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Young women's perceptions and experiences with contraception supply in community pharmacies

Souhiela Fakh, Ph.D.,

Postdoctoral Research Fellow, College of Pharmacy, University of Michigan, Michigan

Peter Batra,

Research Analyst, College of Pharmacy, University of Michigan, Michigan

Heather H Gatny,

Senior Research Specialist, Institute for Social Research, University of Michigan, Michigan

Yasamin Kusunoki, Ph.D.,

Research Scientist, Institute for Social Research, University of Michigan, Michigan

Jennifer S. Barber, Ph.D., and

Research Professor, Institute for Social Research, University of Michigan, Michigan

Karen B. Farris, PhD

Professor of Administrative Sciences, College of Pharmacy, University of Michigan, Michigan

Abstract

Background—Unintended pregnancy is a major public health problem in the United States.. Correct contraceptive use can reduce the rate of unintended pregnancy. Community pharmacies are well positioned to provide contraceptives and advise about contraception.

Objectives—(1) determine young women's perceptions and experiences with contraception supply in community pharmacies and (2) identify whether very pharmacy characteristics predicted positive experiences.

Corresponding Author: Souhiela Fakh Ph.D., Address for correspondence: 428 Church Street, College of Pharmacy, University of Michigan, Ann Arbor, MI, 48109, Fax: 734 763 4480, fakihs@umich.edu.

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Article relevance and contribution to literature:

Unintended pregnancy is a particular problem in the United States, with over three million unintended pregnancies reported annually. To increase access to effective contraceptive methods and subsequently reduce the national unintended pregnancy rate, experts have highlighted the importance of increasing pharmacy involvement in this area. It is important to understand what contraception services community pharmacies currently provide. For example, understanding the frequency of pharmacy patronage, as well as how young women characterize their experiences in pharmacies, is important information in considering what interventions are necessary and whether they are feasible. Many studies in the US and abroad have investigated the provision of the emergency contraceptive pill. However, little is known about other contraceptive services offered by community pharmacies, including availability of condoms and oral contraceptive pills, availability of contraceptive information, and ability of pharmacists to counsel on pregnancy prevention. In addition, to offer a service that is targeted to women in their childbearing years, it is vital to understand their current experiences with contraception supply from their community pharmacy and their comfort level with obtaining contraception information from their community pharmacies. This study explored young women's perceptions and experiences with contraceptive supply in community pharmacies across one county in Michigan and it also examined the effect of pharmacy characteristics on women's experience with contraceptives. Based on our analyses, observed pharmacy characteristics may not be particularly important in considering future interventions. By improving existing communication and initiating new communication strategies, pharmacists may improve contraceptive use, thereby reducing unintended pregnancy.

Design—This study was comprised of two cross-sectional surveys including an online women's pharmacy perceptions and experiences (PPE) survey and a faxed/observed survey of community pharmacies.

Setting—One County in Michigan, USA

Participants—Young women and community pharmacies

Main outcome measure—The two surveys were merged to explore pharmacy characteristics that may impact women's perceptions and experiences with community pharmacies. Multiple logistic regression analysis was used to explore relationships between pharmacy characteristics and positive outcomes.

Results—The response rate for the PPE survey was 54% (n= 334/637). Data from all community pharmacies in the county was retrieved via fax (n= 41/94, 43.6%) or observation (n= 53/94, 56.4%). Women were included in this analysis if they indicated a regular (most commonly used) pharmacy in the county of interest (n=210). Over 50% of women (n= 125/210) visited a pharmacy more than once per month. Sixty percent of women were currently using something to prevent pregnancy (n=124/210, 60.8%). Thirty-five percent of women had a positive experience (n=73/210, 34.8%). In the multiple logistic regression, women who visited a chain pharmacy had almost 65% lower odds of an overall positive experience with their regular pharmacy, compared to women who visited a grocery or mass merchandise pharmacy (OR: 0.35, 95% CI: 0.16, 0.75).

