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The transformative terrain: An in-depth analysis of trends in self-managed abortion in India using NFHS-5 national data

Sushanta K. Banerjee[a], Sumit Gulati[a] and Erin Pearson[b]

[a]Research & Evaluation, Ipas Development Foundation, New Delhi, India; [b]Center on Gender Equity and Health, Department of Medicine, University of California, San Diego, USA

ABSTRACT

In 2022, the World Health Organization endorsed self-managed abortion (SMA) with medical abortion pills as a safe abortion method. This study utilises India's National Family Health Survey Round 5 (2019-2021) data from 724,115 women to estimate state-level self-managed abortion (SMA). It examines SMA characteristics, trends over time, and self-reported complications in India using descriptive and multivariate analysis. This study finds significant regional disparities, with a higher proportion of self-managed abortions in the eastern (45%), central (39%), and north-eastern (31%) regions. A rising trend in SMA was observed, increasing from 19% in 2014–45% in 2021. There were higher odds of SMA among economically disadvantaged, less educated, and employed women. The study found no increased odds of self-reported complications in SMA, suggesting its safety and effectiveness, especially at early gestational ages. These findings underscore the importance of supporting reproductive choices, including access to quality drugs and information, while highlighting the continued relevance of provider-assisted care, particularly for surgical abortions and later gestational needs. This study offers crucial insights on SMA for programmatic and policy advocacy while underscoring the need for more research in the SMA field.

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SDG-3 Good health and well-being; self-managed abortion; abortion complications

Introduction

Self-managed abortion (SMA) is widespread and demonstrates high acceptability, with women in India (Parveen et al., 2023), Nepal (Conkling et al., 2014; Tamang et al., 2018), and Bangladesh (Wainwright et al., 2016) reporting high satisfaction with self-management. A recent meta-analysis found no difference in satisfaction between women who self-managed (91.2%) compared to those who received MA from a healthcare provider (91.0%), suggesting high acceptability of SMA (Gambir et al., 2020). Globally, similar trends are observed: women in Kazakhstan (Platais et al., 2016), Vietnam (Ngoc et al., 2004), Sweden (Podolskyi et al., 2023), and France (Clark et al., 2005) also found SMA acceptable, with 95% to 98% expressing satisfaction and a willingness to use it again. Studies from Chile (Larrea et al., 2022) and United States (Shochet et al., 2023) highlight that accompaniment and support services contribute significantly to satisfaction, with 87% to 98% of women recommending these services. Additionally, telemedicine for SMA is highly acceptable, showing high satisfaction and recommendation rates (64% to 100%) in high-income settings.

CONTACT Sushanta K. Banerjee banerjees@ipas.org No. 2, Paschimi Marg, Vasant Vihar, New Delhi 110 057, India

Overall, the acceptability of home administration of MA and self-management is evident across diverse regions.

In 1971, India marked a significant milestone by enacting the Medical Termination of Pregnancy Act (MTP Act). This landmark legislation sanctioned abortions for various reasons, including safeguarding a woman's life, preserving her physical and mental well-being, addressing economic or social considerations, cases of rape or incest, fetal impairment, and instances where pregnancy ensued from contraceptive failure among married women (MTP ACT, Ministry of Health and Family Welfare | GOI, n.d.). In 2021, the MTP Act was amended to allow abortion up to 24 weeks gestation (Ministry of Law and Justice, 2021). Under the original MTP Act, the termination of pregnancies rested solely in the capable hands of registered medical practitioners operating within approved and licensed facilities. However, the trajectory of abortion care in India embarked on a transformative journey driven by pivotal decisions made by the Drugs Controller of India. In 2002, a milestone was achieved when they approved the use of mifepristone, revolutionising pregnancy termination within 49 days of gestation. Subsequently, in 2008, the approval extended to encompass the combination of mifepristone and misoprostol for medical pregnancy termination, effectively extending the permissible gestational age to 63 days. These changes put India at the forefront of access to medical abortion in the developing world (Ganatra et al., 2010).[4] Despite the availability of medical abortion (MA) options in India for over two decades, the formal health system – comprising both public and private sectors – has demonstrated a slow pace in adopting medical abortion as a standard modality for pregnancy termination. Simultaneously, the landscape of abortion access has undergone a seismic shift in India and globally, with widespread access to MA drugs through pharmacies, ushering in the potential for more self-managed abortion (SMA), abortion without supervision from a healthcare provider (Iyengar & Iyengar, 2016). The MTP Act permits only registered medical practitioners to prescribe MA, and a prescription is technically required to obtain MA from a pharmacy. However, despite these legal requirements, there is widespread access to MA pills over the counter in India, and the last abortion incidence study in India indicated that a substantial 73% (equivalent to 11.2 million cases) of induced abortions transpired outside the purview of the formal health system using self-managed medical abortion (Singh et al., 2018). While facility-based studies have scrutinised the uptake of MA since its regulatory approval, they offer an incomplete portrait of abortion services availed outside the formal healthcare system (Singh et al., 2018). Furthermore, scant attention has been dedicated to recent investigations into the prevalence, trends, and determinants of self-managed abortion within this context (Banerjee et al., 2018).

