Original research article

Pharmacy provision of medical abortifacients in a Latin American city

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Abstract

Purpose: Access to legal abortion services is restricted in Latin America. Nonetheless, previous research suggest that women frequently use misoprostol to self-induce abortion. In many settings, women obtain the medication from a pharmacy. This study was conducted to better understand pharmacy staff knowledge and provision practices of misoprostol and other medical abortifacients.

Methods: We first interviewed staff at a random sample of 102 pharmacies in a Latin American city. Mystery clients were subsequently sent to the same pharmacies to ascertain prescribing practices and counseling.

Results: Nearly half of the pharmacy staff interviewed reported that they were familiar with at least one abortifacient, and an abortifacient was recommended in 74% of the mystery client encounters. Hormonal injections were most frequently recommended as abortifacients in the survey (67%) and the mystery client encounters (71%), followed by misoprostol (60% and 39%, respectively). Few of the pharmacy staff (6% in the survey and 17% in the mystery client encounters) recommended a misoprostol dosing regimen that is potentially effective.

Conclusion: Abortifacient provision is common at pharmacies but knowledge about medications is low among pharmacy staff.

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1. Introduction

Retail pharmacies are a widely used primary source of medical advice in developing countries, especially among poor and less-educated clients [1–4]. In a large study on pharmacy customers in six Latin American countries, almost half of the medicines purchased without a prescription had originally been recommended by a layperson [5]. There is the potential for inappropriate self-medication or for inappropriate prescription by pharmacy staff of unnecessary or harmful medications in which drugs are sold without a physician’s prescription [5,6]. A study undertaken in Guatemala and Mexico found that over 80% of the treatments recommended by pharmacy staff for diarrheal disease or acute respiratory tract infection included unnecessary or dangerous drugs [7]. Another study in Mexico City found that pharmacy staff were unable to correctly diagnose sexually transmitted infections and offer appropriate treatment when hypothetical cases were presented by an interviewer [8].

A number of studies have documented that women seek and that pharmacy staff distribute drugs intended to induce abortion at pharmacies in Latin America [9–12]. Abortion is legally restricted in almost all of Latin America. Nonetheless, the region has one of the highest abortion rates in the world [13]. In the 1990s, reports that women were using the prostaglandin analog misoprostol to self-induce abortion in Brazil emerged [14,15]. Interviews with Brazilian women revealed that they tended to use misoprostol because of its lower price as compared with other medical alternatives, its immediate availability, the fact that the process seems more like a natural miscarriage and its apparent safety [16]. In Brazil, prior to the drug’s removal from the market, pharmacies were the main source of misoprostol [6].

Some evidence suggest that the availability and use of medical methods to terminate a pregnancy may contribute to declining complication rates from clandestine procedures [17,18], yet little is known about the role of pharmacist provision of medical abortifacients. We performed this study to learn more about pharmacists’ knowledge and provision of medical abortifacients, particularly misoprostol, in a large Latin American city. Although the legislation of the country...
where the study was performed requires a prescription to purchase misoprostol, in practice, this law is not enforced and misoprostol is commonly sold without a prescription in pharmacies. Moreover, misoprostol is not approved for use as an abortifacient and legal abortions are very rare in the study country. We elected not to identify the study location because of the sensitive nature of the topic.

2. Methods

We used two methodologies to collect information about pharmacy provision of abortifacients. First, we approached staff at a random sample of pharmacies in a large Latin American city and requested their participation in an oral interview regarding a reproductive health issue. We asked about their background, their knowledge of medical abortifacients, the type of abortifacient requests that they received and their pharmacy’s misoprostol sales. Survey responses do not always reflect actual practice, so we also sent researchers posing as abortifacient seekers to the same pharmacies. These “mystery clients” acted out one of four scenarios and recorded pharmacy staff responses after their encounter. Both methodologies, the pharmacy staff survey and the mystery client encounters, are described in detail below. All fieldwork were completed between September 2003 and March 2004. The study was approved by the ethical review committee of the Population Council.

2.1. Pharmacy staff survey

A 2003 census provided by the National Chamber of Commerce gave contact information for all registered pharmacies located in the study city and surrounding urban area. We focused our research on the 1248 pharmacies located within the city limits.

After eliminating 195 pharmacies with incomplete contact information, we selected a simple random sample of 102 pharmacies. This sample size gave us 95% confidence of detecting the true number of staff who were familiar with an abortifacient within 10 percentage points, assuming that half of those interviewed would be familiar with the drug and a 5% nonresponse rate [19].

