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Predictors of prior unsuccessful pharmacy abortion attempts among women presenting for abortion in government certified clinics in Nepal

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Abstract

Objective—Although abortion in Nepal is broadly legal and free of charge, many women seek abortion care outside the legal system, including from pharmacies. We evaluated the prevalence of, and factors associated with, prior unsuccessful abortion attempts among women presenting to 14 randomly-selected government approved abortion health facilities across Nepal.

Methods—Eligible participants were recruited in 2019 by trained research staff from certified abortion facilities. Participants (n=1,160) completed research staff-administered baseline surveys. We used multivariable mixed-effects logistic regression models to evaluate factors associated with having attempted pharmacy abortion prior to coming to the health facility.

Results—Almost one in seven (14%) of women had tried to end their pregnancy before presenting to a participating clinic, often (9%) using medication obtained from a pharmacy. Women who lived farther from the clinic (aOR 1.28 per log hours travel time, 95% CI 1.10–1.49) and who reported financial difficulty in accessing the clinic (19% vs. 10%, aOR 2.10, 95% CI 1.20–3.70) had increased odds of having tried to access abortion through a pharmacy.

Conclusions—Integrating pharmacies into the legal network of abortion providers may improve access to safe care, particularly for rural women with financial and practical travel limitations.

Keywords

abortion; Nepal; pharmacy; medication abortion; public health; abortion access

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Author Contributions

C.A. designed the primary research question, performed the analysis, and led writing the manuscript. M.P. and D.G.F. supported the data collection, analysis and writing of the manuscript. S.K. and S.D. supported the data collection and management. C.R. supported the data analysis and manuscript writing.

Conflicts of Interest

No authors report conflicts of interest.

INTRODUCTION

According to the 2016 Demographic and Health Survey, medication abortions comprised over 70% of all abortions in Nepal; 19% of women who had an abortion had gone to a pharmacist to get medications to end their pregnancy which is not legal in Nepal[1]. Women from rural areas were more likely to go to pharmacies for an abortion. Although not currently legal, medication abortion is readily available in Nepali pharmacies without a prescription [2]. There is a paucity of data regarding the safety, accessibility, and prevalence of pharmacy medication abortion in Nepal, though some studies suggest that these abortions could be at higher risk of complications due to the absence of pharmacist training and use of unregistered medications[3]. However, with adequate training, pharmacist-administered medication abortion is a potential care model that could increase access to medication abortion, especially in remote or rural areas that are isolated from clinics or more skilled providers[3,4].

The current law in Nepal permits abortion up to 12 weeks gestation for any reason, or up to 28 weeks in the case of rape or incest, or if the woman has HIV or other incurable diseases[5]. Abortion services are free if provided through government facilities. Medication abortion was formally introduced in 2009 and is now legally obtainable through government certified clinicians at certified abortion facilities. Despite these advances, some women still attempt to end their pregnancy without seeing a certified medical provider[6]. When an abortion attempt fails, some women present to health facilities to complete the abortion, giving researchers a window into where women seek care outside the medical system. Prior unsuccessful abortion attempts were partially investigated in India, where one study found that about one-third of women presenting to five clinics had unsuccessfully attempted to end their pregnancy using medication procured illegally from pharmacies[7]. They also found that years of education and living in an urban area were associated with higher odds of having an abortion attempt before visiting a certified clinic for abortion care.

Studying abortion attempts done without a trained clinician is challenging due to legal restrictions and social stigma, which make finding the study population difficult and reduce women's willingness to report their past experiences. Additionally, recruiting participants in rural areas who do not have access to medical care is difficult. Nonetheless, one prior study has examined abortion attempts among women in Nepal who present to hospitals for abortion complication management in 2013. They found that most women had attempted a medication abortion with ineffective or unknown substances, and of those, most received the medication from uncertified sources[3].

We sought to determine the prevalence of prior, unsuccessful abortion attempts among women seeking abortion care from government approved facilities in Nepal. Identifying subgroups of women who are more likely to seek a pharmacy abortion can help identify those who would most benefit from improving, and possibly legalizing, pharmacy abortion provision.

