

Availability and Provision of Abortifacients among Pharmacies in a Restricted Southeast Asian City

Kate Reiss*, Okkar Aung, Moe Moe Aung and Thoi D Ngo

Research, Monitoring and Evaluation Team, Health System Department, Marie Stopes International, London, UK

Abstract

Objective: To explore the knowledge of abortion medications and abortion service provision practices among pharmacy workers in a restrictive country in Southeast Asia.

Methods: Between June and July 2012, 170 pharmacy workers operating in the capital city were interviewed about their misoprostol and abortion knowledge and provision practices. To investigate actual provision practices, 193 pharmacies were subsequently visited by fieldworkers posing as abortion clients. After each visit, the 'mystery clients' used a standard form to record the information and services they were offered.

Results: During interviews, 87.1% of pharmacy workers reported that they receive clients requesting abortion medications. One third (32.5%) of pharmacy workers had heard of misoprostol and 93.9% of these knew it was indicated for abortion. Only 1.8% of pharmacy workers reported that they offer abortion medications, however 49.2% offered medications to mystery clients. Just 9.3% offered misoprostol but none offered the WHO's recommended regimen.

Conclusion: Pharmacy workers in a restrictive capital city in Southeast Asia are providing medical abortion ineffectively and large differences exist between their reported and actual abortion provision practices. Interventions to increase pharmacy worker knowledge of misoprostol use for abortion could be an effective way to improve access to safer termination options.

Keywords: Abortion; Pharmacy worker; Misoprostol; Abortifacient; Southeast Asia

Abbreviations

KAP survey: Knowledge, Attitudes and Practices survey; WHO: World Health Organization

Introduction

An estimated 21.6 million pregnancies are terminated unsafely every year, causing 47,000 women to die unnecessarily and leaving a further 5 million temporarily or permanently disabled [1]. Most unsafe abortions (97%) take place in developing countries where abortion is highly restricted or where legal services are difficult to access, and over half (55%) are undertaken in Asia [1,2]. The burden is far reaching; it is felt by women, their families, and communities, and also places great demands on often scarce hospital resources [1].

Misoprostol, a synthetic prostaglandin drug, has been approved in over 85 countries since 1985 when it appeared on the market for the prevention and treatment of gastric ulcers [3]. In 2005, misoprostol and mifepristone were added to the WHO essential medicines list [4], and their combination is now widely used for termination of pregnancy [5,6]. Although a combination of the two is more effective, where mifepristone is unavailable, misoprostol-only is recommended [6]. In countries where abortion is illegal or restricted, off-label use of misoprostol may appeal to women because it does not carry the risks associated with clandestine methods [7], and evidence from Latin America suggests that an increase in availability of misoprostol has led to a reduction in complications associated with unsafe abortions [8,9].

A growing number of studies from Africa, Asia, and Latin America indicate that women and men are accessing pharmacies for abortion services in both liberal and restrictive settings, and that pharmacists are providing information and a range of medications that includes

misoprostol [10-16]. Throughout the world, pharmacies and medicine sellers often serve as the first source of healthcare for people [17-20]; they may be chosen because of their convenience and geographic accessibility, the relative anonymity they allow, and the low cost of services [17,19,21]. These advantages may be especially important to people seeking care for stigmatized conditions such as abortion.

Previous studies have examined pharmacy provision of abortifacients in semi-restrictive and unrestricted countries in Southeast and Central Asia, and have consistently reported that incorrect drugs and poor-quality information are being offered [10,11,14,15]. To improve services and mitigate the risks from ineffective or possibly dangerous medications or dosages, it is important to understand how widely pharmacy provision of abortifacients is occurring and whether women and providers are aware of safe and effective regimens. This study aims to explore the knowledge of abortion medications and both self-reported and actual abortion service provision practices among pharmacy workers in a country in Southeast Asia where abortion is only allowed to save the life of the mother. We chose not to identify the location due to the sensitive nature of the topic, an approach taken by authors of a similar study [12].