Conclusion—Young women visit community pharmacies and use contraceptives frequently. Interventions need to be developed and implemented to improve young women's perceptions and experiences with contraception at community pharmacies.

Keywords

women; community pharmacy; contraception

Introduction

Unintended pregnancy is a major public health problem in the United States, with over three million unintended pregnancies reported annually.¹ In 2008, 51% of all pregnancies in the US were unintended.² This rate is consistently higher than the global rate of 41% and that of many other developed countries.³ Unintended pregnancy rates are higher among women who are in their early 20's, who have low income, who are less educated and who are African-American.² Appropriate contraceptive use can reduce the rate of unintended pregnancy.

The Healthy People 2020 objectives prioritize the need to reduce the rate of unintended pregnancies, reduce pregnancy rates among adolescents, and increase contraceptive use.⁴ To increase access to effective contraceptive methods and subsequently reduce the national unintended pregnancy rate, experts have highlighted the importance of increasing pharmacy involvement in this area.^{5–7} Pharmacists are underutilized resources in the provision of health care services, specifically reproductive services.⁵ Pharmacists are easily accessible, can be seen without an appointment, and are trusted healthcare professionals.^{6, 7} In a recent review by Farris et al., the rationale for pharmacists' and pharmacy staff's role in reducing

unintended pregnancy was identified, highlighting that pharmacists may assist with ensuring appropriate contraceptive use and adherence and with adverse effect monitoring, and that pharmacists may provide information on non-prescription contraceptive products. In fact, condoms are the third most widely used contraceptive product, and many are purchased at pharmacies.⁸ In addition, pharmacies are one of the major providers of emergency contraception (EC), which was recently been approved as an over-the-counter product for women of all ages.⁹ This furthers the importance of pharmacists and pharmacy staff's effective counseling on the safe and appropriate use of contraceptives.

Pharmacists in community pharmacies may also present an opportunity to increase access to hormonal contraceptives. Landau et al highlighted a new model to increase access to hormonal contraception through pharmacists, known as the pharmacy access model.⁷ In this model women are able to obtain hormonal contraception directly from pharmacists without first visiting their physician. This model was utilized successfully by Gardner et al. in 26 community pharmacies across metropolitan Seattle, where pharmacists screened, prescribed, and counseled women on hormonal contraceptives. At the completion of the study, nearly all of the women were satisfied with the service and felt comfortable receiving prescriptions for hormonal contraception from their pharmacists. Pharmacists also felt confident offering the service and thought it was important to increase accessibility to contraceptives in pharmacies.¹⁰ Hormonal contraceptives could be offered over-the-counter under the new line of medication category that the FDA proposed in 2012. This category of medication was proposed to be "pharmacist only" and medications in this category would require the consultation of a pharmacist before sale. By having hormonal contraceptives listed under this new medication category it would increase access to hormonal contraceptives to women pharmacy consumers and still ensure safety.¹¹

Prior to the further implementation of a pharmacy access model to provide contraceptives in community pharmacies, it is important to understand the contraception services that community pharmacies currently provide. Understanding the frequency of pharmacy patronage, as well as how young women characterize their experiences with contraceptives in pharmacies, is important information in considering what interventions are necessary and whether they are feasible. Many studies in the US and abroad have investigated the provision of emergency contraceptive pills.^{12–17} However, little is known about other contraceptive services offered by community pharmacies, including availability of condoms and oral contraceptive pills, availability of contraceptive information, and ability of pharmacists to counsel on pregnancy prevention. In addition, to offer a service that is targeted to women in their child-bearing years, it is vital to understand women's current experiences with contraception supply from their community pharmacy and their comfort level with obtaining contraception information from their community pharmacies. Landau et al. explored women's attitudes towards direct pharmacy access to hormonal contraception and found that women want pharmacists to be involved in the delivery and provision of hormonal contraception.¹⁸ The study by Landau et al., however, did not explore women's experiences and their evaluations of those experiences with contraceptive supply from pharmacies.