This study harnesses the rich dataset of the National Family Health Survey Round 5 (NFHS-5), conducted in 2019–2020, to meticulously elucidate the prevalence and evolving patterns of self-managed abortion (SMA) in India. Additionally, it delves into the sociodemographic factors associated with the choice of SMA over provider-assisted abortion care. The study also investigates self-reported post-abortion complications among women who self-managed their abortion compared to those who sought care from healthcare providers.

Data and methods

The NFHS-5 is India's Demographic and Health Survey (DHS), a nationally representative interviewer-administered survey collected in 2019–2021 that included 724,115 women in the reproductive age group of 15–49 years. For the first time, round 5 of the NFHS collected information on abortion methods (medicines, manual vacuum aspiration, other surgical, and other), gestational age at abortion, and reasons for abortion along with the place of abortion (public and private health sector, at home, or elsewhere), service providers (doctor, midlevel provider, homeopath, traditional birth attendant, relative, self, or other), year of abortion, and self-reported postabortion complications. Abortion data were available for 7,696 women who had a pregnancy loss (abortion, miscarriage, or stillbirth) between January 2014 and the survey date and whose last pregnancy loss was an abortion. Women were asked 'Have you ever had a pregnancy that miscarried, was aborted, or ended in a

stillbirth?' Women who responded yes and reported that the last such pregnancy ended in January 2014 or later were asked 'Did that pregnancy end in a miscarriage, an abortion, or a stillbirth?'. Those who responded that it was an abortion were asked questions about their abortion experience. This paper defined self-managed abortion (SMA) as an attempt to terminate a pregnancy using medical abortion performed outside of health facilities without any clinical supervision. Women who reported any episodes of induced abortion were asked about the (a) place of abortion, (b) service providers, and (c) method of abortion. Utilising these three variables, this paper estimated the prevalence of SMA when women reported obtaining MA from a pharmacy and conducting the abortion at home by themselves or with some assistance of relatives without any external/clinical support. Conversely, women who sought abortion services outside their homes and received clinical assistance from healthcare providers were classified as having undergone provider-assisted abortions.

To analyse temporal trends in the prevalence of SMA and provider-assisted abortion, we considered the reported year of the abortion. The sample of women reporting abortion was restricted to those at risk of pregnancy during the reference period (January 2014-survey date). As a result, this analysis was run among 6,423 women who were aged 24–49 on the date of their survey and would have been of reproductive age in 2014.

In exploring the determinants of SMAs, we conducted bivariate and multivariate analyses, incorporating socio-demographic and selected pregnancy-related variables such as gestational age, reasons for pregnancy termination, and the year of abortion. Gestational age was captured by asking 'How many months pregnant were you when the last such pregnancy ended?', and data were recorded in completed months rather than weeks gestation, meaning that a reported gestational age of 2 months is expected to be approximately 8–11 weeks gestation. The reason for pregnancy termination was measured using a multiple choice question: 'What was the main reason for the abortion?', and ten options were provided such as 'unplanned pregnancy' and 'contraceptive failure'. Confounders were selected based on the existing literature in South Asia and included age, education, place of residence, caste (Maurya & Sahoo, 2019; Pradhan & Saikia, 2023; Singh, Hussain, et al., 2020), religion and economic status (Singh, Hussain, et al., 2020), wealth index (Goemans et al., 2023), living children (Goemans et al., 2023; Malik et al., 2023), gestational age (Goemans et al., 2023), and reason for abortion (Pradhan & Saikia, 2023). Our primary outcome of interest, self-managed abortion, was treated as a binary variable. It assumes a value of 1 if the woman reported terminating her pregnancy at home without any assistance from healthcare providers (HCPs) and 0 if the abortion occurred outside the home with clinical support from any category of HCPs, including medical doctors, nursing staff, and other healthcare workers.

Additionally, this study explored the associations between self-managed abortion and self-reported postabortion complications (answering yes to 'Did you have any complications from this abortion?') while controlling for relevant social and demographic parameters, shedding light on the nuanced relationship between abortion practices and subsequent health outcomes. For the analysis of self-reported abortion-related complications by the method of abortion, 297 abortion cases for whom the method of abortion was unknown were excluded from the analysis.

Results

Analytic sample

The flow chart in Figure 1 provides an overview of the analytic sample. A total of 724,115 women of reproductive age were interviewed in the NFHS-5, and 29,702 of these women reported a pregnancy loss during the reference period (January 2014 to survey date). Among women who reported a pregnancy loss since January 2014, 7,696 women reported that their last pregnancy loss was an abortion. These 7,696 women were asked detailed questions about their last abortion, and 2,229 were categorised as having a self-managed abortion, while 5,467 were categorised as having a provider-assisted abortion during the reference period. Among the 7,696 women reporting abortion, 1,124 reported