***Corresponding author:** Kate Reiss, MSc Researcher, Research, Monitoring and Evaluation Team; Health System Department, Marie Stopes International, 1 Conway Street, London, UK, W1T 6LP, Tel: +44 (0) 20 7034 2321; Fax: +44 (0) 20 7034 2372; E-mail: Kate.Reiss@mariestopes.org

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Materials and Methods

Between June and July 2012, we conducted a cross-sectional survey to collect information about the availability of misoprostol and pharmacy workers' knowledge and provision of medicines for abortion in the capital city of a restrictive Southeast Asian country. Four urban areas of high population density were chosen in this capital city, and as no pharmacy list was available, mapping was undertaken manually. There were four components to this survey. First, the boundaries of each study area were defined by drawing concentric circles on maps of one kilometer radius from a central point in each site. Second, 13 interviewers from the local area with a minimum of secondary level education visited the four areas and mapped the location of every pharmacy. The interviewers also recorded how long each pharmacy had been operating, opening and closing times, and whether the outlet had a signboard.

Of the 235 pharmacies that were mapped, 201 met the inclusion criteria for the third step: a knowledge, attitudes, and practices (KAP) survey (inclusion criteria: had been operating in the area for at least 6 months, had regular opening hours, and had a signboard). After piloting the survey tool (N=10), the 13 interviewers invited one pharmacy worker from each outlet to participate in an interview for a KAP survey on safe abortion and family planning services. Only pharmacy workers who had been working at the pharmacy for 6 months or more and sold medications were interviewed. Where more than one pharmacy worker met these inclusion criteria, we invited the most senior to participate. Pharmacy workers were asked to provide oral consent. We asked about the pharmacy workers' socio-demographic characteristics, knowledge of abortifacients, and demand for and provision of abortion services.

Lastly, since survey findings may not accurately reflect actual provision practices [12], within 1 month of the KAP survey each of the sampled pharmacies was visited by one 12 of the interviewers (5 male, 7 female) posing as clients seeking abortion services. Mystery clients did not return to areas they had visited previously. A range of scenarios was enacted (Table 1). Six mystery clients were under 20 years old and posed as unmarried clients; the other six were aged ≥20 and posed as married or unmarried. Mystery clients asked for medications for themselves, their wife or girlfriend, or for a female relative, and indicated that the pregnancy was confirmed or suspected. Mystery clients either asked for any medication (unprompted) or for misoprostol (prompted) to terminate a pregnancy. Mystery clients were given money to purchase medications where offered to avoid raising suspicion and enable examination of provided drugs. After each visit, the mystery client completed a quantitative questionnaire to record details of the pharmacy staff interacted with, questions they had been asked, and details of information or medications offered.

Data were analyzed using STATA 11.1 (Stata Corp LP, College Station, TX, USA). We calculated frequencies of categorical variables and means of continuous variables. Differences in knowledge and provision practices by characteristics were assessed using chi-square tests. P-values of <0.05 were considered statistically significant.

Due to restrictions around termination of pregnancy in the study country, no ethical approval was sought. Similar precautions were taken with another survey of this kind [11]. Steps were taken to protect the interests of research participants; strict confidentiality and data security procedures were adhered to and verbal consent was obtained for the KAP survey.

	Total % (N)	Medication offered % (N)	No medication offered % (N)	P value
Total sample	100.0 (193)	49.2 (95)	50.8 (98)	
Sex				
Male	37.8 (73)	42.1 (40)	33.7 (33)	0.227
Female	62.2 (120)	57.9 (55)	66.3 (65)	
Age				
<20 years	44.6 (86)	52.6 (50)	36.7 (36)	0.026
≥20 years	55.4 (107)	47.4 (45)	63.3 (62)	
Marital Status				
Unmarried	56.5 (109)	65.3(62)	48.0 (47)	0.015
Married	43.5 (84)	34.7 (33)	52.0 (51)	
Drug for				
Self	35.8 (69)	30.5 (29)	40.8 (40)	0.301
Wife/girlfriend	37.8 (73)	42.1 (40)	33.7 (33)	
Female relative	26.4 (51)	27.4 (26)	25.5 (25)	
Pregnancy status				
Confirmed	60.6 (117)	54.7 (52)	66.3 (65)	0.099
Suspected	39.4 (76)	45.3 (43)	33.7 (33)	
Drug requested				
Misoprostol	82.4 (159)	87.4 (83)	77.6 (76)	0.073
Any drug	17.6 (34)	12.6 (12)	22.5 (22)	

Table 1: Characteristics of mystery clients by medication offered (mystery client visits).

