Exploring the Pathways of Unsafe Abortion

A Prospective Study of Abortion Clients in Selected Hospitals of Madhya Pradesh, India

By

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I. INTRODUCTION

Background

Unsafe abortion is a neglected women's health issue in India and in many developing nations because maternal mortality and morbidity due to unsafe abortions can easily be prevented when women have access to safe abortion services. Unsafe abortion is defined by the World Health Organization (WHO) as "a procedure for terminating an unwanted pregnancy either by persons lacking the necessary skills or in an environment lacking the minimal medical standards, or both" (WHO 1992). Worldwide, 42 million pregnancies each year end in abortion, with 19.7 million of these abortions taking place under unsafe conditions; nearly all unsafe abortions (95%) occur in developing countries (WHO 2007). Of the 6.4 million abortions performed in India in 2002 and 2003, 3.6 million (56%) were unsafe (Duggal and Ramachandran 2004).

The WHO has explained that almost all abortion-related deaths are preventable when performed by a qualified provider using correct techniques under sanitary conditions (WHO 2003). Yet 67,500 women die each year due to lack of access to safe abortion services and treatment for abortion related complications (WHO 2007). Globally, abortion complications constitute 13% of all maternal deaths; in India, there are 12,000 deaths each year due to abortion related complications (Banerjee 2007).

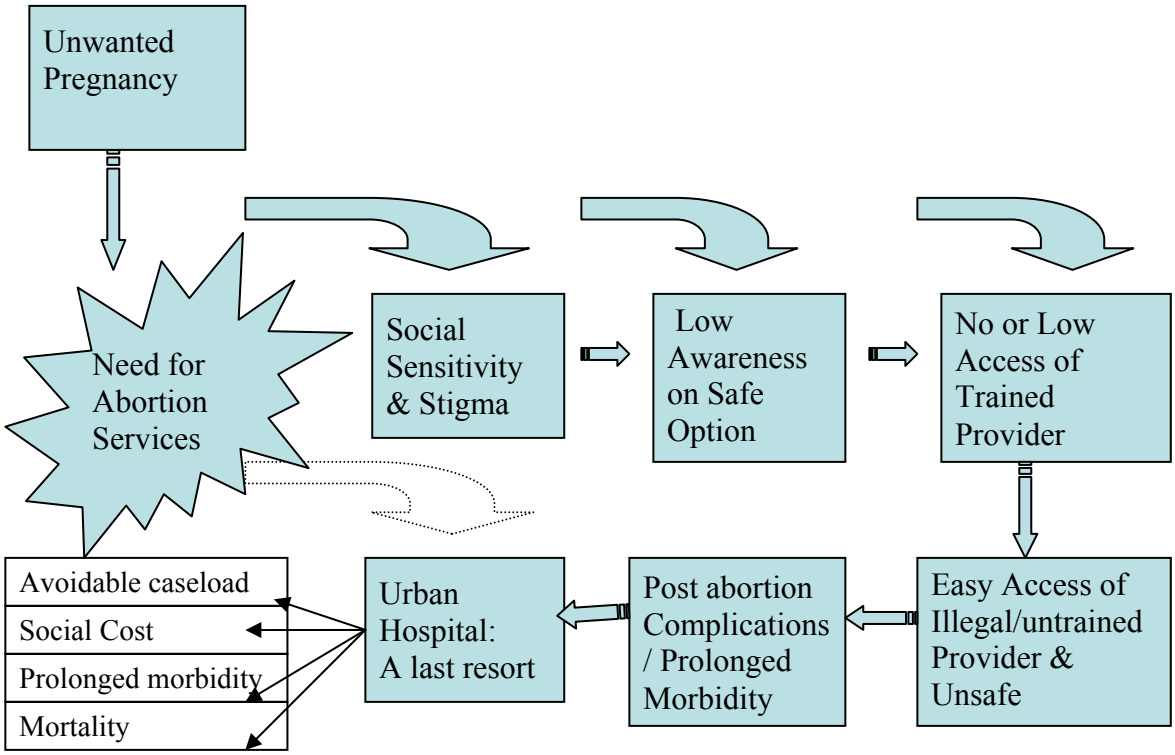
Recognizing the preventable nature of most maternal mortality and morbidity related to unsafe abortion, in 1971 the Indian parliament passed the Medical Termination of Pregnancy (MTP) Act which enables women to seek abortion for many indications. Unfortunately, this relatively liberal law has not led to significant reduction in unsafe abortion or related maternal mortality and morbidity. Even 38 years after passage of the MTP Act, rural women overwhelmingly rely on unsafe methods and illegal providers because they lack access to safe abortion procedures.

A case in point concerns rural women in Madhya Pradesh. Such women have very few opportunities to access safe abortion services at a primary health centre (PHC), which serves as the first contact point between the rural population of 60 million and a qualified medical doctor. According to the latest National Facility Survey (2003), only 3% of PHCs and 19% of community health centres (CHCs) provide MTP services (IIPS 2005). Lack of accessible safe services leads rural women to seek abortion services from untrained providers, traditional practitioners/healers, and chemist shops in close proximity. Women who face severe complications after an unsafe procedure may ultimately need to access care at a more distant Medical College or District Hospital. Access to safe abortion services is further limited by a lack of knowledge among women concerning the legality of abortions. A study in rural Madhya Pradesh revealed that only 15% of women knew that abortion was legal, and only 9% could correctly identify the gestation limit for legal pregnancy termination (Malhotra et.al 2003).

Epidemiological Priority and Global Response

When women face an unwanted pregnancy, a wide variety of factors impact their decision to access unsafe abortion services and increase their risk of morbidity and mortality. This process is depicted in the conceptual framework below (Figure 1). Stigma, lack of knowledge about safe services, and a paucity of accessible and trained providers may lead women to seek care from more convenient, but illegal providers who use unsafe technology. Women without access to information may not be prepared to judge the relative safety of unsafe abortion methods, which may include insertion of intrauterine foreign body (e.g., stick, root, leaf, wire), a vaginal abortifacient (e.g., herbal preparations, misprescribed medications for medical abortion), or sharp curettage. The likelihood of experiencing post-abortion complications depends on the training and skill of the abortion provider, procedures used, and conditions under which the procedure is performed.

Figure 1: Conceptual Framework of Post-abortion Complications



Studies in other countries have attempted to understand the impact of post-abortion complications. In sub-Saharan Africa, abortion-related complications have been identified as a major cause of maternal deaths (Coeytaux 1988). A hospital-based study in Nairobi, Kenya estimated that more than 10,000 patients are treated for complications of unsafe abortion every year (Baker& Khasiani 1992); another hospital-based study in Kenya estimated the annual incidence of incomplete abortion and other abortion-related complications to be 3.03 per 1000

women aged 15 to 49 years (Gebreselassie, et al 2005). Late recourse to a health facility and complications of unsafe abortion were identified as major contributory factors of maternal mortality in the Kassena-Nankana district of northern Ghana, where post-abortion complications contributed to 29% of all maternal deaths (Baiden et al 2006). In the Gauteng province of South Africa, lack of information on abortion rights and poor perception of the quality of designated facilities were identified as the most important barriers to access (Jewkes at al 2005). Similar studies have been conducted in other parts of the developing world: in Latin America by Singh and Wulf (1993), and in Uganda by Singh et al (2005). An analysis of abortion-related morbidity in 13 developing countries, found that while an estimated three to eight women in every 1000 were hospitalized each year as a result of abortion related complications in Bangladesh and Brazil, the same figure ranges from 10 to 15 in Chile and Peru respectively (2006).

In India, fewer studies have examined the causal routes of post-abortion complications, particularly by untrained or unqualified providers. One retrospective record review of abortion cases from 2005 – 2006 at the GR Medical college and Hospital in Madhya Pradesh did reveal that over half (52%) of cases were incomplete and approximately 2% were septic abortions. However more detailed information about common abortion technologies, types and severity of complications, and perceived symptoms or signs of complications (which may prompt women to seek subsequent care) is unavailable. Such information could help identify appropriate action and policy responses to increase accessibility and quality of safe abortion services. As barriers to safe abortion services are greatest in rural areas, the Ministry of Health & Family Welfare, Government of Madhya Pradesh, in close collaboration with selected hospitals and medical colleges of the state and Ipas-India initiated this research project for understanding the incidence, sources, causes and types of post abortion complications diagnosed at selected medical colleges and hospitals which serve this rural region.