MATERIALS AND METHODS

This study is a cross-sectional analysis of baseline data collected from the Nepal Turnaway Study, a three-year prospective cohort study evaluating the mental and physical health effects of receiving versus being denied an abortion. The study will compare outcomes among three study groups seeking care at legal abortion facilities: those who received the abortion, those who were denied the abortion but terminated their pregnancy subsequently, and those who were denied the abortion and carried the pregnancy to term. The present analysis includes data from the first of three phases, which enrolled 1,160 women presenting for abortion care between April 16, 2019 and September 29, 2019 at 14 facilities (two facilities in each of Nepal's seven provinces) across Nepal. In each province, one private/NGO operated and one publicly operated health facility was randomly selected with the chance of selection proportionate to reported client volume in 2016.

Eligibility criteria included women who were aged 15–45 years, seeking abortion care, and living in Nepal. Those under 15 were excluded due to the sensitivity of the topic. All patients presenting for care were screened for eligibility by the provider, and if eligible, were referred to speak with a trained research staff member stationed at each health facility. Given the sensitive and potentially stigmatized nature of the topic, our interviewers were trained in compassionate listening and conducted all interviews in a private room within facility premises. After one month of recruitment, eligibility criteria were altered to only include women at or over 10 weeks gestation or who did not know their gestation, in order to increase enrollment of women denied abortions. The research staff member confirmed eligibility, obtained informed consent and contact information, administered the baseline survey on a tablet, and uploaded data to a secure web-based storage platform. The interviewer asked each question in Nepali (or a local language) and recorded the answer on the tablet. A follow up survey was conducted at the participant's homes (or their preferred places) six weeks after the clinic visit to determine if participants received care or not and to collect further demographic information. Each participant received financial compensation equivalent to \$4USD for the baseline and follow up interview each. The study was approved by the Institutional Review Board of the University of California, San Francisco and the Nepal Health Research Council.

Our primary outcome of interest was having attempted to end the pregnancy prior to presenting at the abortion facility by using medication procured from a pharmacist, measured with a series of questions: "Before you came here today, did you do anything or go anywhere to end this pregnancy?" Among those who reported any prior attempt to this first question, we assessed location of attempt, person who assisted with the attempt, and what the mode of attempt was (going to a clinic, pharmacy or other). Prior pharmacy abortion attempts include those who attempted to end the current pregnancy with medication that they either procured from a pharmacist or procured from someone who obtained the medication from a pharmacist. To understand what medications were taken for prior medication abortion attempts, participants were shown pictures of common, registered medication abortion drugs available in Nepal and asked to select which they took. We assessed gestational age at presentation to the health facility by asking participants for the date or elapsed time since their last menstrual period.

For multivariable analysis, we identified primary predictors which we hypothesized might be associated with pharmacy abortion attempts. First, to measure distance to a health facility, we asked the number of hours traveled to the study facility and whether the participant reported that the following made it harder or take longer to get to the health facility: financial difficulty, delay in recognizing pregnancy, and a lack of time. We log transformed travel time in hours with base two in order to fit the functional form of the model. We hypothesized women who desired an abortion in order to have a child of a specific sex might be more likely to seek a pharmacy abortion if they suspect that they would be turned away from clinics for that reason.

Finally, we included covariables we hypothesized could confound the relationships under investigation, based on directed acyclic graphs. Participants reported their age (years), caste, formal education (years), parity (0, 1, 2, 3 or more), and if they had already a male child. We created an “assets” variable as an objective measure of socioeconomic status to identify wealth quintiles. To create this variable, we conducted principal component analysis on wealth factors (including having running water, owning a cell phone, etc), and created quintiles based on the distribution of these factors.

We first examined prevalence, sources, types of abortion, and medication used for prior abortion attempts using descriptive statistics. We examined sociodemographic differences between those who had and had not had any abortion attempt using bivariate, mixed effects logistic regression to account for clustered recruitment by study site. Then, using a series of mixed-effects multivariable logistic regression models, we evaluated the association between each predictor of interest and prior pharmacy abortion attempt, controlling for appropriate confounders as determined through directed acyclic graphs.[8] Those with prior, non-pharmacy abortion attempts were not included in the multivariable analysis. All analyses were done in STATA 15.1.