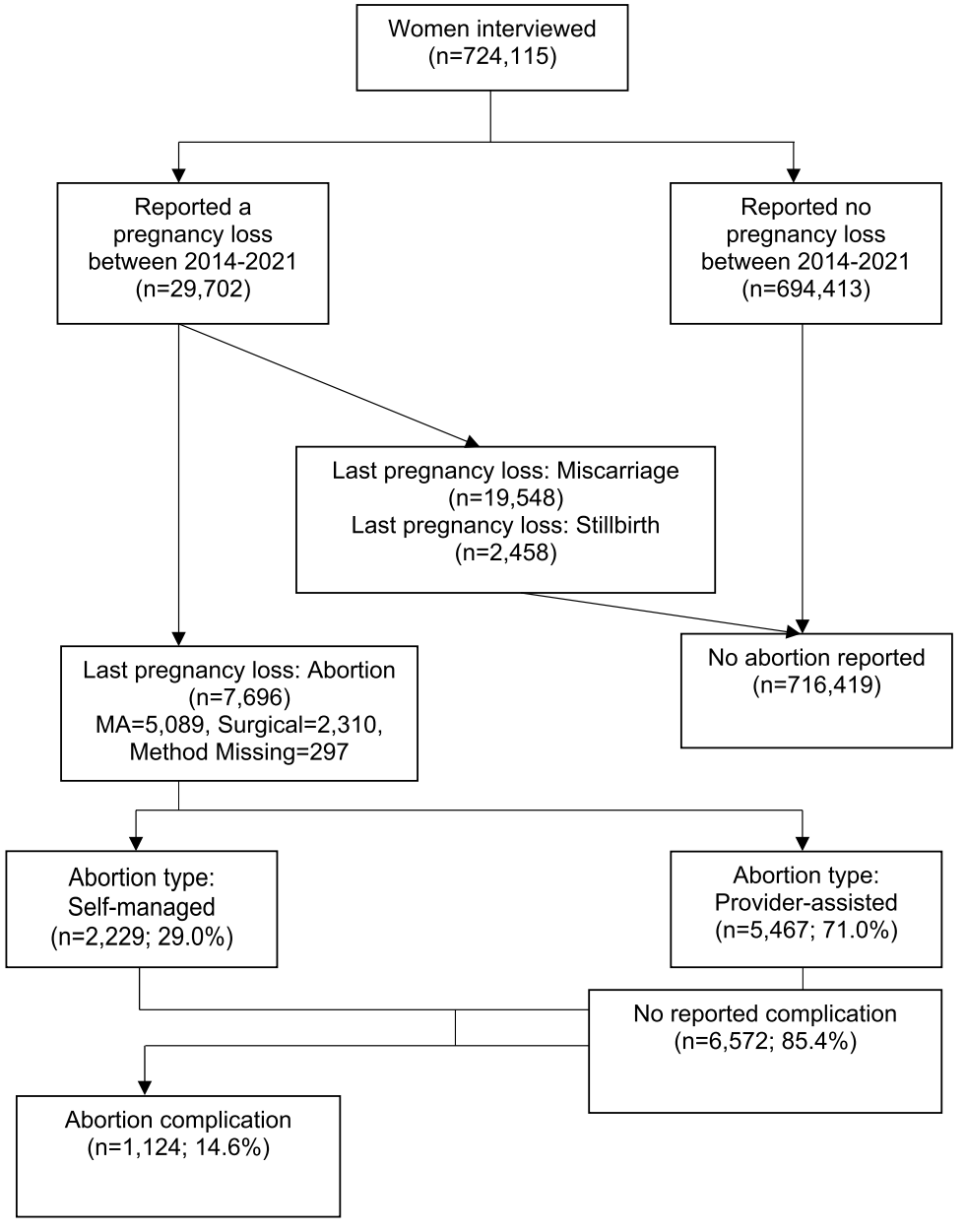

Figure 1. Flow chart of the analytic sample.

abortion-related complications. A majority of the provider-assisted abortions took place in private clinics or hospitals, followed by public sector facilities, and most were provided by a physician, though some were provided by a nurse, auxiliary nurse midwife, or lady health volunteer (data not shown).

Trends in self-managed abortion across India

A compelling geographical pattern emerged when examining the prevalence of SMAs across India's diverse regions (Figure 2). Notably, there were higher proportions of SMAs in the eastern (45%), central (39%), and north-eastern (31%) parts of the country. In stark contrast, the southern (9%)