II. STUDY DESIGN AND IMPLEMENTATION

Objectives of the research

The primary objective of this research was to understand the pathways through which unsafe abortion leads to post-abortion complications and to describe the experiences of women seeking care for post-abortion complications in Madhya Pradesh. Specifically, the research aimed to assess:

- Prevalence and types of post-abortion complications;
- Characteristics of women who present with post-abortion complications;
- Pathways of seeking abortion services and treatment for post-abortion complications;
- Probable causes of post-procedure complications, including: Type/profile of providers who provided services earlier which led to post-abortion complications and termination methods leading to complications; and

- Consequences of post-abortion complications in terms of symptom severity, cost, and loss of time.

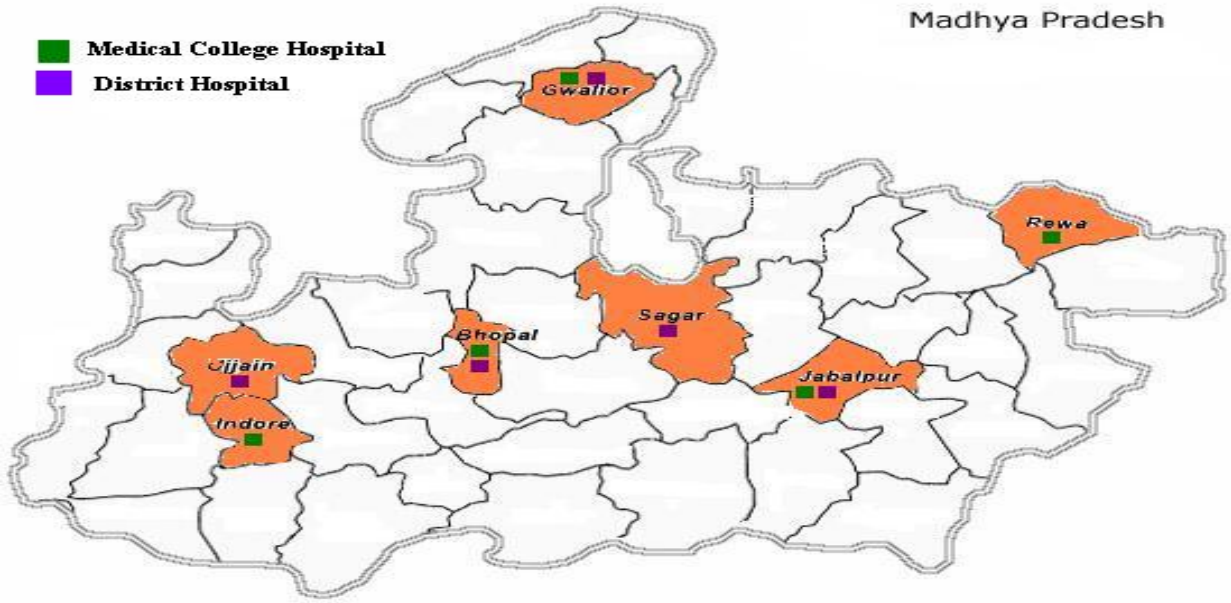
Study Design

A prospective recruitment strategy of women presenting to a facility/hospital with post-abortion complications was chosen to answer the research questions. Although study designs employing a cross-sectional household survey and retrospective record review were considered, operational limitations (sensitivity of the issue, confidentiality, and signs/symptoms recall) and associated expense were prohibitive. Prospective hospital recruitment eliminated many of the operational limitations, while capturing post-abortion complications and information about causal routes through clinical diagnosis and interview. Because women were currently receiving services, they were also more likely to trust the providers and the institution and perhaps provide more reliable information.

Study Universe and Eligible Respondents

Five government-run medical college hospitals and five district hospitals were purposively selected for the study because of high anticipated caseload of abortion complications, geographic representation across the state, and institutional strength required providing treatment and quality research participation. The target population for this study included women of reproductive age who were seeking care for post abortion complications between August ans December 2007 at one of the ten study hospitals.

Figure 2 Location and Type of 10 Participating Study Sites



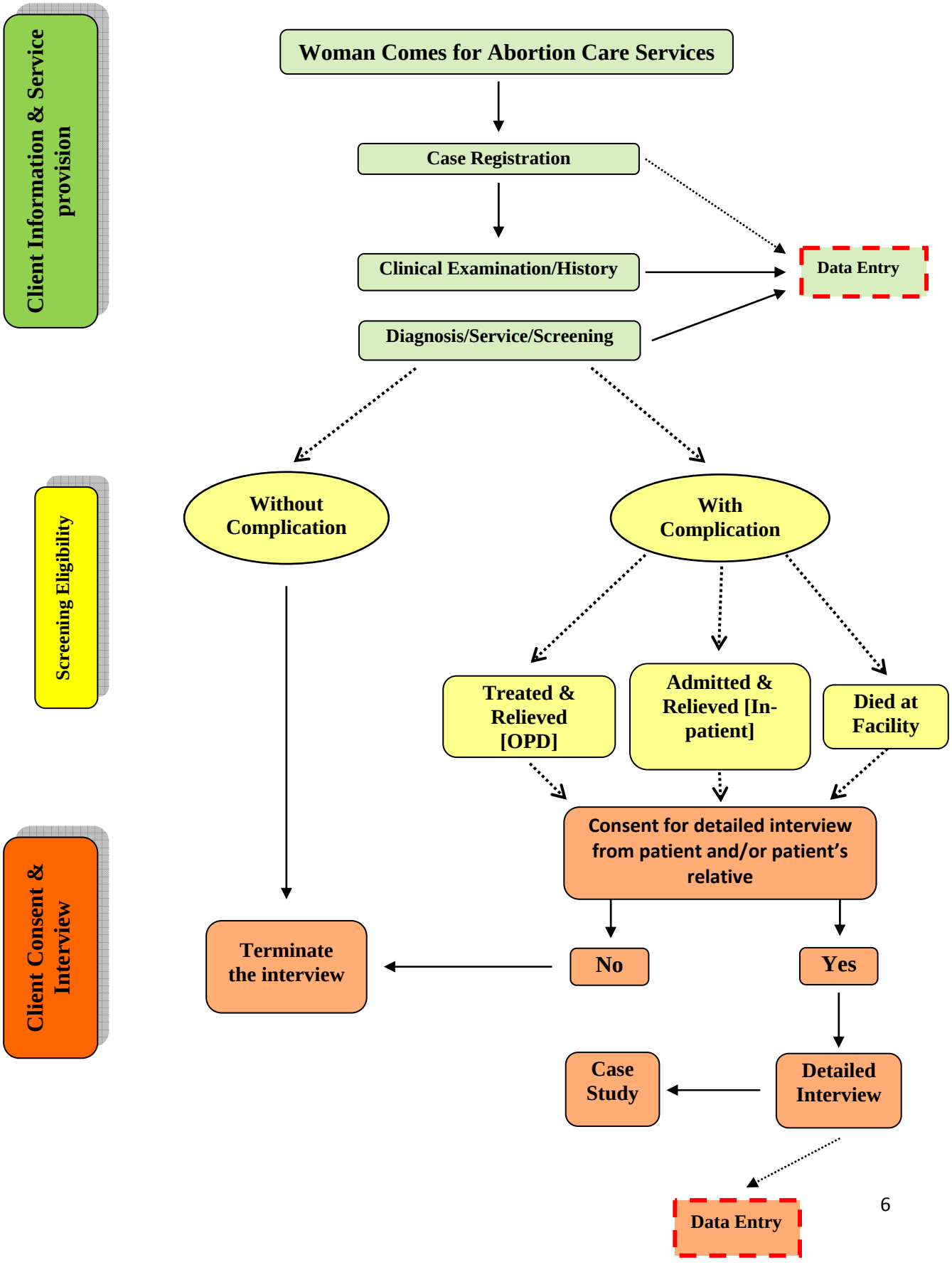
Research Tools

Two separate study tools were developed for capturing all desired information required for this study. First, a structured and provider-friendly Case Register Logbook was introduced to record all women seeking any abortion related services. The two primary purposes of this tool were to (1) capture case history and service provision records and (2) identify women with abortion related complications for recruitment (namely, incomplete abortion, severe bleeding, and septic abortion). The Case Register Logbook recorded a woman's name, address, hospital identification number, age, parity, gestation of pregnancy, presenting complications, clinical diagnosis, subsequent uterine evacuation procedure (MVA, EVA, MA, & D&C) and other service related measures. Next, a semi-structured questionnaire was developed for conducting a detailed interview with participating women and captured quantitative and qualitative responses. This questionnaire, developed in English and translated into Hindi, recorded the detailed case history of women identified with post-abortion complications. It included information on care-seeking behaviour/process, knowledge about abortion legality and availability, type(s) of local providers who initially provided abortion services, methods or techniques applied, signs and symptoms of complications prompting a woman to come to the medical college/district hospital and referral source. In addition, the study tool captured out-of-pocket costs incurred for seeking abortion care services and treatment on post abortion complications, including medical costs (consultation fees, tests, and medicine) and non-medical & social costs (transportation, food and lost income/time). The questionnaire was pre-tested before implementation. Prior to implementation, the research design, tools and protocols were approved by an institutional review board of Lady Elgyn Medical College, Jabalpur, India.