Results

Of the 201 eligible pharmacies, pharmacy workers at 193 agreed to participate in the KAP survey. Of these, 23 terminated the interview very early and were excluded from the analysis giving a response rate of 84.6%. A further 22 pharmacists terminated the interview before it ended as they did not feel comfortable discussing abortion. Over half of the interviewed pharmacy workers were female (55.3%) and the majority (71.8%) were over 30 years of age. Participants had been working in pharmacies for a mean 7.2 years. The majority (67.1%) reported having a certificate or bachelors qualification in pharmacy, 20.6% had on the job training and 12.5% didn't have any training for the role. Half (49.4%) of those interviewed reported that their pharmacy had two staff members, 30.0% operated alone and the remainder had between 3 and 6 staff members (Table 2).

Almost half (42.4%) of pharmacy workers reported having heard of the use of drugs to terminate pregnancy. When asked about the types of drugs that could be used, 27.1% mentioned misoprostol without being prompted, 8.2% named Penorit® (hormone preparation for secondary amenorrhea) and a further 7.1% mentioned other medications including traditional medicines, oral and emergency contraceptives. When prompted, 49 (32.5%) pharmacy workers said they had heard of misoprostol. Of these, 93.9% mentioned termination of pregnancy as an indication. Two were able to name a side effect of the drug (headache and diarrhea); the same two were able to name a possible complication when misoprostol is used to terminate pregnancy (excessive bleeding) (Table 3).

A significantly higher proportion of younger pharmacy workers had heard of medication termination compared with older workers (34.7% among those aged ≤30 years vs. 43.1% among those aged 31-39 years vs. 22.2% among those aged ≥40 years; p=0.016). Similarly, individuals who had been working at the pharmacy for a longer time period had significantly more knowledge of medical abortion than those who had been there for shorter periods (p=0.030) (Table 3).

	Total	Has heard of medication termination	Has not heard of medication termination	Missing ^a	
	% (N)	% (N)	% (N)	% (N)	P value
Total sample	100.0 (170)	42.4 (84)	49.4 (84)	8.2 (14)	
Sex					
Male	44.7 (76)	37.5 (27)	52.4 (44)	35.7 (5)	0.063
Female	55.3 (94)	62.5 (45)	47.6 (40)	64.3 (9)	
Age (Mean = 36.2 years, Range = 18 - 64 years)					
≤30 years	28.2 (48)	34.7 (25)	23.8 (20)	21.4 (3)	0.016
31-39 years	38.2 (65)	43.1 (31)	32.1 (27)	50.0 (7)	
≥40 years	33.5 (57)	22.2 (16)	44.1 (37)	28.6 (4)	
Education					
Secondary started/completed	35.3 (60)	45.8 (33)	29.8 (25)	14.3 (2)	0.114
Diploma	11.2 (19)	11.1 (8)	13.1 (11)	0.0 (0)	
Bachelors or higher	53.5 (91)	43.1 (31)	57.1 (48)	85.7 (12)	
Number of staff					
1	30.0 (51)	37.5 (27)	26.2 (22)	14.3 (2)	0.298
2	49.4 (84)	47.2 (34)	53.6 (45)	35.7 (5)	
3-6	20.6 (35)	15.3 (11)	20.3 (17)	50.0 (7)	
Position					
Owner	80.6 (137)	86.1 (62)	78.6 (66)	64.3 (9)	0.509
Manager/in-charge	7.1 (12)	6.9 (5)	8.3 (7)	0.0 (0)	
Employee	11.8 (20)	6.9 (5)	11.9 (10)	35.7 (5)	
Missing	0.6 (1)	0.0 (0)	1.2 (1)	0.0 (0)	
Training for role					
None	12.5 (21)	4.2 (3)	15.4 (12)	35.7 (5)	0.052
On the job	20.6 (35)	18.1 (13)	20.3 (17)	35.7 (5)	
Certificate/ Bachelor ^b	67.1 (114)	77.8 (56)	64.3 (54)	28.6 (4)	
Time in role (Mean=7.2 years, range = 0-30 years)					
Less than 2 years	10.6 (18)	13.9 (10)	4.8 (4)	28.6 (4)	0.030
2 to 5 years	40.0 (68)	47.2 (34)	38.1 (32)	14.3 (2)	
6 or more years	49.4 (84)	38.9 (28)	57.1 (48)	57.1 (8)	