RESULTS

The mean age of participants was 28 years, and participants had, on average, 9 years of formal schooling. 97% of participants were married and 84.4% had at least one child. 42% of the sample was from the most privileged caste, the Brahmin/Chhetri, and 13% belonged to the least privileged caste, so called the Dalit (so called non-touchable). Most (76%) participants arrived at the health facility under 12 weeks of gestation, when abortion is allowed for any reason. See Table 1.

Overall, 14% (n=156) of our study population had attempted to end their current pregnancy prior to presenting to the government approved health facility. Of these, 95% attempted only once, while 5% attempted twice. Almost a third of women who made prior attempts (30%) went to a clinic for the first attempt; about half were denied an abortion either due to advanced gestational age or other reasons. The remainder received a medication abortion or an abortion procedure.

Of the 83% of women who attempted to end their pregnancy with medication (n=130), 76% of them procured medication from a pharmacist. Overall 9% of the sample attempted

to end their pregnancy with medication from a pharmacy. The specific medication used to end the pregnancy included mifepristone and misoprostol (68%), misoprostol only (3%), mifepristone only (9%), or unknown (23%). The source of the medication was known for 103 participants: 71 got medication directly from a pharmacy, and 32 obtained it from a friend or relative who obtained it from a pharmacy. The percentage of women visiting pharmacy varied by region ($p=0.046$).

In bivariate analyses examining independent variables of interest, women who had attempted a prior pharmacy abortion had a longer travel time to the recruitment facility than those with no prior attempt ($p=0.024$), and were more likely to report financial difficulty in accessing the health facility ($p=0.002$) (Table 1). Mean log travel time was 0.82 (3.6 hours) for those with a pharmacy attempt compared to 0.37 (3.0 hours) for those with no prior attempt. While 19% of those who had a prior pharmacy attempt reported finances as an obstacle to clinic access, 9% of those with no attempt did.

In multivariable logistic regression analyses, every doubling of travel time to the health facility was associated with a 28% increase in odds of attempting a pharmacy abortion (aOR 1.28, 95% CI 1.10, 1.49) (Table 2). Participants who reported facing financial difficulty accessing the facility had twice the odds of having a prior abortion attempt (aOR 2.10, 95% CI 1.20–3.70) than those who did not report financial difficulty. Across models, women in the Terai Janajati caste were more likely to report a prior pharmacy attempt than those of the more privileged Brahmin/Chhetri caste.

DISCUSSION

In this study, 14% of Nepali women presenting for abortion reported a prior abortion attempt; 9% had used medications procured from a pharmacy. While 79% who had a prior pharmacy abortion reported using mifepristone and/or misoprostol, 21% used unknown substances. A longer travel time to the facility and reporting financial difficulty in accessing the facility were associated with an increased odds of attempting a pharmacy abortion when controlling for appropriate confounders. A relatively disadvantaged caste, the Terai Janajati who mainly live bordering with India, had increased odds of a pharmacy abortion attempt across multivariate models.

Although most of the pharmacy attempts were reportedly with efficacious medication, these attempts still did not work. It's possible that they either were given the wrong medication, incorrect or inadequate information, or presented to the study facility with an abortion in progress. Some women, particularly those who already face barriers to care, may not be getting sufficient information and supplies to have a successful medication abortion in Nepal. Formal medication abortion training for pharmacists may increase access to medication abortion for women in more rural areas, and those who have financial barriers to getting to a facility for care. It could also reduce the need for an unnecessary clinic visit if they were provided with more accurate and adequate information about the process of medication abortion, if they arrived to the study facility during their abortion. These results can be used to help identify obstacles to legal abortion care and support efforts to increase access.