Implementation

All members of the Ob-Gyn department in the selected medical colleges and district hospitals providing abortion services, including resident doctors and post graduate students, were oriented to the study purpose, design, and implementation protocol. To track eligible women for study recruitment and interview, the research investigator worked in close coordination with the facility staff providing abortion care services. The research implementation process is summarized in Figure 3. All women attending the ob-Gyn department of the hospital/medical college were first screened for post-abortion complications by a medical provider. Women with complications were referred to an on-site trained investigator who described the study and sought informed consent for participation. The study staff explained the purpose and nature of the study to potential participants and assuring women of low literacy levels that they could contact the study staff at any time to re-read or to explain the informed consent form to them. All participants signed the informed consent form or gave their verbal consent to the interviewer who signed on behalf of the participant. During the study, participant confidentiality was ensured to the fullest extent possible. A client identification number instead of participant name was used on the data collection forms. Although each hospital maintained the Case Register Logbook (including the name and address), the duplicate logbook page dispatched for data entry did not have these personal identifiers. The detailed interview was conducted only with those clients who voluntarily gave informed consent for participation.

Figure 3 Research Flow Chart



Sample Size and Response Rate

In order to estimate complication rates by type of provider, we determined a priori that 30 women seeking care from each type of provider would need to be recruited. Assuming 8–10% complication rate from the smallest group of provider, we would need to recruit approximately 380 (.08 * 380 = 30) women with abortion related complications. This sample size would have exceeded our power calculations in estimating complications within a 5% error range (p = 20%, Z = 1.96, alpha = .05: Required Sample = 245).

A total number of 1565 women received treatment on induced abortion or abortion related complications. Study doctors identified 451 eligible women with post abortion complications due to induced abortions. Among these, 381 (85%) agreed to participate in the study and were successfully interviewed. Reasons for nonparticipation included refusal (n=45), physical /psychological barriers to participation (n =20), and respondents who could not be located after treatment (n=5).

Table 1: Eligible women identified and successfully interviewed by facility type

Facility Type	Identified (n)	Interviewed (n)	Response Rate (%)
Medical Colleges	220	185	84
District Hospital	231	196	85
Total	451	381	85

Source: Case Register Logbooks

Analysis

Data were entered and analyzed using SPSS Version 13.0. All variables were checked for consistency and validity. Descriptive statistics were computed, including frequency and percent of non-missing for categorical variables and means with associated standard deviations for continuous variables. Distribution of missing values was examined to assess reliability of the data. Prevalence of post-abortion complications was calculated as a ratio of the number of women identified with complications divided by the total number of women receiving services for induced abortion, and the prevalence was compared among district hospitals and medical colleges using the chi-square test.

All point estimates for medical and non-medical cost of seeking abortion care services and treatment on post abortion complications were analyzed separately for each visit and cost components (transport, consultancy, procedure, medicine, and clinical examinations). The costs of seeking abortion care services and post abortion complications were summed to calculate the total cost of managing an induced abortion with post abortion complications. The average total cost is presented against selected key variables via mean and standard deviation.

Background characteristics of eligible women who did not participate were compared to those successfully interviewed using data obtained from the Case Register Logbooks. No statistically significant differences were observed by age, parity, and complication types (alpha = 0.05).

III. FINDINGS

Prevalence of Post Abortion Complications

As shown in Table 2, overall prevalence of abortion related complications among women seeking services associated with induced abortion was 29% (451/1565). Post abortion complication prevalence were less prevalent at medical colleges (26%) when compared to district hospitals (33%) (p-value = .0018).

Table 2 Prevalence of post abortion complications by site type, Madhya Pradesh, 2007

Facility Type	Women Received any Induced Abortion Services	Women Diagnosed with post abortion complication	Prevalence of Complication
Medical colleges	860	220	25.8
District hospitals	705	231	32.8
Total	1565	451	28.8

Source: Case Register Logbooks

Characteristics of women identified with post abortion complications

Among the 381 study participants with post abortion complications, most were 25–30 years old and the overwhelming majority were married (Table 3).

Table 3 Socio-demographic characteristics of 381 women with post abortion complications from ten hospitals in Madhya Pradesh, 2007.

Characteristics	n	(%)	Characteristics	n	(%)
Age			**Education**		
< 18	6	(2)	Never attended school	92	(24)
19 – 24	113	(30)	Primary	51	(13)
25 – 30	218	(57)	Middle	75	(20)
31 – 36	38	(10)	Secondary	76	(20)
< 36	6	(2)	Above secondary	87	(23)
Mean	26.5		Mean years	9.4	
(SD)	(4.4)		(SD)	(3.2)	
Marital Status					
Currently married	376	(99)			
Never married	5	(1)			
Caste/tribe			**Occupation**		
Scheduled caste	93	(24)	Unemployed	327	(86)
Scheduled tribe	14	(4)	Daily wage labourer	22	(6)
Other backward class	135	(35)	Small business	14	(4)
General	137	(36)	Clerical/other	14	(3)
Missing	2	(1)	Family farm	4	(1)
Place of residence			**Standard of Living**		
Urban	281	(74)	Low	223	(59)
Rural	97	(25)	Medium	104	(27)
Missing	3	(1)	High	54	(14)

Nearly two-thirds identified as scheduled caste/tribe or other backward class. Approximately three-fourths reside in urban areas and less than half had finished secondary school or higher education. Nearly 86% of women were not currently working – the most common occupations included daily wage labourer, small business, clerical and family farm employees. In general the standard of living was low (59%) or moderate (27%).

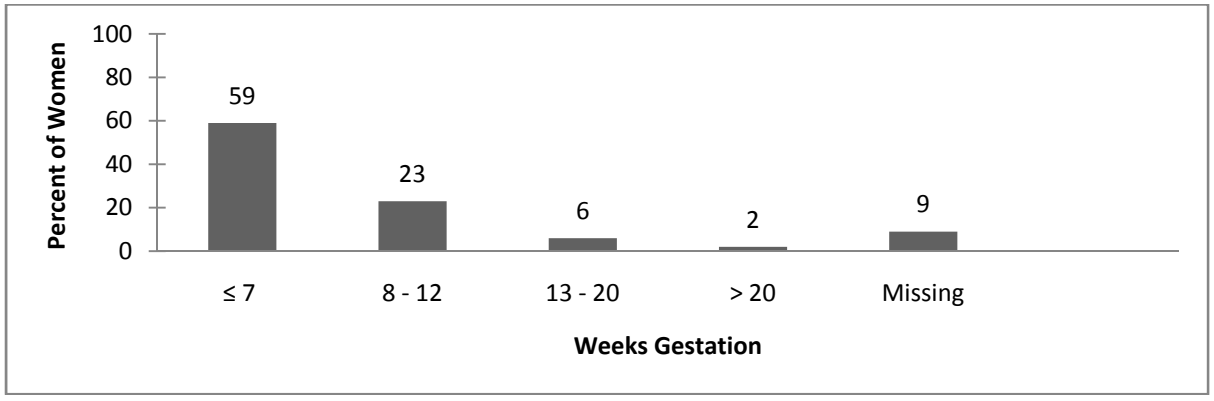
As explained in table 4, the majority of women (92%) with post abortion complications had at least one living child at the time of the interview. Most (60%) had both daughters and sons.