^aExcluded when testing for association, ^ba certificate is a private, 6 month training which includes 3 months of practical experience in pharmacies; a bachelor's degree in pharmacy takes 4 years

Table 2: Characteristics of pharmacy workers according to whether or not they had heard of medical termination of pregnancy (KAP survey).

Most (87.1%) of the pharmacy workers reported that they receive clients requesting medications to terminate pregnancies; however, 92.9% indicated that they do not provide advice or information on methods of abortion. Over one-third (39.4%) said that they refer abortion clients elsewhere, with private or non-governmental organization clinics or hospitals the most commonly-named referral point. Only three pharmacy workers reported that they sell medications for termination of pregnancy: one named Penorit and two cited a traditional medicine. Three pharmacy workers reported that they sell misoprostol (Cytotec[®]) for post-abortion care, and indicated that a prescription was not needed for purchase (Table 3). Two pharmacy workers reported having received information or training on misoprostol; both indicated having been trained by colleagues on the use of misoprostol for pregnancy termination.

Mystery clients visited the 193 pharmacies that agreed to participate in the KAP survey. Almost half (49.2%) of the pharmacy workers offered medications for purchase; 24.4% offered Penorit, 13.5% offered combinations of two or three traditional medicines and 9.3%

offered misoprostol. Oral contraceptives were offered to mystery clients twice; the emergency contraceptive pill and Haemovit[®] (vitamin/iron supplements) were each offered once. In 38.9% of visits, mystery clients

	N=170
	% (N)
DEMAND	
Receive clients requesting information on termination of pregnancy	
Yes	87.1 (148)
No	12.9 (22)
KNOWLEDGE	
Have heard of using drugs for termination of pregnancy	
Yes	42.4 (72)
No	49.4 (84)
Missing	8.2 (14)
Drugs named for termination of pregnancy (unprompted)	
Misoprostol	27.1 (46)
Oral contraceptive/emergency contraceptive	1.8 (3)
Medication for secondary amenorrhea (Penorit)	8.2 (14)
Progesterone	0.6 (1)
Traditional medicine	4.7 (8)
Unable to name/missing	57.7 (98)
Indications of misoprostol named	
Termination of pregnancy	27.1 (46)
Treat incomplete abortion	1.2 (2)
Unable to name an indication	0.6 (1)
Haven't heard of misoprostol	60.0 (102)
Missing	11.2 (19)
Side effects of misoprostol named	
Yes (diarrhea/headache)	1.2 (2)
No	27.7 (47)
Haven't heard of misoprostol/missing	71.2 (120)
Complications of misoprostol use for termination of pregnancy named	
Yes (excessive bleeding)	1.2 (2)
No	27.7 (47)
Haven't heard of misoprostol/missing	71.2 (121)
REPORTED PROVISION PRACTICES	
Provide advice or information on methods for termination of pregnancy	
Provide advice or information on surgical methods	1.8 (3)
Provide advice or information on medical methods	4.1 (7)
Do not provide advice or information on methods of abortion	92.9 (158)
Missing	1.2 (2)
Refer termination of pregnancy clients elsewhere	
Government hospital	3.5 (6)
Private/NGO clinic or hospital	25.3 (43)
General practitioners	10.0 (17)
Traditional providers	0.6 (1)
Don't refer	52.4 (89)
Missing	8.2 (14)
Sell medications for abortion	
Yes, medication for secondary amenorrhea (Penorit)	0.6 (1)
Yes, traditional medicine	1.2 (2)
No	85.3 (145)
Missing	12.9 (22)
Sell misoprostol (for any indication)	
Yes (Cytotec, sell for post-abortion care ^a)	1.8 (3)
No	85.9(146)
Missing	12.4 (21)

^aTwo of the three reported that they don't require a prescription

Table 3: Demand for, knowledge of, and self-reported pharmacy worker provision practices for medications for termination of pregnancy (KAP survey).

reported that pharmacy workers asked them about the timing of their last menstrual period (Table 4).