This study has limitations. Our study population included only people who reached an abortion clinic for care and did not include those who either successfully ended their pregnancy with medication from a pharmacy or experienced unsuccessful pharmacy attempts but were unable to (or decided not to) access facility care afterwards. Results are thus only generalizable to populations of people who seek care at certified abortion facilities. Additionally, we did not collect complication data, which would be needed to assess the safety of pharmacy abortion and of other abortion attempts.

This study has multiple strengths. It includes a large representative sample of abortion clinics in all seven provinces of Nepal, and used in-person recruitment and interviews to increase rapport and reporting. Additionally, this study used a novel design to study abortion outside the legal system, which is notoriously hard to study due to stigma and its illegal nature.

Prior work has highlighted the feasibility and safety of legal pharmacy administered abortion in Nepal. A qualitative study found Nepali pharmacists were interested in legalizing and offering pharmacy-administered medication abortion[4]. An evaluation of an educational intervention found that trained pharmacists could provide correct information about medication abortion to clients [9]. Previous work has found that gestational dating based on the reported last menstrual period (LMP) was accurate when compared to LMP and a bimanual exam over 99% of the time[10]. Finally, a non-inferiority study based on a harm-reduction approach found that trained pharmacists could provide safe and effective medication abortion[11].

The COVID-19 pandemic has most recently and acutely elucidated the importance of opportunities for people to get medical care as close to their residence as possible to reduce exposure to the risk of transmission. In rural areas, where there are many pharmacies but few abortion health facilities, pharmacist administered medication abortion could provide an important and safe avenue of care delivery.

There is an effort to make pharmacy-administered medication abortion available in order to increase safe abortion access, both in Nepal and throughout the world[2,12,13]. Our data support prior studies that show substantial proportions of women in Nepal seek to terminate their pregnancies through pharmacy medications. Other studies have shown that pharmacists are able to provide effective, and safe medication abortion when correctly trained and feel the quality of care they can provide would be improved if they were formally incorporated into the formal care system [4,9,11]. If pharmacists were able to be trained to safely and effectively provide medication abortion, this study suggests that poorer women, women who live far from medical services, and women of the Terai Janajati caste, may benefit the most.

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Table 1.

Demographics and characteristics of study population.

Characteristic	Total (n=1161)	Prior Pharmacy Attempt (n=103)	Prior Non-Pharmacy Attempt (n=53)	No prior Attempt (n=994)
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Age (mean years)	27.5 (6.0)	27.3 (5.4)	28.7 (7.0)	27.5 (6.1)
Education (mean years)	9.0 (3.1)	8.6 (3.2)	8.5 (3.0)	9.1 (3.1)
Travel time to facility (mean log hours)	0.44 (1.8)	0.82^a (1.75)	0.87^a (2.0)	0.37 (1.8)
	N(% col.)	N(% col.)	N(% col.)	N(% col.)
Wealth Quintiles				
1 (ref)	241 (23)	19 (20)	15 (34)	203 (22)
2	208 (20)	13 (14)	10 (23)	185 (21)
3	215 (21)	24 (26)	7 (16)	183 (20)
4	197 (19)	23 (25)	4 (9)	169 (19)
5	188 (18)	14 (15)	8 (18)	164 (18)
Married	1011 (97)	102 (99)	51 (96)	959 (96)
Caste				
Brahmin/Chhetri (ref)	485 (42)	35 (34)	27 (51)	423 (43)
Hill Janajati	285 (25)	21 (20)	9 (17)	254 (26)
Terai Janajati	219 (19)	28 (27^a)	9 (17)	181 (18)
Dalit	153 (13)	17 (17)	6 (11)	130 (13)
Religious Minority	10 (1)	2 (2)	2 (4)	6 (1)
Gestational Age at presentation (weeks)				
0–6 (ref)	342 (33)	20 (21)	5 (10)	317 (36)
7–11	452 (44)	62 (65^a)	27 (56^a)	361 (41)
12–17	219 (21)	13 (14)	16 (33^a)	190 (21)
18+	21 (2)	0 (0)	0 (0)	21 (2)
Number of children				
0 (ref)	179 (16)	16 (16)	3 (6)	160 (16)
1	352 (31)	25 (24)	12 (23)	315 (32)
2	390 (34)	39 (38)	24 (45^a)	326 (33)
3+	230 (20)	23 (22)	14 (26)	193 (19)
Lack of Money as a Barrier to Clinic Access	115 (10)	20 (19 ^a)	6 (11)	91 (9)
Delay in Recognizing Pregnancy	281 (24)	24 (23)	14 (26)	243 (24)
Sex Selective Abortion	83 (7)	3 (3)	4 (8)	75 (8)
Lack of Time as a Barrier to Clinic Access	135 (12)	12 (12)	8 (15)	115 (12)