Table 4 Reproductive Health History

	n	(%)
Number of living children		
0	29	(8)
1	71	(19)
2	172	(19)
3	64	(17)
4+	45	(12)
Sex composition of children		
≥ 1 daughters, no sons	57	(16)
≥ 1 sons, no daughters	84	(24)
Daughter(s) and son(s)	228	(60)

Women were asked to estimate the weeks of gestation of the current pregnancy at the time of enrollment in the study (Figure 4). Overall 82% of women sought care during the first trimester (nearly 60% within the first seven weeks of pregnancy), while 2% sought care at 20 weeks or more. The mean gestational age at termination was 7.9 weeks (sd = 3.9).

Figure 4 Gestational Age of Pregnancy at Enrollment

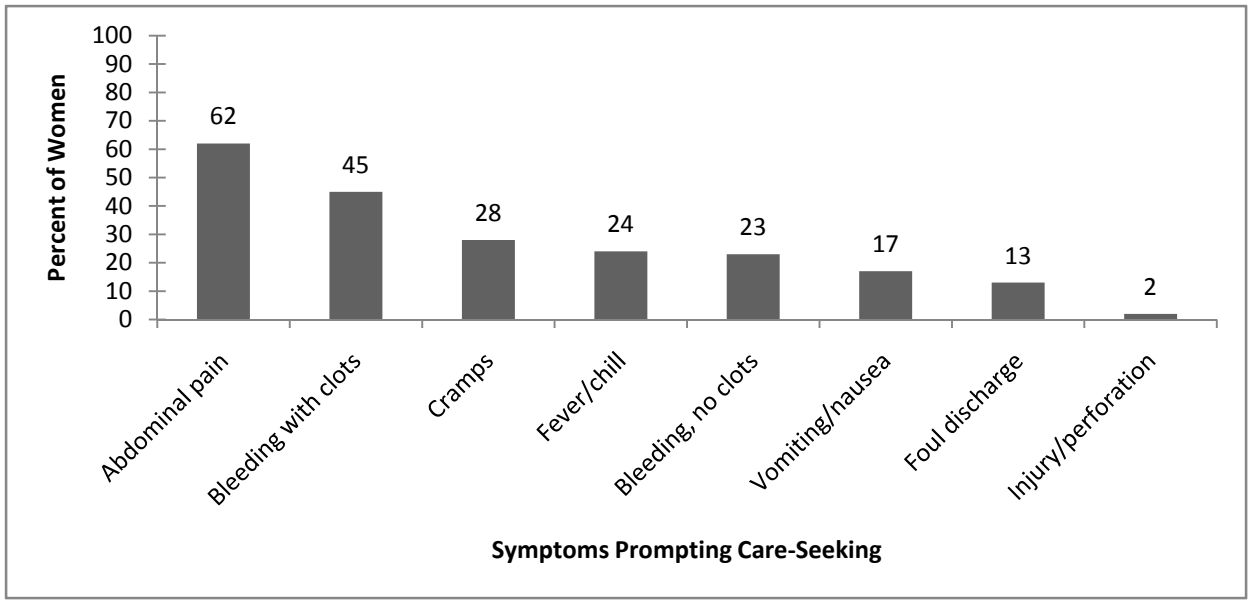


Medical Diagnosis and Self-Reported Symptoms

Among the 381 women recruited with post-abortion complications, the most frequent medical diagnosis was incomplete abortion (63%), followed by complications after abortion (25%) and

failed abortion (12%). As part of the interview, women were asked about the symptoms which prompted them to seek care at the district hospital or medical college. As shown in Figure 5, majority of the women reported abdominal pain (62%), bleeding with or without clotting (45% and 23%, respectively), cramps (28%) or fever/chills (24%). Less commonly mentioned symptoms included vomiting/nausea (17%), foul smelling discharge (13%) and perforation (2%).

Figure 5 Reported symptoms among 381 women seeking care for post abortion complications from ten facilities in Madhya Pradesh, 2007



When asked why they had chosen to terminate the pregnancy, nearly three-quarters of respondents indicated they did not want another child at this time (73%). Other common reasons included inability to afford another child (8%), husband not wanting another child (7%), or health problems (5%). Only 3% reported contraceptive failure (Table 5).

Table 5 Reasons for seeking pregnancy termination among 381 women with post abortion complications at ten hospitals in Madhya Pradesh, 2007

Reasons	n	(%)
Did not want another child at this time	278	(73)
Could not afford another child/ poverty	21	(8)
Contraceptive failure	13	(3)
Health problems	19	(5)
Fetus had congenital defects	15	(4)
Husband / Mother-in-law did not want the child	28	(8)
Pregnancy was the result of rape	3	(1)
Fetus was female	1	(<1)
Missing	5	(1)

Note: The total percent sums to more than 100 because women could choose more than one response.

Pathways of Seeking Induced Abortion Care

The various pathways women followed in seeking abortion and abortion-related services are depicted in Figure 6. More than half of women (53%) first attempted terminating pregnancy at home. Over 90% sought care from a sub-optimal provider (either initially or after attempting abortion at home), ultimately seeking care at the district hospital or medical college where they were enrolled in the current study. Details of each stage of care-seeking are explained in detail in the next section.

Abortion Attempted at Home

Overall, 53% (200) of women presenting with post abortion complications first attempted pregnancy termination at home. Nearly 85% mentioned taking some *goli* or tablets to induce abortion, followed by ayurvedic medicine (8%) or homemade concoction (7%) (Table 6). Although 18% of women reported receiving no external advice or support when attempting to induce at home, most reported receiving support/assistance from their husbands (38%), other relatives (18%) or friends (38%). The most frequent source of support/assistance outside of family or friends was a medicine shop (17%).

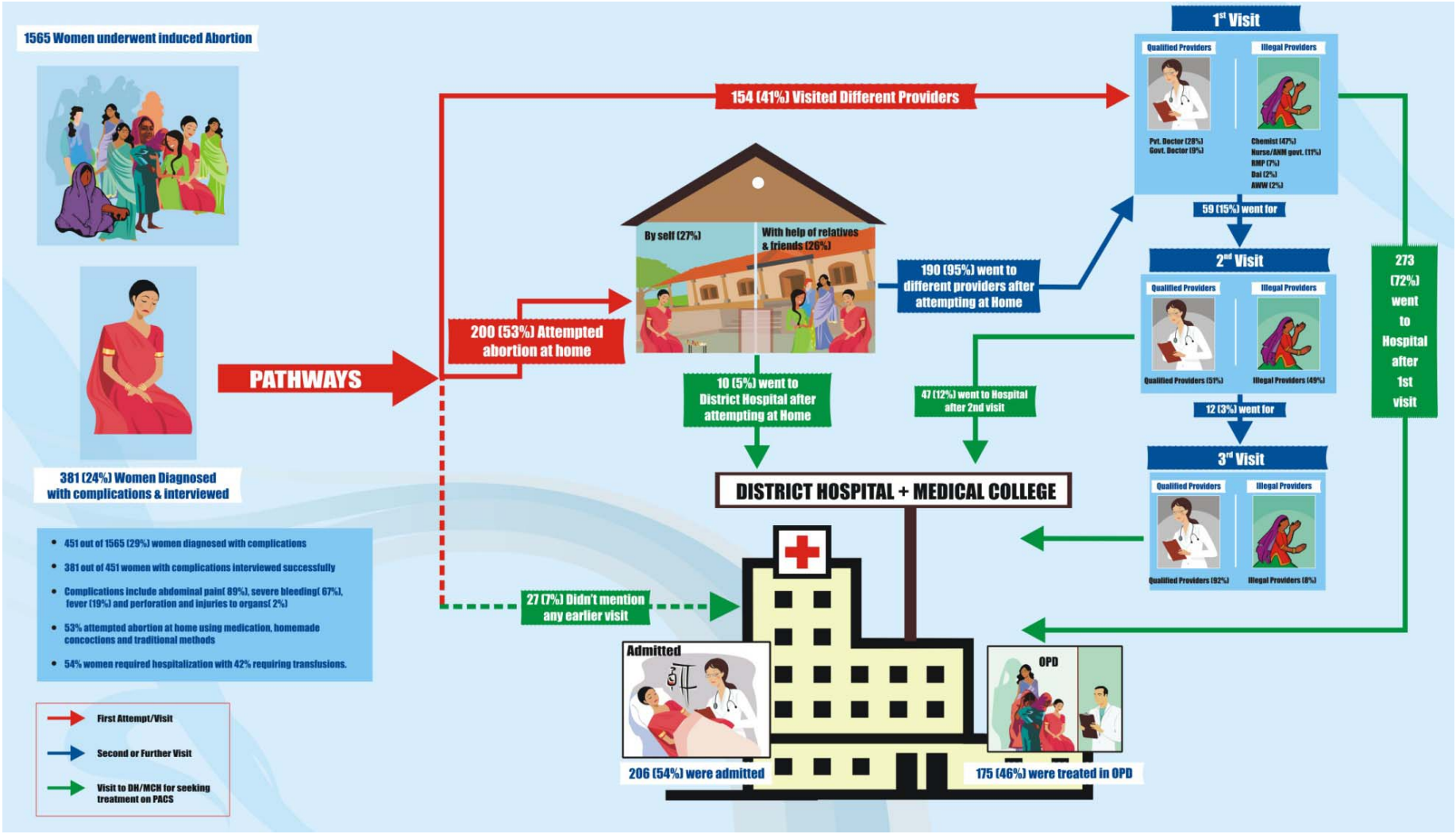
Table 6 Characteristics of abortions attempted at home among 200 women with post abortion complications from ten hospitals in Madhya Pradesh, 2007