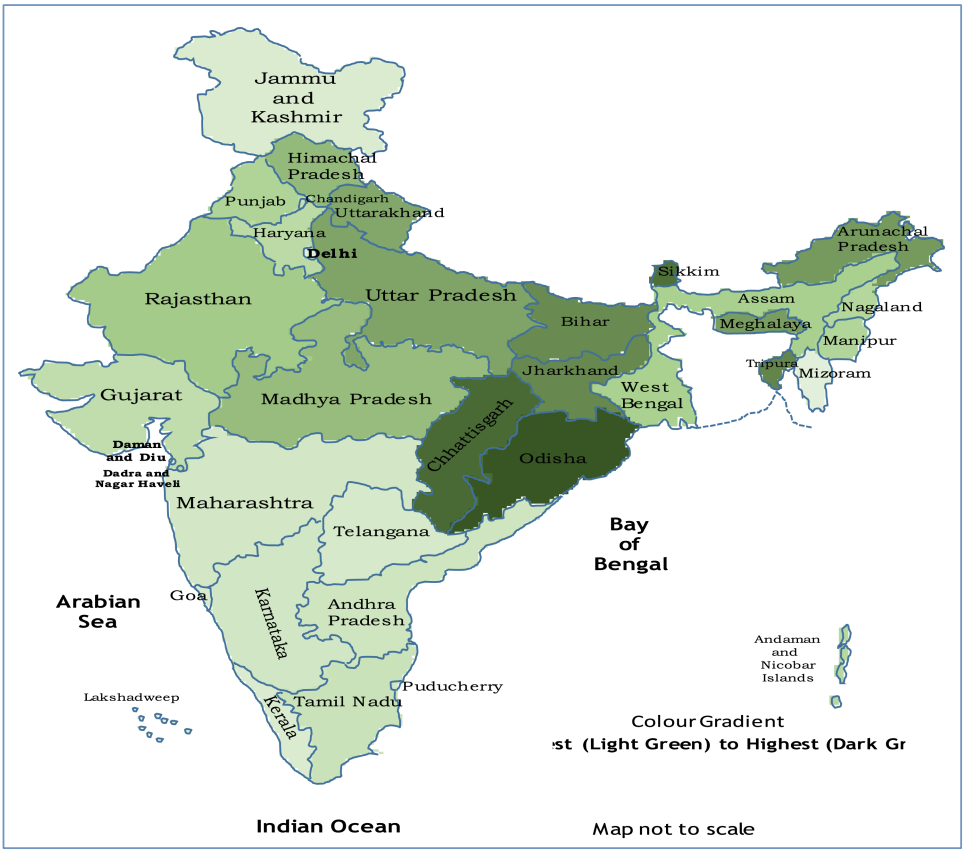

Figure 2. Proportion of reported abortions that were self-managed by state and union territory (n = 7,696).

and western (11%) regions of India reported significantly lower proportions of women who had opted for self-managed abortions. These regional disparities provide valuable insights into the complex interplay of factors influencing reproductive healthcare choices across the nation.

An intriguing and consistent trend unfolded over the course of an 8-year period, spanning from 2014 to 2021, as evidenced in Figure 3. The data pointed to a noteworthy shift in the abortion landscape among women aged 24–49 at the time of the survey who reported an abortion during the reference period. During this period, there was a discernible movement away from relying on healthcare providers to administer abortions in favour of self-management. In 2014, self-management of abortions accounted for 19% of reported cases, a proportion that substantially escalated to 45% by 2021. Conversely, the prevalence of provider-assisted abortions demonstrated a corresponding decline from 81% in 2014–55% in 2021.

Profile of women and factors associated with self-management of abortion

Table 1 describes the socio-demographic and pregnancy-related characteristics of the overall NFHS-5 women's sample (n = 724,115) as well as the sample of women who reported an abortion

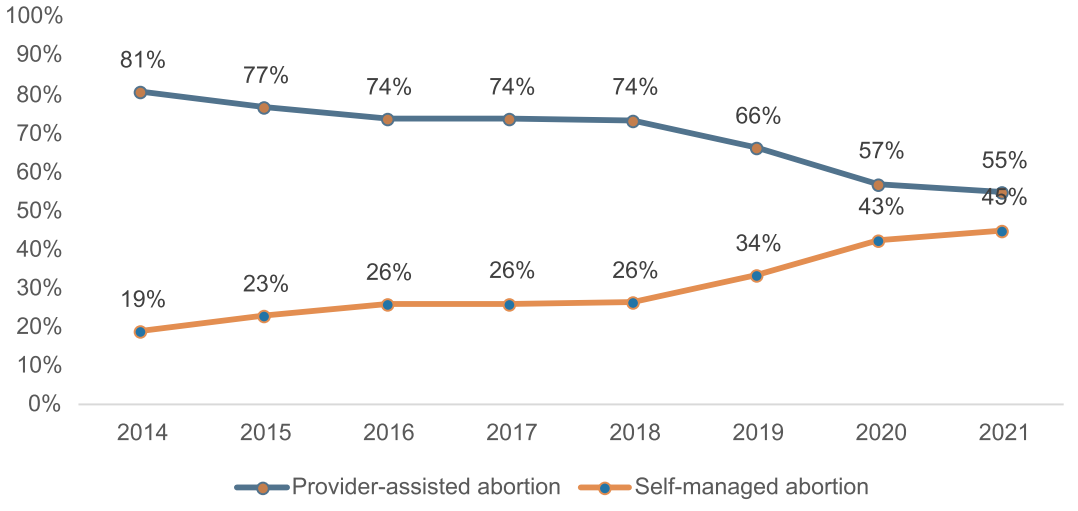

Figure 3. Proportion of reported abortions that were self-managed vs. provider-assisted by year (2014-2021) among women aged 24–49 years at the time of the survey (n = 6,423).