Objectives

The objectives of this study were therefore to: (1) determine young women's perceptions and experiences with contraception supply in community pharmacies in one county in Michigan, and (2) identify whether pharmacy characteristics predicted very positive experiences (seven dependent variables). By understanding the types of pharmacies that lead to better experiences, a future intervention project may be designed with these characteristics in mind. It is anticipated that pharmacies employing female pharmacists and having condoms available will provide more positive contraceptive-related pharmacy experiences. After this analysis, it will then be important to consider how the characteristics of the young women in the pharmacies may impact their experiences.

Methods

Survey Design and study participants

The analyses presented here used two data sources including the Women's Pharmacy Perceptions and Experiences (PPE) survey and the Community Pharmacy Survey. The sample for the PPE survey was drawn from a larger project that ended in January, 2012, the Relationship Dynamics and Social Life (RDSL) study. Ethics approval for all three surveys was obtained from the University of Michigan's Institutional Review Board (IRB). The RDSL study focused on intimate relationships, sexual behaviour, contraceptive use, and unintended pregnancy among young women aged 18 or 19 years old during 2008–2009. The population-representative random sample of 1,003 women residing in a single Michigan county was drawn from public records and respondents were re-interviewed weekly for 2.5 years.

PPE Survey—In May, 2013, we had email addresses that were still valid for 637 of the original RDSL respondents. They were contacted via email and asked to participate in the PPE online survey. Three reminders were sent to all non-respondents at 10, 17 and 21 days after initial contact. All respondents received an incentive that was \$10 for completing the survey after initial contact or first reminder, \$20 after the second reminder or \$30 after the final reminder. The PPE survey focussed on young women's contraception-related perceptions and experiences with pharmacies in general, and with their regular community pharmacy. The online survey was developed by the authors (PB and KBF) and was tested for face and content validity by pharmacy academics (Pharm.D.s, graduate students and PhDs) and young women in their early twenties. The survey was delivered using Qualtrics software. The final questionnaire had 65 questions and six main sections, including: demographics, previous sexual experiences and current contraceptive use, attitudes towards information sources and pharmacy staff, attitudes towards regular pharmacy staff, attitude towards contraceptive products, and experiences with regular pharmacy. Questions about contraception focused on contraceptive pills, condoms and emergency contraceptives (EC).

Community Pharmacy Survey—In April, 2013, all 94 pharmacies in the county where RDSL was implemented were invited by fax to complete the Community Pharmacy Survey. The faxed survey contained 9 items, consisting of two main sections that focussed on pharmacy characteristics, employee information, and contraception services provided. The

faxed survey was developed by the researchers and tested for face and content validity by academics and pharmacists. Reminder faxes were sent 10 days later. Non-respondents to both the initial fax and reminder fax (Phase 1) were visited and observed by a research assistant (Phase 2). This second phase was completed to ensure that the core data was collected from all pharmacies in the county. Some information, such as average number of prescriptions dispensed in the pharmacy per day, could not be obtained by observation. The original list of all pharmacies in the specified county was from 2009 and was provided by the Michigan Board of Pharmacy. Women were asked to identify their regular pharmacy in the PPE survey. Any pharmacy that was identified by the women that was not included in the original sample was either faxed a survey or visited in spring 2014. All pharmacies in the county were located in a census-defined urban area.

Data analysis

Data from the PPE survey were linked to the pharmacy survey by the regular pharmacy selected by each respondent. Although the survey asked for the race of each employee, we collapsed this into an indicator of whether there were any African-American staff. Pharmacist gender was collapsed into an indicator of whether there was any female pharmacist. A dichotomous indicator was coded yes if pharmacy staff at the pharmacy had the ability to counsel privately on contraception defined as “little difficulty or no difficulty in talking to someone about contraception” in the faxed survey (Phase 1), or a directly observed private area in Phase 2 (counseling room, screens or partitioning). Whether the pharmacy provided patient education brochures about contraception was assessed in the fax survey or directly observed. Condom availability was assessed as behind locked glass, behind unlocked glass, behind the pharmacy counter, on the shelf with other OTC products, or not available for sale in the pharmacy. A dichotomous indicator for easily accessible condoms was defined by the response “on the shelf with other OTC products”. A dichotomous indicator for whether the pharmacy had a self-check-out was based on either the fax survey or direct observation, as was the total number of hours open per week.