	n	(%)
Method		
Goli/tablets	169	(85)
Ayurvedic medicine	15	(8)
Homemade concoction (Kahva, papaya, chili)	14	(7)
Vaginal insertion of metal stick/herbs	3	(2)
External massage	1	(<1)
Other	3	(2)
Sources of support and assistance		
No advice/support	35	(18)
Friend/neighbor	76	(38)
Medicine shop	34	(17)
Mother/mother-in-law or Sister/sister-in-law	17	(9)
Village doctor/quack	8	(4)
Nurse/Anganwadi worker	4	(2)
Other relatives	3	(2)
Other (Local Dai, local doctor)	3	(2)

Note: The total percent sums to more than 100 because women could choose more than one response.

The vast majority of abortions attempted at home remained incomplete (78%) and 14% reported nothing happened after they attempted termination.

Figure 6. Pathways of Care as described by 381 women being treated for post abortion complications at ten facilities in Madhya Pradesh, 2007



Only 3% indicated completing the abortion at home. As one woman shared during her in-depth interview:

> *"I already have three children and the youngest one is just one year old. I got pregnant once again which we both did not want to continue. But…we did not want to disclose our decision. My husband bought tablets from a local chemist shop. I just consumed those tablets, like other regular tablets. After three days I started feeling unbearable abdominal pain along with heavy bleeding. It didn't stop. We went to a private doctor and after ultrasonography we got to know that the abortion was not complete. Finally I reached this Sadar (district) hospital for completing the abortion (poori safai)."*

Nearly 95% (189) of women experienced symptoms of post abortion complications. Among these 189 women, approximately two-thirds started bleeding heavily (66%) and/or experienced lower abdominal and back pain (65%). More than one quarter (27%) reported nausea or vomiting and one-fifth experienced painful abdominal cramping. These complications were experienced quite soon after the abortion attempt, with 30% of women having complications the same day, and 27% the next day. Only 17% of women reported complications beginning six or more days after the attempted termination.

Table 7 Post abortion Outcome, Symptoms and Timing among 200 women who attempted pregnancy termination at home and before presenting with post abortion complications at ten hospitals in Madhya Pradesh, 2007

Outcome/Symptoms/Timing	n	(%)
Outcome of abortion		
Incomplete	156	(78)
Failed (nothing happened)	27	(14)
Completed	6	(3)
Not sure	11	(5)
Reported symptoms		
Heavy bleeding	125	(66)
Lower abdominal/back pain	123	(65)
Vomiting/Nausea	50	(27)
Painful abdominal cramping	38	(20)
Fever	25	(13)
Foul smelling discharge	13	(7)
Distension of abdomen	12	(6)
Chills or flu like symptoms	9	(5)
Other	10	(5)
Days from procedure to complications		
1 (same day)	56	(30)
2	51	(27)
3	28	(15)
4	12	(6)
5	10	(5)
≥ 6	32	(17)

Note: For reported symptoms, the total percent sums to more than 100 because women could choose more than one response.

Care Seeking from other providers before reaching district hospital/Medical College

Most women do not directly seek care at a district hospital or medical college, whether or not they initially attempt pregnancy termination at home. In fact, 344 (90%) visited one or more other providers. As shown in Table 8, women seek care from a variety of types of providers. For their first visit, women most frequently went to chemist/medical shops and over two-thirds visited an unqualified/illegal provider (note that according to MTP Act only a trained and certified doctor can legally provide MTP services in India). However as the number of visits increased, the proportion of qualified doctors seen for care increased from 32% at the first visit to 51% at the second visit and 91% by the third visit. The majority of women (86%) sought care in the same village or town at the first visit, although this percentage dropped to 75% at the second visit and 67% by the third visit. The mean distance traveled by visit was reported as 3.3 km, 2.3 km, and 7.3 km, respectively. Women report the most common reasons for choosing a particular provider for their first visit include proximity and no alternative (Table 8) choice. Word of mouth and referral by friends/family also play a role, with nearly one-quarter of women indicating they knew a provider offered abortion services or acted upon the suggestion of someone known to them. Another important influence on the type of provider women approach for abortion care is knowledge. Over 60% of women indicated that they had no idea whether or not the provider they first approached was approved to offer induced abortion services, although 45% mentioned that that provider usually offered these services. Only 3% of women sought care from a provider who they knew was ineligible to perform induced abortion.

Table 8 Type of providers, location, and reason for selection by 344 women who sought care from other providers before coming to one of ten hospitals for post abortion complications in Madhya Pradesh, 2007

	First Visit (n = 344)		Second Visit (n = 59)		Third Visit (n = 12)	
	n	(%)	n	(%)	n	(%)
Provider Type						
Private Doctor	78	(23)	22	(37)	7	(58)
Government Doctor	30	(9)	8	(14)	4	(33)
Chemist/medical shop	162	(47)	7	(12)	0	---
Nurse/ANM	28	(8)	6	(10)	1	(8)
Rural medical practitioner	24	(7)	6	(10)	0	---
Other staff – public sector	12	(3)	10	(17)	1	(8)
Dai/TBA/Anganwadi worker	10	(3)	0	---	0	---
Location of Provider						
Same village/town	296	(86)	44	(75)	8	(67)
Other village/town	48	(14)	15	(25)	4	(33)
Distance Traveled						
< 5 km	302	(88)	52	(88)	9	(75)
5 – 10 km	10	(3)	3	(5)	0	---
11 – 15 km	7	(2)	1	(2)	0	---
≥ 16 km	24	(7)	3	(5)	0	---
Median distance (km)	3.3		2.3		7.3	

***Continue……**.(Table 8)*

	First Visit (n = 344)		Second Visit (n = 59)		Third Visit (n = 12)	
	n	(%)	n	(%)	n	(%)
Reasons*						
Close to my place	199	(58)	30	(51)	2	(17)
No alternative	43	(13)	6	(10)	1	(8)
Can rely	23	(7)	7	(12)	1	(8)
Efficient/skilled	16	(5)	5	(9)	2	(17)
Known as abortion provider	8	(2)	1	(2)	1	(8)
Approved doctor	24	(7)	7	(12)	1	(8)
Others suggested	75	(22)	10	(17)	1	(8)
Other	7	(2)	3	(5)	2	(17)
Missing	2	(1)	7	(12)	4	(33)
Provider approved to provide abortion services?						
Yes	118	(34)	18	(31)	5	(42)
No	10	(3)	4	(7)	0	---
Did not know	216	(63)	37	(63)	7	(58)
Provider usually approached for abortion services?						
Yes	157	(46)	23	(39)	3	(25)
No	4	(1)	1	(2)	1	(8)
Did not know	183	(53)	35	(59)	8	(67)