in the reference period (n = 7,696). Women reporting an abortion were younger, more likely to be currently married, and more likely to have at least two children compared to the sample overall. Table 1 also elucidates attributes that influenced the choice of SMA vs. provider-assisted abortion. In many demographic categories, there were factors significantly correlated with SMAs. Although the mean age of women obtaining an abortion for both self-managed and provider-assisted abortions was just over 28 years, young women were more likely to opt for SMAs than their older counterparts. Women in the oldest age groups (35 + years) had the lowest odds of SMA compared to 15-19-year-olds (OR: 0.50, CI: 0.31-0.80). Rural women had higher odds of opting for SMAs than urban women; however, the variations were not statistically significant. Education of women played an important role; women with higher education had lower odds (OR: 0.75, CI: 0.58- 0.95) to opt for SMAs compared to their counterparts with no education. SMA did not differ by wealth index, marital status, number of living children, or caste. Muslim women who reported seeking abortion had lower odds of choosing self-managed abortion over provider-assisted abortion compared to Hindu women (OR: 0.82, CI: 0.67-1.00). Further, working women had 1.2 times higher odds of SMA compared to non-working women (CI: 1.04-1.40). Regional locations of women accounted for the most striking variations of SMAs: abortion seekers from the eastern region (OR: 4.68, CI: 3.48-6.30) and central regions (OR: 3.94, CI: 2.93-5.28) had higher odds of choosing SMA than women from the western region. SMAs were concentrated among women with lower gestational ages at the time of abortion. Women up to 2 months gestational age had 2.93 times higher odds of opting for SMAs (CI: 2.51-3.42) and those under 2 months gestational age had 4.28 times higher odds than women who sought abortions post 3 months gestation. Self-reported reasons for pregnancy termination also played interesting associations with SMAs; women who reported pregnancy complications, contraceptive failure, and male/female foetuses as the reasons for pregnancy terminations had lower odds of opting for SMAs than women who reported unplanned pregnancies.

Self-reported abortion-related complications of self-managed abortion

Overall, 14.6% (1,124 of 7,696) of women reported abortion-related complications. To assess factors influencing self-reported complications, we compared abortion-related complications by abortion methods, including medical abortion and surgical methods (Table 2). The highest proportion of self-reported complications was among women who sought abortion services after three months

Table 1. Sociodemographic characteristics of the all women sample (n = 724,115) and abortion sample (n = 7,696) and results of multivariate logistic regression models for factors associated with self-managed abortion (= 1) versus provider-assisted abortion (= 0).

Characteristics of women	All women sample (N = 724,115) %	Abortion sample (N = 7,696)		Adjusted OR (95% CI)
		Self-managed abortion (N = 2,229) %	Provider-assisted abortion (N = 5,467) %	
Age				
15–19 (ref)	16.9	1.9	2.0	
20–24	16.4	22.0	20.4	0.99 (0.64-1.52)
25–29	16.2	38.0	34.4	0.80 (0.52-1.23)
30–34	13.9	22.8	25.2	0.67 (0.42-1.05)
35 & above	36.5	15.3	18.0	0.50 (0.31-0.80)
Place of residence				
Urban (ref)	32.5	31.8	39.4	
Rural	67.5	68.2	60.6	1.05 (0.91-1.21)
Region				
West (ref)	14.1	5.9	17.4	
North	14.1	12.4	11.0	3.22 (2.37-4.37)
Central	24.9	33.2	21.0	3.94 (2.93-5.28)
East	22.8	35.3	19.1	4.68 (3.48-6.30)
Northeast	3.7	5.9	5.7	2.34 (1.72-3.18)
South	20.5	7.4	25.8	1.16 (0.82-1.62)
Education				
No education (ref)	22.4	16.0	12.0	
Primary	11.7	13.2	10.5	0.88 (0.71-1.09)
Secondary	50.2	56.8	55.3	0.93 (0.77-1.12)
Higher	15.7	14.0	22.2	0.75 (0.58-0.95)
Caste				
General (ref)	25.9	26.9	29.4	
Scheduled Tribe (ST)	9.3	6.7	5.4	1.17 (0.95-1.45)
Scheduled Caste (SC)	21.9	24.1	22.6	1.06 (0.89-1.26)
Other Backward Caste (OBC)	42.9	42.4	42.6	1.05 (0.90-1.21)
Religion				
Hindu (ref)	81.4	86.0	83.8	
Muslim	13.5	11.2	11.5	0.82 (0.67-1.00)
Christian	2.4	0.9	1.8	1.04 (0.75-1.45)
Sikh	1.6	1.1	1.5	0.90 (0.59-1.39)
Others	1.2	0.8	1.3	0.78 (0.55-1.13)
Employment Status				
Not working (ref)	85.1	82.7	85.2	
Working	14.9	17.3	14.8	1.20 (1.04-1.40)
Wealth Index				
Rich (ref)	41.0	39.7	48.9	
Middle	20.5	18.9	22.0	0.94 (0.80-1.12)
Poor	38.5	41.4	29.1	1.17 (0.99-1.38)
Marital Status				
Currently married (ref)	72.0	97.9	97.9	
Currently not married	28.0	2.1	2.1	0.99 (0.61-1.59)
Years since marriage				
15 years and above (ref)	37.4	17.5	16.1	
10–14 years	12.6	24.5	21.8	0.96 (0.78-1.18)
5–9 years	13.4	39.6	40.0	1.02 (0.81-1.30)
0–4 years	12.9	17.7	21.3	1.12 (0.83-1.51)
Never married	23.8	0.7	0.7	2.03 (1.00-4.13)
Living Children				
0–1 (ref)	46.4	31.5	39.9	
2	28.4	40.2	37.9	1.00 (0.85-1.17)
3+	25.3	28.3	22.2	1.12 (0.91-1.36)
Gestational age at the time of abortion				
3 months & above (ref)		14.1	41.5	
2 months		44.7	36.5	2.93 (2.51-3.42)
Less than 2 months		41.2	22.0	4.28 (3.63-5.04)

(*Continued*)

Table 1. Continued.