Several dependent variables were constructed from the Pharmacy Perceptions and Experiences survey. Before identifying their regular pharmacy, respondents were asked about their overall experiences with and perceptions of pharmacies and pharmacists in general. The seven dependent variables are listed below with an explanation of how they were constructed:

1. *Frequency of visiting a pharmacy* was collapsed from five categories into a dichotomous indicator of at least once a month versus less than once a month.
2. Respondents were asked whether they had ever gotten condoms, birth control pills, and/or emergency contraception from a pharmacy. A dichotomous indicator of whether they *ever purchased contraception from a pharmacy* indicates a positive response for any of the three methods.
3. Responses to three questions were collapsed into a dichotomous indicator of having *a positive attitude toward pharmacists providing pregnancy prevention information*. We coded as positive any woman who included the pharmacist as one of the top three information sources for any of the following three questions: “If

you had questions about the different ways to prevent pregnancy, which of these people.... (1) would you feel most comfortable with?; (2) would be the easiest to get information from; or (3) are the most trustworthy?" Women who did not place a pharmacist in the top three answers to any of those three questions were defined as not having a positive attitude.

4. Respondents were then asked to think about their regular pharmacy (the one they go to most often). A dichotomous indicator of whether the respondent *ever talked to a pharmacy staff member about contraception* was coded yes if she reported ever talking about any contraceptive method, including (1) condoms, (2) oral contraceptive pills, or (3) emergency contraception.
5. An indicator of a *very positive attitude toward regular pharmacy staff* providing pregnancy prevention information is based on at least one "very" response to the following three questions: (1) "Overall, how comfortable would you feel talking to the pharmacist or other staff at your drug store about the different ways to prevent pregnancy?" (2) "Overall, how easy would it be to talk to the pharmacist or other staff at your drug store about the different ways to prevent pregnancy?" or (3) "Overall, if you were to talk about the different ways to prevent pregnancy with the pharmacist or other staff at your drug store, how trustworthy would the information be?".
6. Women were coded as very positive for a dichotomous indicator of *attitude toward the pharmacy as a place to purchase contraception* if they answered "very good" to any of the following three questions asking "How is your drug store as a place to buy:" (1) condoms; (2) contraceptive pills; and (3) emergency contraception.
7. Finally, young women were asked about their *overall experiences with their regular pharmacy* on a scale from 1 (not at all good) to 5 (very good). Any woman who responded with a 5 was coded as having a very positive experience. Women who responded with 1 to 4 were considered to have a less than positive experience.

To increase variability in the dependent variables, 1 (not at all good) to 4 (good) responses were coded as not positive, and 5 (very good) was coded positive. This increased the ability to identify significant associations between pharmacy characteristics and very positive pharmacy experiences.

Initially a large multivariate logistic regression was used to determine any associations between the following independent variables: availability of self checkout, frequency of pharmacy visits, general positive attitude towards pharmacy staff, pharmacy type, African-American employees, female pharmacist employees, ability to counsel privately on contraception, availability of condoms and hours of operation and the seven dependent variables listed above. The results of this larger model have not been presented. Due to the sample size a more parsimonious model was run with only the following independent variables: pharmacy type, African-American employees, female pharmacist employees, ability to counsel privately on contraception, availability of condoms and hours of operation. No differences with significant associations were seen between the full model and the parsimonious model.

Data were analyzed using SPSS version 19.0. The significance level was set at $p < 0.05$.