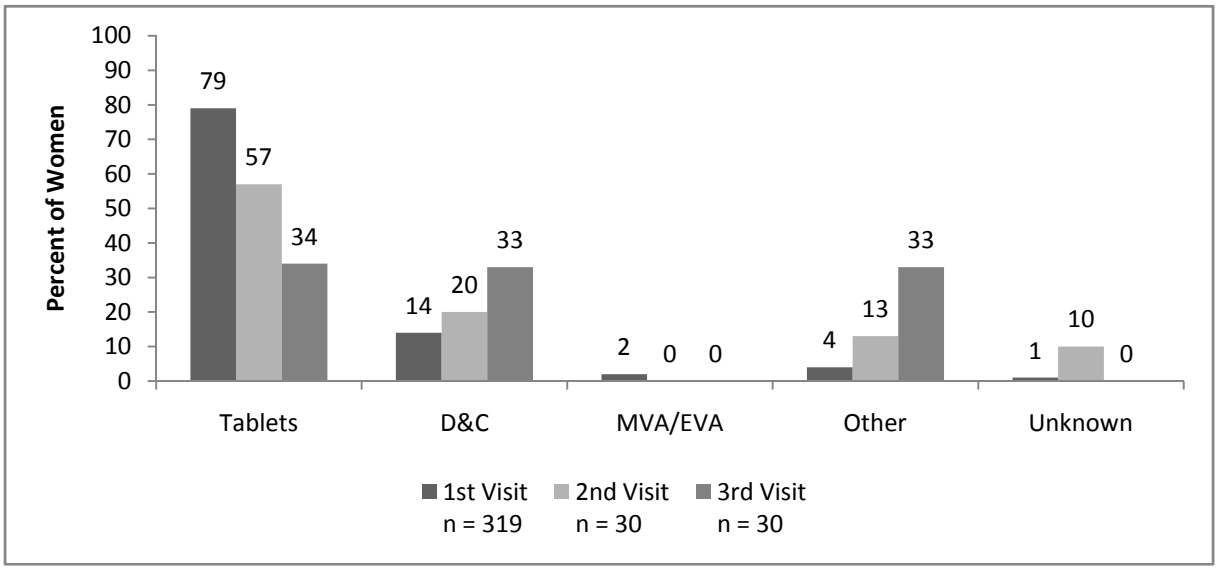
Note: The total percent sums to more than 100 because women could choose more than one response.
* Other reasons include "familiarity with the hospital" and "low cost of treatment".

Women gave details about health procedures offered during each of their visits (Table 9). At the first visit, nearly 75% received tablets to induce abortion, 21% reported an internal examination, and 18% reported a test to confirm pregnancy. Among the 59 women who made a second visit, over one-third received abortifacient tablets and another third were referred to another doctor or hospital. Women did not routinely receive information from providers about the procedure being used to induce abortion. Only 41%, 53% and 33% of women, respectively, knew the type of abortion procedure during their first, second and third visits. At the first visit, most (79%) received tablets for abortion, while 14% underwent D&C (that is, sharp curettage) [Figure 7].

Table 9 Care Received from Other Providers among 344 post abortion complication patients from ten hospitals in Madhya Pradesh, 2007

	First Visit (n = 344)		Second Visit (n = 59)		Third Visit (n = 12)	
	n	(%)	n	(%)	n	(%)
Treatment						
Internal examination	71	(21)	5	(9)	3	(27)
Pregnancy test	62	(18)	3	(5)	2	(18)
Discussed reason for seeking abortion	16	(5)	2	(3)	1	(9)
Ultrasound	19	(6)	5	(9)	2	(18)
Surgical procedure	43	(13)	6	(10)	1	(9)
Got tablets for abortion	255	(74)	21	(36)	1	(9)
Injection	18	(5)	6	(10)	1	(9)
Inserted something into vagina	14	(4)	0	---	0	---
Had heavy (oil) massage	3	(1)	0	---	0	---
Treatment for abortion complications	6	(2)	9	(15)	3	(27)
Referred to another doctor/hospital	8	(2)	19	(33)	5	(46)
Other	3	(1)	0	---	0	---
Provider informed patient of procedure name						
Yes	131	(41)	16	(53)	1	(33)
No	288	(59)	14	(47)	2	(67)

Figure 7 Abortion procedure by visit among 319 women who visited other providers before reaching ten hospitals in Madhya Pradesh, 2007



Women who reported receiving tablets for abortion were asked additional questions to investigate the type of drug, dosage, and duration of treatment; however, women had very little information to share (Table 10). Close to half (48%) of women said they received more

than three tablets for abortion during their first visit to a provider. Startlingly few women indicated that the provider discussed potential side effects of medical abortion during their first or second visit (13% and 12%, respectively). Most of the women (94%) who sought care from other providers experienced complications after the first visit.

A 14-year old rape victim confessed during her interview:

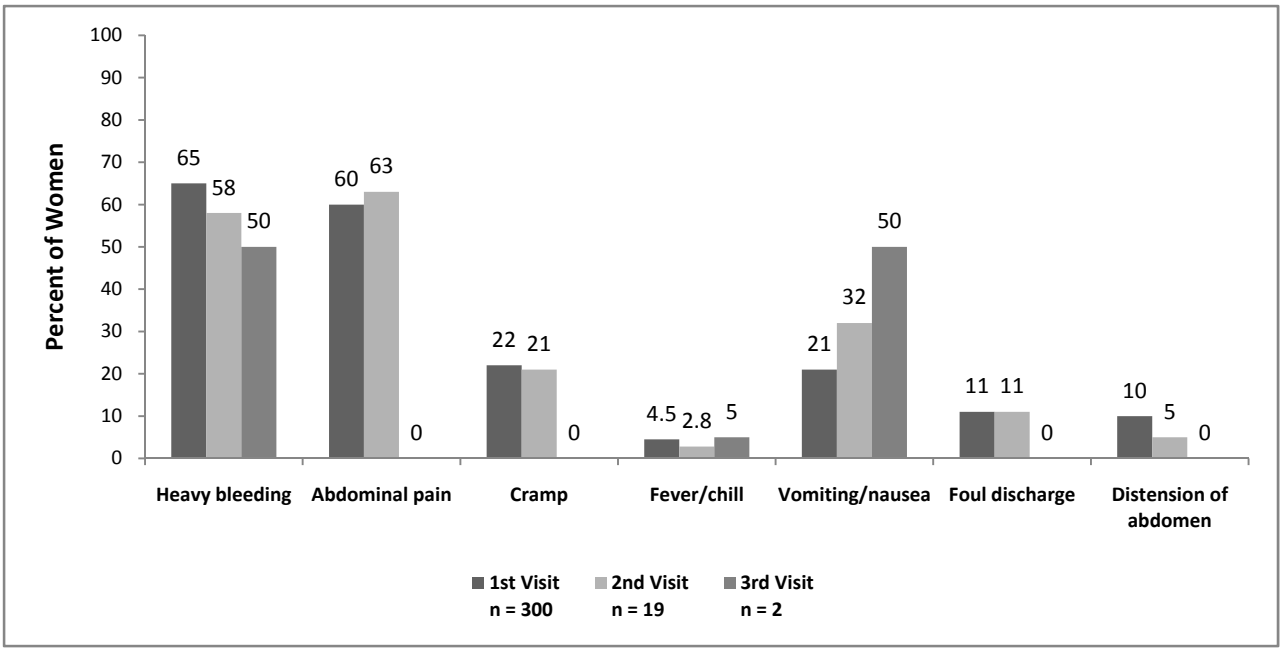
> *"I didn't disclose the…incident until 20 weeks of my pregnancy. I had been forced to go to a village doctor for the termination. The doctor boiled some tree leaves and mixed with hot mustard oil for massage. He gave heavy abdominal massage unless I started bleeding. Heavy bleeding continued for a couple of days & didn't stop…I had to rush to a private hospital where I spent another nine sleepless nights without any improvement. I was finally transferred to this zila (district) hospital in a very critical condition when I had no sense. Doctor madam was saying "isko bachana muskil hai, pura khoon nickal gaya, aane me bahut der kar di!!" Thank God, I am saved! Doctor madam bahut achhi hain!"*

The most common complications after the first visit included heavy bleeding (65%), lower abdominal or back pain (60%), abdominal cramping (22%), vomiting/nausea (21%) and fever (19%). A similar trend was observed for the second and third visits (Figure 8).