After completing a pilot study to test the survey’s feasibility and design (n = 12), we trained three experienced female interviewers to administer the oral survey to pharmacy staff. Interviews were conducted at the pharmacies and lasted for approximately 20 min. The interview consisted of 32 questions about the following: pharmacy characteristics; pharmacy staff background and experience; pharmacy staff knowledge of misoprostol and other abortifacient drugs; characteristics of typical abortifacient seekers; and frequency of and conditions for misoprostol sales.

2.2. Mystery client encounters

Based on the information gathered from the pharmacy staff survey, we designed the following four scenarios typical of abortifacient seekers: (1) a young (age range, 18-25 years) woman seeking misoprostol because a friend recommended the drug to terminate a pregnancy; (2) a young man seeking misoprostol because a friend recommended the drug to terminate a pregnancy; (3) a young woman seeking a drug to induce menstruation because her period was delayed and she believed that she was pregnant; and (4) a young man seeking a drug to induce his girlfriend’s menstruation in a situation similar to that for Scenario 3. In all scenarios, the mystery client approached the pharmacy staff and described his or her situation as follows: “My/My girlfriend’s period is late. My/ Her last menstrual period was 6 weeks ago.” In the first two scenarios, the mystery client indicated that a friend recommended misoprostol and asked whether it is effective; in the next two scenarios, the mystery client simply asked for a medication to induce menstruation.

Mystery clients also inquired about dosage, route of administration, effectiveness, possible side effects, complications, potential substitutes and cost of abortifacients. They were given standardized responses to potential pharmacy staff questions. For example, if pharmacy staff requested a prescription, the mystery clients answered that they did not have one. If pharmacy staff asked about confirmation of the pregnancy, the mystery clients responded that they had performed a urine pregnancy test and the result was positive. To conclude the interaction, mystery clients told the pharmacy staff that they did not have enough money at hand to buy the drug but would return later to make the purchase.

The mystery clients’ fieldwork was conducted after a pilot test to assist in mystery client training (n = 12). We trained three women and two men to enact one of the four scenarios described above. We randomly assigned mystery clients to the same pharmacies originally visited in the survey portion of the study, although the same staff was not necessarily interviewed. The distribution of scenarios is shown in Table 1. One hundred scenarios were completed: women or men asked directly for misoprostol in 58 scenarios and women or men asked for a medication to induce menstruation in 42 scenarios.

A summary form was designed to compile all information given to the mystery clients about abortifacients and to record vendor attitudes. Additional study personnel accompanied each mystery client but were not immediately present during the conversation with pharmacy staff. After each visit, the accompanying study personnel met with the mystery client.
to record details about the encounter on the summary form. All data were analyzed using SPSS (version 13.0, 2004). We generated frequencies of categorical variables and calculated means as well as standard deviations for continuous variables. To test for significant univariate and bivariate associations, we used t tests and \( \chi^2 \) tests.

### 3. Results

#### 3.1. Characteristics of the study population

In the survey portion of the study, 5 of the 102 pharmacy staff approached declined to participate, yielding a 95% response rate. In the mystery client portion of the study, the same 102 pharmacies were visited but only 100 encounters were completed because 2 pharmacies were permanently closed.

Of the 97 pharmacies visited, 61 (63%) were classified as independent pharmacies by the National Chamber of Commerce and 36 (37%) were classified as chain pharmacies (i.e., they were members of a branded pharmacy with a central distributor). At the time of the study, misoprostol was not available in generic form in the country. Among the chain pharmacies, 8 were franchises that sold only generic drugs and did not sell misoprostol.

Information about the pharmacy staff interviewed are presented in Table 2. Pharmacy staff sex and age were similar for both the survey and the mystery client portions of the study. A larger proportion of vendors/cashiers were approached in the survey portion of the study; however, a comparison may not be representative because mystery clients only guessed the positions of the staff rather than explicitly ask them. Pharmacy staff had been working for an average of 11 months in a pharmacy (SD, 12 months) and reported that the pharmacies at which they worked received an average of 140 clients per day (SD, 142 clients/day).

To ensure that the assignment of mystery clients to pharmacies was not biased, we compared the distribution of mystery client scenarios by demographic variables. Only pharmacy staff position was significantly different by mystery client scenarios by demographic variables. Fewer individuals from Scenarios 1 and 4 (29% and 8%, respectively) encountered vendor/cashiers as compared with individuals from Scenarios 2 and 3 (58% and 65%, respectively) (\( \chi^2, p<.05 \)).