Characteristics of women	All women sample (N = 724,115) %	Abortion sample (N = 7,696) Self-managed abortion (N = 2,229) %	Abortion sample (N = 7,696) Provider-assisted abortion (N = 5,467) %	Adjusted OR (95% CI)
Reason for abortion				
Unplanned pregnancy (ref)		61.8	36.2	
Contraceptive failure		2.6	3.7	0.67 (0.50-0.91)
Complications(s) in pregnancy		1.9	14.8	0.11 (0.07-0.15)
Health did not permit		6.8	15.1	0.39 (0.31-0.48)
Female foetus		1.5	2.2	0.46 (0.29-0.73)
Male foetus		0.2	0.5	0.33 (0.12-0.91)
Economic reasons		2.8	3.2	1.07 (0.78-1.46)
Last child too young		11.9	8.6	0.89 (0.74-1.05)
Foetus had congenital abnormality		0.5	6.0	0.09 (0.05-0.19)
Husband/mother-in-law did not want		5.0	3.3	0.99 (0.77-1.28)
Other		5.0	6.4	0.39 (0.30-0.52)
Overall Prevalence		29.0	71.0	

of gestation (18.1% for medical abortion and 19.4% for surgical abortion). A smaller proportion of women who self-managed their abortion reported complications (12.6%) compared to provider-assisted abortion (14.9%). The multivariate analysis also demonstrates that after controlling for relevant socio-demographic attributes, self-managed abortion was not associated with a higher odds of reporting complications when compared to a medical abortion performed by a provider (OR: 0.83, CI: 0.69-1.00). As expected, self-reported complications of abortion were significantly lower among women who had a lower gestational age at the time of abortion for both medical and surgical abortions.

We further examined the interaction effects of abortion type (self-managed vs. provider-assisted) and gestational age stratified by abortion method (Table 3). Among women who used medical abortion, there are higher odds of reporting complications for provider-assisted abortions at gestational ages over three months compared to provider-assisted abortions at gestational ages under two months (OR: 1.5, CI: 1.10-1.94). The odds of reporting complications were not higher at any gestational age for women who self-managed their abortion, compared to provider-assisted abortions at gestational ages under two months. Instead, self-managed abortion at gestations under two months were associated with a lower odds of reporting complications compared to provider-assisted abortions in the same gestational age range (OR: 0.7, CI: 0.52-0.97). Among women who used surgical abortion, the odds of reporting complications was also higher at gestational ages over three months (OR:1.4, CI: 1.00-1.98).

Discussion

Our findings reveal that self-management of abortion has been on a steady rise in the past 8 years, as provider-assisted abortions have been on the decline. In some states, such as Odisha, the proportion of self-managed abortions is almost equal to that of provider-assisted abortions. This trend highlights an increasing trend of women in India to self-manage abortion care through the use of medical abortion. This is especially true of women with lower levels of education, in the lowest quintiles of wealth, and who live in rural areas. If this current trajectory persists, it foretells a significant transformation in the landscape of abortion care in India. In the near future, self-management may supersede the utilisation of healthcare providers, emerging as the predominant choice for women seeking abortion services across the nation. These findings echo those of similar studies, which show an increasing trend towards self-managed abortion at home (Banerjee et al., 2018; Singh et al., 2018). However, it is unknown whether this trend is due to women's preference for

Table 2. Results of multivariate logistic regression models for factors associated with post-abortion complications (Yes = 1 & No = 0) by abortion method (N = 5,089 for medical abortion and N = 2,310 for surgical abortion*).