Table 10 Details of medical abortion among 253 women who received tablets from other providers, Madhya Pradesh, 2007

	First Visit (n = 253)		Second Visit (n = 17)		Third Visit (n = 1)	
	n	(%)	n	(%)	n	(%)
Number of Tablets						
1	23	(9)	1	(6)	0	---
2	36	(14)	2	(12)	0	---
3	71	(28)	1	(6)	0	---
>3	121	(48)	10	(59)	1	(100)
Didn't Know	2	(1)	3	(18)	0	---
Provider discussed side effects						
Yes	33	(13)	2	(12)	0	---
No	220	(87)	15	(88)	1	(100)

Figure 8 Abortion complications by visit among 300 women who sought care from other providers, Madhya Pradesh, 2007



Consequences of Post-Abortion Complications

Post-abortion complications may lead to severe psychological, physical and economic consequences for the woman and her family. Table 11 presents details of care and treatment received at the district and medical college hospitals. Approximately two-thirds of women reported that the doctor explained the problem and/or complications to them; around three-quarters (79%) of these women reported the doctor told them they had an incomplete or missed abortion, 5% were told about heavy bleeding and 3% were asked for the ultra-sound to detect the actual problem. More than half of the women (n = 206; 54%) were hospitalized as a result of the post abortion complications, 42% required glucose and 15% required blood transfusion. Among the 56 women who received a blood transfusion, most (75%) required one bottle of blood while the remaining 25% required two or more bottles of blood. Among the 158 women who received a glucose transfusion, 46% received one bottle of glucose, while the remaining 54% received two or more bottles of glucose. Nearly half of all women were prescribed medication; slightly over one quarter received contraception. The most frequently reported uterine evacuation method for treating the complication was D&C (44%), followed by MVA 9 (13%) and Medical abortion (13%).

Table 11 Care and treatment received due to post-abortion complications at ten hospitals and medical colleges in Madhya Pradesh, India, n = 381

	n	(%)
Doctor explained the problem/complications		
Yes	262	(69)
No	119	(31)
Type of problem (among 262 receiving explanation)		
Incomplete/missed abortion	206	(79)
Severe bleeding	12	(5)
Post abortion complication/ Recommended for ultrasound	8	(3)
Anemic with low blood pressure, immediate blood transfusion required	2	(1)
Missing	36	(14)
Types of treatment required		
Hospitalization	206	(54)
Blood transfusion	56	(15)
Glucose transfusion	158	(42)
Diagnosed and prescribed medicines	179	(47)
Internal check-up by doctor	80	(21)
Ultrasound/ECG/Other tests	80	(21)
Received contraceptive methods	99	(26)
Tablet inserted in the vagina	12	(3)
Surgical operations	1	(<1)
Uterine Evacuation Method		
D&C	169	(44)
Medical abortion	51	(13)
MVA	49	(13)
EVA	21	(6)
Not performed/ Not indicated	91	(24)

Cost of abortion services and post-abortion complications

Figure 9 presents the mean cost of abortion and treating abortion related complications by different cost components. Overall, the mean total direct cost was Rs. 720 ($ 16) with the largest component coming from medicines (Rs. 337) and procedural costs (Rs. 119). There were wide variations in reported cost, ranging from no cost to Rs. 10,250 mainly because of variations in provider types and treatment pattern.

Figure 9 Mean Costs (in Rupees) of abortion and treating post-abortion complications among 381 PAC Patients from Selected Hospitals in Madhya Pradesh, 2007

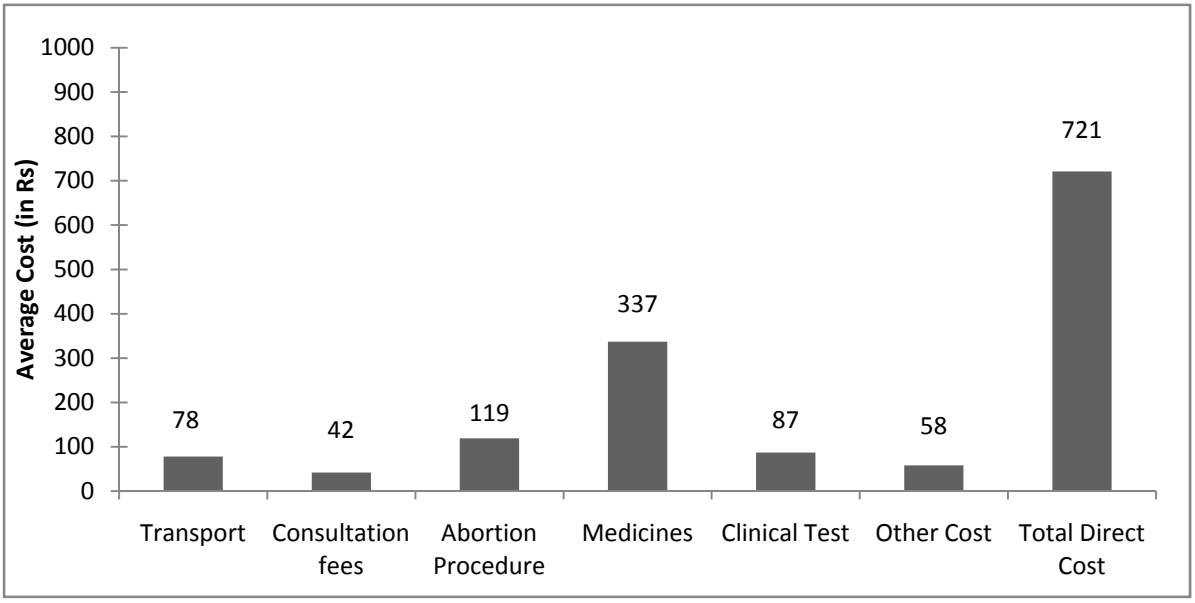
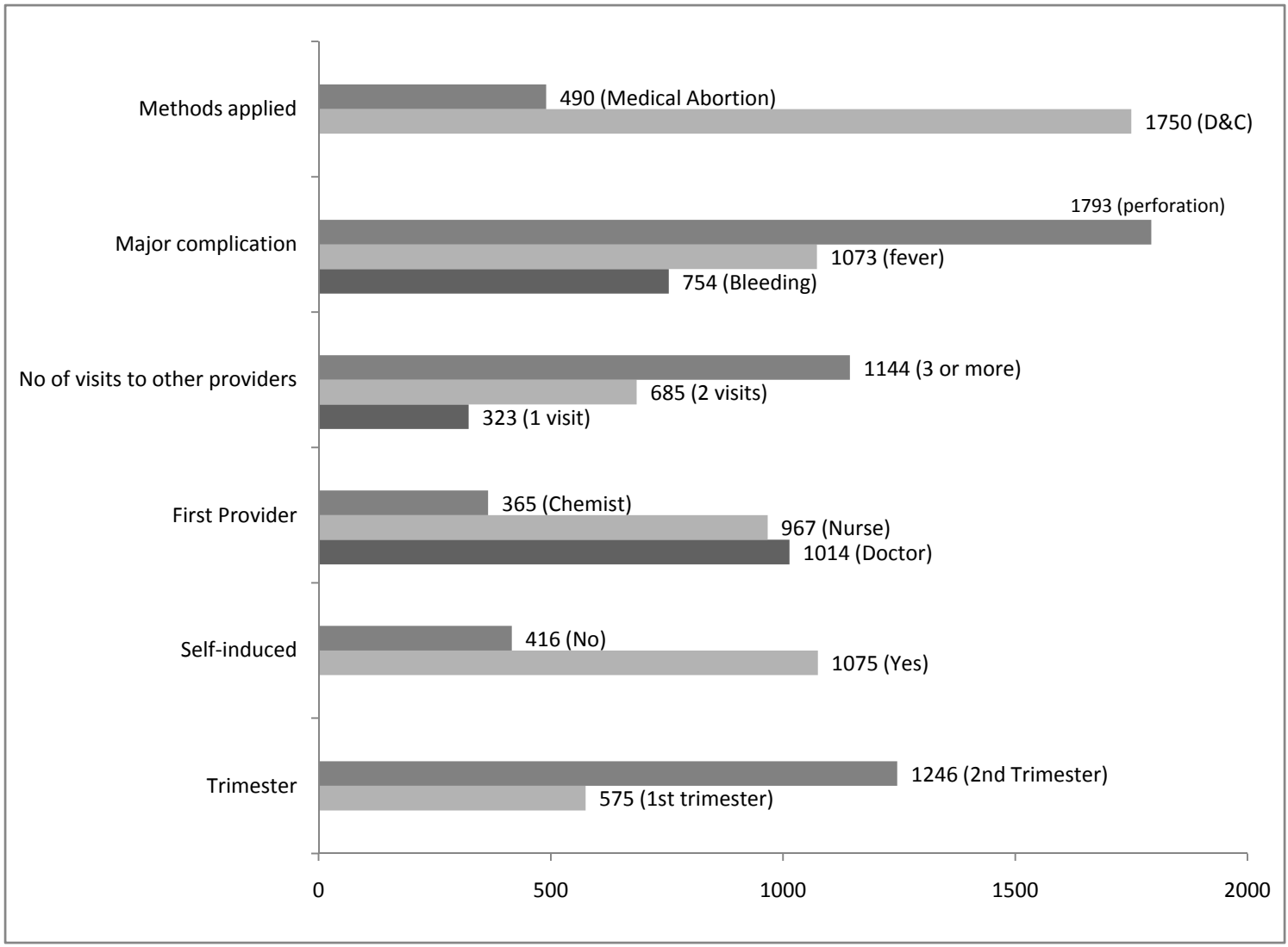