Results

Three hundred and forty three women completed the PPE survey, providing a 54% response rate. Respondents in the PPE survey were aged 23 to 24, were mainly white (76.6%) versus African-American (23.6%), working for pay (75.2%), not enrolled in school (68.8%), frequent pharmacy users (55.4%), and currently using contraception to avoid pregnancy (62.3%). When asked, “Now, we want you to think of the drug store that you go to **most often**,” 210 of the 343 (61.2%) women indicated a regular pharmacy that was located in the study county in Michigan. Those 210 women form our analytic sample. The remaining women had regular pharmacies that were out of the state ($n=37$, 27.8%), out of the county ($n=52$, 39.1%), or they did not provide a response ($n=44$, 33.1%). Table 1 presents descriptive statistics for these three groups.

We obtained information for 41 pharmacies via fax (43.6% response rate), and 53 pharmacies via observation. According to Chi-Square tests, no differences in pharmacy characteristics were seen between the faxed and observed pharmacy responses (not shown in tables). In the county, there are 42 chain pharmacies (e.g., Walgreens, Rite Aid, CVS), 30 grocery/mass merchandise pharmacies (e.g., Meijer, Kroger), and 22 independent pharmacies (Table 2). The 210 women who identified a regular pharmacy identified 67 unique pharmacies, most of which were chain pharmacies (55.2%) or a grocery/mass merchandise pharmacy (34.3%). Only 8 independent pharmacies were identified. These independent pharmacies were named by 15 women, 7.1% of the sample. Due to the small number of independent pharmacies, and the small number of women selecting them as their regular pharmacy, the remainder of the analysis was conducted with only the women who regularly visited chain or grocery pharmacies ($N=195$).

Pharmacy characteristics

Pharmacy characteristics of the 94 pharmacies in the county have been outlined in Table 3. A comparison of the pharmacy characteristics of the regular pharmacies identified by the women ($n = 59$) and the pharmacies not identified by the women ($n = 35$) has also been presented in Table 3; significant differences have been highlighted.

Perceptions and Experiences with pharmacies in general

In general, pharmacy use is high and the majority of women (59.5%) used a pharmacy at least once per month (Table 1). Overall, 21% (41/195) had a positive attitude toward pharmacists providing pregnancy prevention information (Table 4) – that is, they listed pharmacists in their top three choices for comfortable, easiest or most trustworthy sources of pregnancy prevention. Most young women, however, preferred doctors.

Perceptions and experiences with respondent's regular pharmacy

Young women were asked specifically about their regular pharmacy, defined as “the drug store you go to most often” (Table 4, Panel B). Young women had positive attitudes towards pharmacies as a place to obtain contraceptive products, with means ranging from 3.46 to

3.97. Overall, 51.3% of young women had a positive attitude toward the pharmacy as a place to purchase at least one method of contraception (i.e., selected “very good” for at least one of the three methods). The mean values in response to how comfortable it would be to talk to the staff at the regular pharmacy, how easy it would be, and how trustworthy the information would be, ranged from 2.74 to 3.64, with trustworthy being the most positive. Overall, nearly one-third ($61/184 = 31.1\%$) chose “very” in response to at least one of the questions.

Although the vast majority of women (78.5%) had previously purchased at least one form of contraception from their regular community pharmacy, few women, 51 out of 195 (26.2%), had spoken to a staff member at their regular pharmacy about any type of contraception. Young women were more likely to have talked about oral contraceptive pills (13.3%) than emergency contraception (8.7%) or condoms (5.1%).

Finally, evaluations of the overall experience at the regular pharmacy were quite positive. More than 74.9% chose 4 or 5 on a 5-point scale (from not at all good to very good), and more than one-third chose the highest category.

The Relationship between Pharmacy Characteristics and Pharmacy Perceptions/Experiences

Using pharmacy characteristics as independent variables, multivariate logistic regression was used to predict two outcomes for pharmacies in general and five outcomes for regular pharmacies (Table 5). No variables predicted the behaviour or attitude outcomes among pharmacies in general.