^a significant at a p<0.05 level compared to no prior attempt. P-values were obtained with bivariate logistic regression using mixed-effects to account for clustering by study site. P-values were computed comparing those who attempted to end their pregnancy to those who had no prior attempt.

Table 2.

Predictors of a previous unsuccessful abortion via pharmacy among women presenting for abortion at a medical clinic, Nepal. Adjusted odds ratios and 95% confidence intervals are presented.

Primary Variable of Interest	Model 1	Model 2	Model 3	Model 4	Model 5
Travel Time	1.28 (1.10, 1.49)				
Financial Difficulty		2.10 (1.20, 3.70)			
Delay in recognizing pregnancy			0.83 (0.45, 1.55)		
Sex selective abortion				0.34 (0.08, 1.45)	
Lack of time as barrier to accessing care					1.24 (0.64, 2.40)
Covariates					
Age	0.98 (0.93, 1.03)	0.98 (0.93, 1.03)	0.97 (0.89, 1.07)	0.99 (0.95, 1.04)	0.98 (0.93, 1.02)
Caste					
Brahmin/Chhetri	1.0 (ref)	1.0 (ref)	1.0 (ref)	1.0 (ref)	1.0 (ref)
Hill Janajati	0.97 (0.50, 1.85)	1.08 (0.60, 1.93)	1.02 (0.50, 2.07)	0.94 (0.49, 1.81)	1.00 (0.52, 1.92)
Terai Janajati	2.16 (1.20, 3.91)	1.90 (1.05, 3.42)	2.34 (1.22, 4.50)	1.78 (0.99, 3.22)	1.88 (1.04, 3.38)
Dalit	1.87 (0.94, 3.73)	1.41 (0.75, 2.66)	2.11 (0.99, 4.54)	1.78 (0.89, 3.54)	1.81 (0.91, 3.58)
Religious Minority	3.22 (0.34, 31.0)	5.05 (0.94, 27.1)	NA	2.40 (0.25, 23.0)	2.48 (0.26, 23.9)
Asset Quintile					
1	1.0 (ref)		1.0 (ref)	1.0 (ref)	1.0 (ref)
2	0.89 (0.41, 1.93)		0.58 (0.23, 1.46)	0.68 (0.32, 1.46)	0.69 (0.32, 1.48)
3	1.78 (0.87, 3.65)		1.30 (0.59, 2.83)	1.23 (0.63, 2.42)	1.29 (0.65, 2.56)
4	2.65 (1.23, 5.73)		1.92 (0.87, 4.24)	1.55 (0.77, 3.11)	1.70 (0.83, 3.46)
5	1.90 (0.79, 4.57)		1.23 (0.51, 2.97)	1.00 (0.46, 2.13)	1.09 (0.50, 2.39)
Number of children					
0	1.0 (ref)	1.0 (ref)	1.0 (ref)		1.0 (ref)
1	0.93 (0.43, 2.01)	0.95 (0.48, 1.91)	0.89 (0.40, 1.97)		0.93 (0.43, 2.01)
2	1.49 (0.67, 3.29)	1.47 (0.72, 3.03)	1.81 (0.77, 4.26)		1.53 (0.69, 3.40)
3+	1.83 (0.69, 4.84)	1.54 (0.65, 3.68)	2.13 (0.69, 4.26)		1.84 (0.70, 4.84)
Travel Time		1.13 (0.999, 1.28)			
Years of school			0.98 (0.89, 1.07)		
Has 1 male child				1.60 (0.95, 2.71)	