#### 3.2. Abortifacient knowledge and recommendations

Approximately half of the pharmacy staff interviewed reported knowledge of a drug to interrupt a pregnancy in the survey portion of the study (Table 3). This proportion increased to 74% among the mystery client encounters in which a drug to induce a delayed menstruation was requested (Scenarios 3 and 4; \( \chi^2, p<.001 \)).

Reasons for not recommending an abortifacient in mystery client encounters included the following: nine pharmacy staff said that they do not prescribe drugs or recommended that the client see a physician; one expressed ethical concerns about abortion; and another did not believe that there was any drug available to interrupt a pregnancy. There was no statistically significant difference in pharmacy staff recommendations by sex of the mystery client (data not shown).

When asked about effective abortifacients, pharmacy staff most frequently recalled or recommended hormonal injections in both the survey (67%) and the mystery client encounters (71%). Among hormonal injections, one containing 5 mg of estradiol benzoate and 50 mg of
progesterone was the most popular. Other combined hormonal injections containing an estrogen (estradiol enanthate, estradiol cypionate or estradiol benzoate) as well as progestin (algestone or medroxyprogesterone acetate) and estradiol benzoate alone were also recommended. Five of the pharmacy staff who recommended hormonal injections to mystery clients noted that they are ineffective if a woman is already pregnant. One respondent commented that “it is a double-edged sword, if she’s not pregnant she’ll get her period, but if she is, the fetus will become even stronger.” Misoprostol was the second most frequently mentioned abortifacient in both the survey (60%) and the mystery client encounters (39%).

Several other ineffective or potentially dangerous drugs were recommended as abortifacients. Emergency contraceptives and oral contraceptives, which will not disrupt an established pregnancy, were mentioned by 19% of pharmacy staff in both the survey and the mystery client encounters. Similarly, a drug that contains oxytocin and that is used to induce labor was mentioned by eight respondents in the survey and by two pharmacy staff in the mystery client encounters. Five pharmacy staff also mentioned a drug that contains quinine gluconate and that is used for malaria prophylaxis. This drug may terminate a pregnancy [20] but is no longer available in the country where the study was conducted. Other abortion methods such as dilatation and curettage were mentioned by three pharmacy providers in the mystery client scenarios as a complement to hormonal and misoprostol treatment.

In addition, 61% of the staff interviewed reported having received at least one request for an abortifacient. Requests came more frequently from women (71%) than from men (31%); the average age of those requesting abortifacients was 22 years.

3.3. Misoprostol knowledge and recommendations

Sixty percent of the pharmacy staff reported that misoprostol was available at their pharmacy in the survey; 53% did in the mystery client scenarios. Misoprostol was not available in generic pharmacies; nonetheless, some of the staff at these pharmacies mentioned or gave some information about misoprostol in both the survey and the mystery client scenarios. Misoprostol was most commonly sold in bottles of 28 200-µg pills; the average reported cost of a bottle was similar in both the survey and the mystery client encounters ($61.39 in the survey and $61.12 in the mystery client encounters). Only two pharmacies reported selling pills individually in the survey, and three pharmacies were willing to sell individual pills to the mystery clients. Not surprisingly, the cost of the drug was slightly more expensive when sold separately; each pill cost an average of $3.36 as compared with that of $2.19 when sold by the bottle. Almost half (47%) of the pharmacy staff reported in the survey that they required a medical prescription to sell misoprostol. However, in only 11% of the mystery client encounters did pharmacy staff actually ask the mystery clients for a prescription (differences were not statistically significant; $\chi^2$, $p$=.235).

The information provided by pharmacy staff about misoprostol use were often incomplete and of poor quality. In the survey, 81% of pharmacy staff who mentioned misoprostol and 100% of respondents in mystery client encounters gave some kind of information about its use. However, over half of the respondents in the mystery client encounters provided no information at all regarding dosage, route of administration, side effects, complications and effectiveness even when mystery clients specifically inquired about these issues. Only 6% of those who recommended misoprostol in the survey and 17% of those participating in the mystery client encounters recommended a dosage that was potentially effective for medical abortion (three or more 200-µg pills in 1 day). In several cases, staff recommended very high doses of misoprostol or regimens that continued for longer than 3 days, with one regimen suggested to be continued for 4 weeks. Nonetheless, in the mystery client encounters, 37% of respondents classified misoprostol as a very effective drug. One female pharmacy staff stated that “It’s very effective. I know because my friends have told me.”