Figure 10 which highlight the overall mean cost of abortion services and treating abortion related complications by selected clinical characteristics further explain these variations. Total costs were higher among women who tried self-induced abortion (Rs 1075) and reported complications during second trimester of pregnancy (Rs. 1246). As expected, total mean costs increased as the number of visits increased. Method of uterine evacuation also had major cost implications. Mean cost of treating complications occurred through a surgical method (say D&C) was almost four times higher than treating complications occurred through medical abortion.

Figure 10 Mean Costs (in Rupees) of abortion and treating post-abortion complications by selected clinical characteristics



#: No of visits include all visits before reaching district hospital and medical college hospitals for treating PACs

DISCUSSION

This study is one of the first in India to explore the pathways of unsafe abortion and has a substantially larger sample of women with post-abortion complications which eventually has enhanced our ability to examine different plausible causal routes of unsafe abortion and related consequences. The relative strength of this study is the prospective design.

Overall, we found one out of four women (28%) come for terminating pregnancy in district and medical college hospitals is diagnosed with post abortion complications and mostly incomplete and failed abortions. Few community based studies (Malhotra et al., 2003) in India have recorded much higher prevalence of post abortion complications (rural: 57%, urban 46%).

These variations are well expected with methodological differences in community (self-reported irrespective of severity) and facility based (clinically diagnosed) estimations.
Contrary to our expectations, post-abortion complications (as a consequence of unsafe abortions) were not merely restricted to poor or vulnerable segments of population. Women from urban locations (74%) with secondary or above secondary (43%) level education were also found reporting abortion related complications. Thus the degree and consequence of unsafe-abortion are much widespread than estimated. Severe bleeding and abdominal pain which were the most frequently mentioned complications are consistent with other study (Ganatra, 2000).

The pathways of seeking abortion services and abortion related complications seem to be much complicated than expected. Experiences of women who have had post abortion complications clearly demonstrate a complex pathway of seeking abortion services which often starts within their social network of relatives and friends at home and runs through a variety of illegal or untrained health personnel. As estimated, every other woman (53%) presenting with post abortion complication first tried self induction at home and mostly through medicines and homemade concoctions. This self inducing approach had uniformly funneled to complications either because of wrong/unknown medicines or because of incorrect drug compositions suggested by an untrained practitioner. This result confirms the findings of an earlier study in the same state (Malhotra et al., 2003) which also recorded that 56% of rural women relied on folk methods or self-induction. Irrespective of an initial attempt at home, most of the women (90%) visited at least one health personnel and 68% of them were not even eligible to provide abortion services in India. However, the higher the number of visits the higher is likelihood of approaching a qualified and trained doctor. This might be due to the severity of complication which occurred in their earlier attempts and could not be managed by untrained providers. These abortions were performed by a variety of methods ranging from home made concoction to medicines (tablets) and further to different surgical procedures and sometime combinations of two to three methods.

Given these complex pathways it is very difficult to assess the exact causal routes of unsafe abortions or causes of post abortion complications mainly because of potential confounding with varied providers and abortion methods or drugs. It is extremely difficult to isolate the degree of association between post abortion complications and the types of providers and the abortion methods used for terminating the pregnancy. This became further difficult with widespread reporting of non-surgical options. Even after multiple levels of probing on the drugs and their corresponding market price[3] the study could not reach to any conclusion on what types or brands of medical abortion drugs have really been used to terminate the pregnancy. However, what is clear is that a network of untrained providers including chemists who usually offer non-surgical options and other health personnel who practice a combination of traditional, surgical as well non-surgical options are often responsible to cause unsafe abortion and related complications.

[3] During interview women were shown all available brands of medical abortion drugs and were also asked the price of the drugs which they actually paid in order to identify the types of drugs women actually used for terminating pregnancy.

Given multiple visits to different providers and varied degree of severity of post abortion complications it is critical to estimate the cost of treating post abortion complications. Analysis of expenditure data shows that the average total cost of treating post abortion complications was Rs. 721 with 64% of those costs (average Rs. 464) attributable to costs incurred with the initial abortion and treatment from interim providers and the remaining 36% of costs attributable to treatment for post abortion complications at the study facility (district hospital or medical college hospital). This total average cost is grossly underestimated because treating abortion related complications in the public sector (study facilities) are almost free of charge. Even though women reported out-of-pocket expenses for a spate of components like prescribed drugs, blood tests and travel. In general, medicine, transport and tests account for 83% of total costs. Further analysis reveals wide disparity in estimated mean cost depending on the nature of initial treatment and severity of complications. For example, the estimated cost of treating complications among women tried self induction (Rs. 416) or approached a chemist (Rs. 365) were two to three times lower than women who approached a health care provider (Rs. 1014) at their first visit. On the other hand, abortion methods also have potentially significant impacts in determining the cost of treating complication. The total cost of treating complications occurred through surgical method (Rs. 1750) was almost four times higher than the same occurred due to medical abortion (Rs. 490). These variations can be well explained by the severity of complications linked with surgical procedure which often cause major damage than any other non-surgical medical abortion. In addition, the initial cost of getting abortion services through surgical method is also much higher than any non-surgical option. Probably, this relative low cost of medical abortion is one of the reasons why women unknowingly choose an illegal provider. This is more pronounced when 63% of women have had no idea whether or not the provider they first approached was approved to offer induced abortion. They came to know about these providers either by word of mouth or through friends and relatives. This is very similar to an earlier study (Ankomah A 1997) which accounted a referral system involving a network of close relatives and friends.

The findings of this study must be viewed in light of certain methodological limitations. Results cannot be generalized to the whole of the state (Madhya Pradesh) as this study is restricted to public sector in selected district and medical college hospitals of the state. Although this approach has been tested earlier in multiple countries (Ankomah A 1997), it relies on an assumption and internal review that a majority of women with post abortion complication are ultimately referred to large secondary and tertiary hospitals. However, women with post abortion complications who seek care at private hospitals or clinics and women who have prolonged post abortion morbidity but do not seek care are not included in this study. In addition while the complications are identified by a medical doctor, the experience, pathways and symptoms of complications are all based on self-report. The study also has its own limitations in capturing long term consequences and chronic abortion related morbidities like infertility and impaired fertility.

This study attempted to estimate the direct cost of treating complications and tried to capture all medical and non-medical avenues where a woman is most likely to spend money for terminating pregnancy. However, the study failed to capture indirect cost of long-term morbidity and loss of opportunity cost which can be addressed in future research.

CONCLUSIONS AND RECOMMENDATIONS

This study has shown that policy alone has limited impact on health, as evidenced by the 1971 MTP Act of India which is still not fully implemented in practice. Supporting access to safe MTP services and improving community awareness on legal aspects, safe methods and approved providers are all necessary to reduce morbidity associated with unsafe abortion.

Although medical abortion has great potential in a country like India, it is important that drugs and doses are standardized and providers are well informed on the ideal dosage and protocol.

More medical doctors and mid-level providers posted in rural areas and small towns should be trained in comprehensive abortion care to promote safe options and post abortion complication management. ANMs and other health workers should be oriented to the issues around MTP with a focus on safe, comprehensive care.

Future research should address this issue in greater detail and should further explore the gap areas as mentioned in this study.

Finally, collaborative action by government, NGOs and physician societies will best restrict untrained providers and unsafe technologies while promoting safe, accessible practices.

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