	Medical abortion (N = 5,089)		Surgical abortion (N = 2,310)	
Characteristics of women	Complications %	Adjusted OR (95% CI)	Complications %	Adjusted OR (95% CI)
Management of abortion				
Provider-assisted abortion (ref)	14.9			
Self-managed abortion	12.6	0.83 (0.69-1.00)		
Gestational age at time of abortion				
3 months & above (ref)	18.1		19.4	
2 months	12.6	0.64 (0.52-0.78)	14.0	0.69 (0.53-0.89)
Less than 2 months	11.7	0.62 (0.49-0.77)	13.4	0.69 (0.49-0.98)
Age				
15–19 (ref)	14.7		22.0	
20–24	13.8	1.03 (0.57-1.85)	16.8	0.88 (0.39-1.99)
25–29	12.4	1.03 (0.57-1.87)	16.3	0.95 (0.41-2.18)
30–34	14.5	1.24 (0.67-2.31)	17.6	1.07 (0.45-2.54)
35 & above	15.7	1.11 (0.58-2.14)	14.4	0.86 (0.34-2.14)
Place of residence				
Urban (ref)	13.1		14.6	
Rural	14.2	0.98 (0.79-1.19)	17.1	1.36 (1.02-1.80)
Region				
West (ref)	13.6		20.3	
North	17.2	1.34 (0.92-1.95)	19.7	0.99 (0.66-1.48)
Central	14.4	1.23 (0.84-1.79)	17.3	0.93 (0.61-1.42)
East	15.5	1.22 (0.84-1.78)	16.3	0.80 (0.51-1.28)
Northeast	12.6	0.82 (0.55-1.25)	12.6	0.58 (0.37-0.90)
South	9.8	0.61 (0.41-0.90)	14.1	0.58 (0.36-0.93)
Education				
No education (ref)	16.3		18.3	
Primary	16.0	1.06 (0.79-1.45)	10.4	0.55 (0.33-0.92)
Secondary	13.8	0.94 (0.72-1.22)	17.1	0.98 (0.67-1.42)
Higher	10.9	0.73 (0.51-1.04)	16.6	0.91 (0.57-1.44)
Caste				
General (ref)	15.5		18.6	
Scheduled Tribe (ST)	14.0	0.85 (0.62-1.16)	13.2	0.83 (0.52-1.32)
Scheduled Caste (SC)	14.4	0.94 (0.74-1.21)	17.9	1.12 (0.79-1.57)
Other Backward Caste (OBC)	12.6	0.89 (0.72-1.10)	14.9	0.82 (0.62-1.09)
Religion				
Hindu (ref)	13.4		15.8	
Muslim	16.6	1.19 (0.92-1.56)	23.7	1.78 (1.26-2.50)
Christian	12.9	1.25 (0.75-2.07)	11.5	0.91 (0.43-1.89)
Sikh	14.9	0.81 (0.45-1.47)	16.7	0.77 (0.37-1.60)
Others	18.2	1.42 (0.87-2.23)	11.3	0.88 (0.40-1.91)
Employment Status				
Not working (ref)	14.2		16.8	
Working	12.4	0.89 (0.70-1.12)	14.3	0.90 (0.65-1.24)
Wealth Index				
Rich (ref)	12.6		16.5	
Middle	13.7	1.09 (0.86-1.38)	19.3	1.31 (0.96-1.80)
Poor	15.4	1.22 (0.96-1.55)	14.6	0.95 (0.68-1.32)
Marital Status				
Currently married (ref)	13.7		16.2	
Currently not married	19.5	1.14 (0.61-2.11)	26.7	1.29 (0.51-3.28)
Years since marriage				
15 years and above (ref)	17.4		15.1	
10–14 years	12.6	0.69 (0.51-0.93)	16.5	0.94 (0.62-1.43)
5–9 years	13.2	0.74 (0.53-1.03)	16.1	0.79 (0.49-1.26)
0–4 years	13.4	0.69 (0.46-1.05)	17.3	0.71 (0.39-1.26)
Never married	21.6	1.08 (0.43-2.69)	42.9	2.50 (0.54-11.45)
Living Children				
0–1 (ref)	15.2		18.8	
2	13.0	0.76 (0.61-0.93)	15.4	0.73 (0.54-0.98)
3+	13.5	0.58 (0.43-0.76)	13.9	0.57 (0.38-0.85)

*297 abortion cases were excluded from the multivariate models as the method of abortion was missing in the data set

Table 3. Results of multivariate logistic regression models for the interaction effect of provider type and gestational age on post-abortion complications (N = 5,089 for MA and N = 2,310 for surgical abortion*).

	Medical Abortion (N = 5,089)		Surgical Abortion (N = 2,310)	
Interaction	Complications %	Adjusted OR (95% CI)	Complications %	Adjusted OR (95% CI)
Performed by provider and gestation <2 months (ref)	13.0		13.7	
Performed by provider and gestation 2 months	12.6	0.9 (0.68-1.23)	13.9	0.9 (0.67-1.38)
Performed by provider and gestation 3 months and above	18.0	1.5 (1.10-1.94)	19.4	1.4 (1.00-1.98)
Self-managed and gestation <2 months	10.7	0.7 (0.52-0.97)		
Self -managed and gestation 2 months	12.6	0.8 (0.61-1.12)		
Self -managed and gestation 3 months and above	18.6	1.3 (0.88-1.92)		

*297 abortion cases were excluded from the multivariate models as the method of abortion was missing in the data set.

SMA and improved agency and awareness, or due to lack of high-quality, affordable facility-based care.

Self-managed abortion is a safe and effective method of pregnancy termination when compared to traditional provider-based care (Kapp et al., 2023; Moseson et al., 2022, 2023). This study found no increased risk of reporting complications for women who self-manage their abortion, compared to women who have provider-assisted medical abortions. In this study, the risk of reporting complications increased only at higher gestational ages (3 months or greater) for provider-assisted medical abortion. A larger proportion of women who self-managed their abortions at gestational ages beyond 3 months reported complications, but this difference was not significant in alignment with findings from an analysis of NFHS-4 data (Goemans et al., 2023). A number of studies from various global contexts concur that self-managed abortion using MA is a safe and effective means of pregnancy termination and that women who self-manage abortions at home have similar or higher rates of success to that of clinic-based care (ranging from 80% to 97%) (Akin et al., 2004; Bracken, 2010; Elul et al., 2001; Karki et al., 2009). Furthermore, studies show that women can estimate their gestational age with a small margin of error that does not affect abortion outcome and can determine when to seek post-abortion care for complications (Clark et al., 2007; Shannon & Winikoff, 2008; Shellenberg et al., 2017). However, similar to the current study, two other studies in India demonstrated an increased risk of incomplete abortion or complications at higher gestational ages (Chuni & Chandrashekhar, 2009; Kalyankar et al., 2014).