Among the 18 pharmacy workers who offered misoprostol, none offered the WHO's recommended regimen of up to three repeat doses of 800 µg administered vaginally or sublingually [6]. One pharmacist offered 1200 µg, 10 offered 800 µg without mention of repeat doses, and the remaining 6 offered lower doses (Table 4). The mean cost per tablet of misoprostol was 0.84 USD (range: 0.63-1.71 USD). Three pharmacy workers explained to the mystery client that they would know that the medication had worked if they experienced bleeding. Two pharmacy workers counseled the mystery clients on possible side effects (nausea/vomiting). The same two explained that heavy bleeding was a possible complication, and one advised the mystery client where to go in the case of complications. Four mystery clients offered medications were referred to other providers for post-abortion family planning. No mystery client was asked for a prescription.

In 10.9% of visits, mystery clients reported that the pharmacy worker referred them elsewhere: 4.7% were referred to a general practitioner, 3.6% to a private or non-governmental clinic or hospital, and 2.6% to a traditional provider. Over one-third (39.9%) of mystery clients reported that pharmacy workers said that they could not help. Mystery client age and marital status were associated with pharmacy worker provision of medication. A higher proportion of unmarried mystery clients (65.3%) was offered medication than married clients (34.7%; p=0.015) and a higher proportion of mystery clients under 20 years old were offered medication than those aged 20 years or over (58.1% vs. 42.1%; p=0.026).

Discussion

This survey found that in a restrictive setting in Southeast Asia, a region where morbidity and mortality due to unsafe abortion are high [1], pharmacy workers are providing medical abortion ineffectively. The study also revealed large differences between reported and actual medical abortion provision practices: in our KAP survey, only three (1.8%) pharmacy workers reported providing medicines to abortion-seeking clients; however, almost half (49.2%) offered medications to mystery clients seeking to terminate a pregnancy. Over one-third of pharmacy workers reported that they refer abortion clients elsewhere; however in practice, only 10.9% did so. These differences are likely due to reporting bias in the KAP survey; providers may be unwilling to admit to knowledge or provision of illegal and stigmatized services.

We found that pharmacy workers most frequently offer abortion-seeking clients hormonal preparations indicated for secondary amenorrhea, followed by a combination of traditional medicines. Just under one-third of pharmacy workers reported having heard of misoprostol, despite the drug being approved for non-obstetric/gynecological indications in the study country. Almost all pharmacy workers who had heard of misoprostol knew that it could be used for pregnancy termination; however, only 9.3% offered the drug to mystery clients. Knowledge of correct regimen, complications, and side effects was low, which is unsurprising as no pharmacy staff reported having received formal training on misoprostol; only two said they had been given any information or training on this topic (in both cases from colleagues).

Similar findings have been reported elsewhere [10,11,13]. A recent mystery client survey in Bangladesh found provision of traditional medicines, hormonal preparations for menstrual regulation, and off-label misoprostol is common, but knowledge of the correct misoprostol

regimen is low [10]. In Vietnam, a more liberal setting, over-the-counter provision of medications was found to be uncommon, but there were gaps in the counseling and referral services provided [11]. Studies from Latin America [12] and Kenya (unpublished) have also documented off-label use of misoprostol, with poor knowledge of the correct regimen.

In this study, pharmacy workers were more likely to offer medications to young and unmarried clients, perhaps indicating a perception that abortion is more acceptable for certain groups or reasons. Younger providers were more likely to report knowledge of medical abortion-this could indicate that awareness is higher in this group, or alternatively, that these providers were more comfortable talking about this sensitive topic.