Bleeding was the side effect of misoprostol use most frequently mentioned by pharmacy staff in the survey (47%) and the mystery client encounters (26%), followed by nausea/vomiting (mentioned by 17% in the survey and by 13% in the mystery client encounters). In the four mystery client scenarios, we instructed mystery clients to ask pharmacy staff about possible complications after taking misoprostol. Excessive bleeding was the complication most frequently mentioned (48%) by pharmacy staff, followed by incomplete abortion (4%).

One third of those interviewed in the pharmacy survey (29%) stated that they had received specific training regarding reproductive health medications. Among those who specified a source of their training, 32% noted the Ministry of Health or some other academic or government institution and 68% cited training from a pharmaceutical company or laboratory.

3.4. Attitudes of pharmacy staff

Mystery clients reported that almost half of pharmacy staff (46%) expressed interest in helping them. In some cases, when the mystery clients approached a vendor who did not have information about misoprostol or other abortifacients, the vendor would consult other staff or a drug guide or would make phone calls in an attempt to help them. There was no statistically significant difference in pharmacy staff attitudes by client sex or whether the client requested misoprostol directly or any drug to induce menstruation. Some degree of refusal (46%) or a hostile attitude (39%) was more frequently observed among pharmacy staff working in independent pharmacies as compared with those working in chain and generic pharmacies (21% and 18%, respectively).
4. Discussion

Similar to a study on pharmacies in Mexico City in 1993 [12], our study found that the most frequently recommended abortifacients were hormonal injectables in both the survey (67%) and the mystery client encounters (71%). Although there is no scientific evidence to support their efficacy, it is widely believed both by pharmacy staff and the general population in Latin America that hormonal injectables are effective abortifacients [9]. In our study, the second most common abortifacient was misoprostol: 33% of pharmacy staff mentioned it in the survey and 39% recommended it in the mystery client encounters. However, knowledge about adequate dosage, route of administration, side effects, complications and effectiveness was poor. In fact, no information was offered (even when requested) on any of these topics in at least half of the mystery client encounters in which misoprostol was recommended. Few pharmacy staff had received formal training regarding misoprostol use; most had consulted a drug reference guide or learned about the medication from colleagues, which could explain why so little information was known about dosage, side effects and complications. Additional training for pharmacists is particularly important in developing countries where a large proportion of the population typically obtain treatment advice from pharmacy vendors. Building on the results of this study, future work might include training pharmacy staff about appropriate misoprostol regimens. Given that most of those interviewed in the survey reported having had at least some secondary school education and having worked in their current position for nearly 1 year (data not shown), it is possible that such an intervention would result in women receiving better information at the pharmacy.

Due to the sensitive nature of the topic, there is the potential for reporting bias. For this reason, we used a dual methodology: the survey allowed us to ask for more detailed information about pharmacy staff knowledge and background while the mystery client scenarios gave us a better understanding of the attitudes, knowledge and actual prescribing practices of pharmacy staff. Although we received similar responses for most measures, it was interesting to note that pharmacy staff were more likely to recommend an abortifacient and less likely to require a prescription in the mystery client encounters than when they were asked during the survey. However, these findings were not statistically significant, likely due to the study’s small sample size.

This study focused on the information obtained from pharmacies about abortifacient use and did not examine other possible information sources, including informal drug sellers at markets or small shops. Several reports have documented that women in Latin America sometimes use misoprostol under the care of a clinician [21,22], and they may also receive accurate information about the medication’s use from friends or family members. Future work should more thoroughly examine these information networks to better understand how to disseminate information about effective and safe medical abortion regimens.

Although abortifacient provision appears to be common (74% of pharmacy staff recommended an abortifacient) at the pharmacies studied, accurate knowledge about misoprostol seems to be lacking among pharmacy staff. In addition, pharmacy staff commonly recommended drugs such as hormonal injections and contraceptives that will not cause an abortion, and no one mentioned methotrexate, a proven abortifacient that is registered in the study country. Although we only sampled pharmacies in one large metropolitan area, it is unlikely that pharmacy staff are more knowledgeable about abortifacients in smaller cities or rural areas. Continuing education among pharmacists is clearly necessary, although we recommend caution in conducting interventions due to the controversial and clandestine nature of abortion in Latin America.

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