh. While overall complication rates were similar, the specific complication profiles differed between the methods. Pain experiences also suggest distinct patterns. The study highlights the importance of considering factors such as parity (gravity) when counseling women about abortion options. Further research is needed to explore these findings in broader populations and refine counseling strategies.

## REFERENCES

- Jones, R. K., Zolna, M. R., Henshaw, S. K., & Finer, L. B. (2008). Abortion in the United States: incidence and access to services, 2005. *Perspectives on sexual and reproductive health*, 40(1), 6-16.
- Moore, A. M., Gebrehiwot, Y., Fetters, T., Wado, Y. D., Bankole, A., Singh, S., ... & Getachew, Y. (2016). The estimated incidence of induced abortion in Ethiopia, 2014: changes in the provision of services since 2008. *International perspectives on sexual and reproductive health*, 42(3), 111.
- World Health Organization. (2003). *Safe abortion: technical and policy guidance for health systems*. World Health Organization.
- Grimes, D. A., & Schulz, K. F. (1985). Morbidity and mortality from second-trimester abortions. *The Journal of reproductive medicine*, 30(7), 505-514.
- Sedgh, G., Henshaw, S., Singh, S., Åhman, E., & Shah, I. H. (2007). Induced abortion: estimated rates and trends worldwide. *The Lancet*, 370(9595), 1338-1345.
- Singh, S., Remez, L., Sedgh, G., Kwok, L., & Onda, T. (2018). Abortion worldwide 2017: uneven progress and unequal access.
- Ashok, P. W., Templeton, A., Wagaarachchi, P. T., & Flett, G. M. M. (2004). Midtrimester medical termination of pregnancy: a review of 1002 consecutive cases. *Contraception*, 69(1), 51-58.
- Lohr, P. A., Hayes, J. L., & Gemzell-Danielsson, K. (2008). Surgical versus medical methods for second trimester induced abortion. *Cochrane Database of Systematic Reviews*, (1).
- Harries, J., Orner, P., Gabriel, M., & Mitchell, E. (2007). Delays in seeking an abortion until the second trimester: a qualitative study in South Africa. *Reproductive Health*, 4, 1-8.
- Mulat, A., Bayu, H., Mellie, H., & Alemu, A. (2015). Induced second trimester abortion and associated factors in Amhara region referral

- hospitals. *BioMed research international*, 2015(1), 256534.
11. Whitley, K. A., Trinchere, K., Prutsman, W., Quiñones, J. N., & Rochon, M. L. (2011). Midtrimester dilation and evacuation versus prostaglandin induction: a comparison of composite outcomes. *American journal of obstetrics and gynecology*, 205(4), 386-e1.
  12. Mauelshagen, A., Sadler, L. C., Roberts, H., Harilall, M., & Farquhar, C. M. (2009). Audit of short term outcomes of surgical and medical second trimester termination of pregnancy. *Reproductive Health*, 6, 1-6.
  13. Bryant, A. G., Grimes, D. A., Garrett, J. M., & Stuart, G. S. (2011). Second-trimester abortion for fetal anomalies or fetal death: labor induction compared with dilation and evacuation. *Obstetrics & Gynecology*, 117(4), 788-792.
  14. Grossman, D., Constant, D., Lince, N., Alblas, M., Blanchard, K., & Harries, J. (2011). Surgical and medical second trimester abortion in South Africa: a cross-sectional study. *BMC Health Services Research*, 11, 1-9.
  15. World Health Organization. Safe abortion: technical and policy guidance for health systems. 2003. [cited 2024 June 4]. Available from: <https://www.who.int/health-topics/abortion>
  16. The Bangladesh Penal Code (Act XLV of 1860). [cited 2024 June 4]. Available from: [https://en.wikipedia.org/wiki/Abortion\\_in\\_Bangladesh](https://en.wikipedia.org/wiki/Abortion_in_Bangladesh)
  17. Robins J, Surrage EJ. Early midtrimester pregnancy termination. A comparison of dilatation and evacuation and intravaginal prostaglandin E2. *J Reprod Med*. 1982;27(7):415-419.
  18. Poon, L. C. Y., & Parsons, J. (2007). Audit of the effectiveness of cervical preparation with Dilapan prior to late second-trimester (20-24 weeks) surgical termination of pregnancy. *BJOG: An International Journal of Obstetrics & Gynaecology*, 114(4), 485-488.