This survey interviewed the most senior pharmacy worker present in well-established pharmacies. Off-label and incorrect provision of medications may be higher in more informal outlets and among individuals who are less well trained. A limitation of this study is that mystery-client data may have been affected by recall bias or poor recall. To minimize this risk, mystery clients completed debriefing forms shortly after each visit and purchased the medications offered so that drug types and dosages could be accurately recorded. The study was only conducted within a large city and may not be representative of

	N=193
	% (N)
Asked about last menstrual period	
Yes	38.9 (75)
No	61.1 (118)
Service provided	
Offered medication	49.2 (95)
<i>Medication for secondary amenorrhea (Penorit)</i>	24.4 (47)
<i>Traditional medicine</i>	13.5 (26)
<i>Misoprostol</i>	9.3 (18)
<i>Oral/emergency contraceptive</i>	1.6 (3)
<i>Vitamin/iron supplements for iron deficiency anemia (Haemovit)</i>	0.5 (1)
Referred mystery client elsewhere	10.9 (21)
<i>General practitioner</i>	4.7 (9)
<i>Private or NGO clinic/hospital</i>	3.6 (7)
<i>Traditional provider</i>	2.6 (5)
Unable to help	39.9 (77)
Misoprostol regimen provided^a	
Dose	
400 µg	3.1 (6)
600 µg	0.5 (1)
800 µg	5.2 (10)
1200 µg	0.5 (1)
Route of administration	
Oral	6.2 (12)
Vaginal	3.1 (6)

^aWHO Safe Abortion Guidelines, recommended method for medical abortion when mifepristone is not available.⁶

For pregnancies of gestational age up to 12 weeks (84 days) the recommended method of medical abortion is 800 µg of misoprostol administered by vaginal or sublingual routes. Up to three repeat doses of 800 µg can be administered at intervals of at least 3 hours, but for no longer than 12 hours.

For pregnancies of gestational age over 12 weeks (84 days) the recommended method of medical abortion is 400 µg of misoprostol administered vaginally or sublingually, repeated every 3 hours for up to five doses.

For pregnancies beyond 24 weeks, the dose of misoprostol should be reduced, due to the greater sensitivity of the uterus to prostaglandins, but the lack of clinical studies precludes specific dosing recommendations.

Table 4: Pharmacy workers' provision practices (mystery client visits).

peri-urban or rural settings; however, it is unlikely that providers in such locations would have greater knowledge of an effective regimen.

Women faced with an unplanned pregnancy are likely to choose to have an abortion whether or not it is legal to do so [22,23] and legal restrictions increase the proportion of unsafe procedures [1]. Legalization of abortion has been shown to improve the safety of abortion procedures and remains a priority [23]. However evidence has also demonstrated that improved access to misoprostol can reduce the harm caused by unsafe abortion in restrictive settings [13,23]. In developing countries where access to clinic-based providers is low, large numbers of the population use pharmacies for information and advice on medical issues. Ongoing training for pharmacy workers is therefore important to enable them to meet primary healthcare needs [12]. Increasingly, calls are being made for interventions to build pharmacy workers' knowledge of effective medical abortion regimens as part of a 'harm reduction' approach to unsafe abortion [7,13].

In this study, pharmacists' willingness to help abortion clients, coupled with their high levels of education and training in pharmacy, suggest that interventions to increase their knowledge of misoprostol use for abortion could be an effective way to improve access to safer termination options. Such training packages should cover how to determine eligibility, effective dosage and regimen information, potential side effects and complications, and counseling on post-abortion family planning. Interventions would need to be undertaken with caution due to the restrictive and stigmatized nature of the topic as demonstrated by pharmacists' reluctance to discuss abortion in the KAP survey. Strategies to increase collaboration between pharmacies and other providers should also be developed to ensure that, where necessary, women are appropriately referred for legal post-abortion care services.

Pharmacy workers have the potential to reduce unsafe abortion practices that contribute substantially to maternal mortality and morbidity. Training pharmacy workers and increasing their awareness of appropriate medications and referral networks will help to ensure safe, effective, quality services.

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