Although this was the first time after almost three decades that the fifth round of NFHS captured national-level data on abortion methods and abortion providers, the NHFS-5 did not supply questions to discern why self-managed abortion care is on the rise in India, but there are a number of potential reasons why women may be using this method more and more. Medical abortion has been legal in some form in India since 2002, laying the groundwork for the widespread availability of self-management methods through pharmacies around the country. Further, the improved use of MA through facility-based interventions may have resulted in broader knowledge of self-management methods, even among those who do not use clinic-based care (Kalyankar et al., 2014). A 2015 abortion incidence study estimated that the majority of abortions taking place in India were done at home, using medical abortion (Singh et al., 2018). The lower cost, and ready access to medical abortion, as compared to clinic-based care, may also be contributing to the increased use of self-managed abortion in India (Banerjee et al., 2018; Jardine, 2016). Evidence from other contexts demonstrates high satisfaction with SMAs with MA due to its accessibility, affordability, comfort, confidentiality, and privacy (Elul et al., 2001; Ngoc et al., 2004; Shah et al., 2005). More research is needed on the reasons for the rise in SMA in India.

Though self-management of abortion with MA increases the availability of abortion options for women, there are some caveats to consider as this method increases in popularity. As SMA rivals

the dominance of provider-based care, providers may begin to lose skills in manual vacuum aspiration and technologies for later gestational age and postabortion complications due to a lack of practice and a decreased emphasis on training in these skills. Future interventions may begin to shift abortion provision efforts to new segments of the health system (such as community or pharmacy level), which may further endanger providers' ability to offer safe and effective abortion care on demand. Such a loss would threaten a woman's choice to have the method of care that she prefers and to ensure that the method is applied correctly. Furthermore, self-management of abortion may result in complications (Kapp et al., 2023), particularly at higher gestational ages, so women must be educated on the signs and symptoms that require post-abortion care.

To broaden women's options for safe and timely abortion in India, it is imperative that future initiatives prioritise several key programmatic areas. First, self-management of abortion can be supported by guaranteeing the MA supplies to communities through pharmacies. This should be complemented by sufficient orientation of pharmacists to ensure that they provide women with the proper information, indications, procedures, protocols, and risks of MA. In India, in particular, studies have shown that pharmacists may lack the capacity to provide accurate MA information to clients and may require training on basic elements such as calculating gestational age, dosage and timing of MA drugs, and legal gestational limits for MA use (Hajri et al., 2004; Powell-Jackson et al., 2015). Though pharmacist interventions have demonstrated the ability to improve knowledge, more research is needed to understand how to impact pharmacist behaviour (Diamond-Smith et al., 2019). Pharmacists could serve as an essential referral link to facilities for women who experience post-abortion complications. At the facility level, providers should be trained to offer effective and non-judgmental post-abortion care for all women but should be especially sensitive to the needs of those who self-managed their abortion and may be timid about clinic-based care. Finally, women themselves need more education on a range of information that can improve their ability to make choices, the legal indications of abortion, the appropriate timing and administration of MA drugs, the normal symptoms of MA, and when and where to seek additional care and support in case of complications. Intervening at each of these points can significantly impact women's access to abortion and satisfaction with their experiences.

It is essential to consider the limitations when interpreting the findings of this study. As previously mentioned, all data in this study are self-reported in an interviewer-administered survey, which introduces a notable susceptibility to significant underreporting of abortion-related information. This underreporting is primarily attributed to the profound cultural sensitivity and enduring social taboos surrounding the topic of abortion. There may be additional underreporting of SMA, given that obtaining MA without a prescription is not allowed under the MTP Act. Much of the underreporting may be among groups that are most stigmatised with low or no awareness of the legal aspects of abortion, including unmarried and nulliparous women, potentially underestimating the importance of these sociodemographic characteristics in the analysis. Conversely, SMA could be overestimated in that data were not available on whether women obtaining MA from pharmacies had a prescription, and some categorised as SMA may have visited a healthcare provider before accessing MA from a pharmacy. Furthermore, the study faces challenges in verifying the skills and training levels of healthcare providers reported to have performed abortions and the true nature of self-reported postabortion complications, as there was no data available on the type or severity of complications. The study's data may not provide adequate substantiation of the qualifications and competency of these healthcare professionals in abortion procedures. These limitations underscore the need for a cautious interpretation of the findings and emphasise the complex nature of researching sensitive topics like abortion in cultural contexts where disclosure may be inhibited. In particular, this study was not designed to test the safety of different abortion methods or provider types, given the aforementioned data limitations. Researchers and policymakers should be aware of these constraints when utilising the study's results for decision-making and policy formulation.

Conclusions

This research is a critical foundation for comprehending the increasing prevalence and safety profile of self-managed abortion in India. The findings illuminate a compelling narrative: self-managed abortion is steadily gaining popularity as a method of pregnancy termination, and it exhibits the potential to be as safe and effective as provider-assisted care, especially at earlier gestational ages. This evolving landscape underscores the importance of ongoing support for women and healthcare stakeholders through comprehensive education, training, and access to necessary supplies, including high-quality medical abortion drugs and at-home pregnancy tests. Such support mechanisms are instrumental in ensuring that women can exercise their reproductive choices with safety and in a timely manner, irrespective of the method they opt for. At the same time, provider-assisted abortion care must not be ignored to ensure that women who prefer surgical abortion and those who require abortion at later gestational ages can receive high-quality care. The recent amendment of the MTP Act has increased the gestational age limit for abortion from 20 to 24 weeks, and this requires a more strategic vision to increase the base of trained providers who can ensure safe abortion at the higher gestation.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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