Three pharmacy characteristics predicted the pharmacy perceptions and experiences of young women in their regular pharmacy. First, young women who visited a chain pharmacy had more than 65% lower odds of a very positive overall experience with their regular pharmacy, compared to women who visited a grocery pharmacy. Second, the availability of condoms at their regular pharmacy predicted women’s overall experience, but in the opposite direction expected. Women whose regular pharmacies had condoms readily available had lower odds of a very positive attitude toward pharmacy staff providing pregnancy prevention information and lower odds of a very positive overall experience, relative to women whose regular pharmacies had condoms less readily available. Finally young women whose regular pharmacies were open more hours had higher odds of having a very positive attitude toward the regular staff.

Discussion

The aim of this research project was to better understand young women’s perceptions and experiences with the supply of contraceptive products and information in community pharmacies. We examined whether characteristics of pharmacies predicted women’s perceptions and experiences in community pharmacies, as these variables could influence intervention content or sites for future studies seeking to improve access to and the use of contraceptives. By having an understanding of which pharmacy characteristics will enhance purchase of contraceptives and information seeking behaviors of young women, future

pharmacy design, services offered and education provided can be based on these findings. The 210 young women with regular pharmacies in the county were representative of the original RDSL study sample with respect to race and education.¹⁹ The high levels of pharmacy use reported here suggest that young women are going to pharmacies and that pharmacies could be an effective communication channel for messages about planning pregnancies.

Over 11.5 million women currently use contraceptives in the United States and a large number of these are purchased from pharmacies.²⁰ Pharmacists are, therefore, in a key position to target a large group of women for counseling to ensure appropriate use of contraceptives. Even though more than three quarters of women indicated that they had purchased contraception from a pharmacy, only one quarter of the women had spoken to pharmacy staff about contraception. More young women had talked with pharmacy staff about birth control versus condoms or emergency contraception. In the larger RDSL study, 55% of young women ever used oral contraceptive pills, 12% ever used emergency contraception, and 68% ever used condoms.²¹ These differences in specific method usage rates may produce some of the differences in rates of speaking to pharmacists, but these rates may arise because young women are least likely to have questions about condoms that require information from pharmacists. In addition, these rates of asking for information from pharmacists may indicate that women are particularly uncomfortable discussing emergency contraception.

It was disappointing that no pharmacies in our study offered patient brochures about contraception. In a recent review study, Choi et al. illustrated strategies to improve adherence to oral contraceptives,²² highlighting that graphic instructions regarding missed pills, simple instruction leaflets, and advice on technological reminder applications have the potential to improve adherence.²² These strategies can easily be incorporated into regular pharmacy consultations when dispensing a contraceptive method or when selling an over-the-counter contraceptive product. Additional strategies to further improve contraceptive information exchange between pharmacy consumers and pharmacy staff include the use of shelf-talkers or signs that prompt consumers to talk to the pharmacist about contraceptives. Shelf-talkers have previously been used in a pharmacy setting to promote pharmacy services and are used in pharmacies as a form of in-store promotions. Combined with our conclusion that women may be particularly reluctant to discuss emergency contraception with the pharmacists, brochures, shelf-talkers or signs promoting these services may be especially important for this method.

Women had positive attitudes about purchasing contraception from their regular pharmacy, with over 50% of women indicating that their pharmacy was a “very good” place. Yet, very few women were very comfortable or thought it was easy to talk with their regular pharmacy staff about contraception. Discomfort in speaking to pharmacists about contraceptives could be one reason that so few women had ever spoken to a pharmacy staff member about contraception. Young women in this study did not feel as comfortable talking about contraceptives with pharmacists as they did with other people. Similar to others, this study showed that young women felt most comfortable obtaining contraceptive information from doctors (62.6%), friends (53.8%) or partners (48.2%).^{23, 24} These findings are consistent

with Jonson et al., who reported that pharmacists have little or no influence on women's choice of contraceptives, with the majority of women indicating their doctor or partner to be the most influential.²⁴ In contrast, however, Landau et al. highlighted that women felt comfortable speaking to pharmacists about contraception and would utilize a pharmacy contraceptive service.¹⁸

It is likely that many young women still see pharmacists in the traditional role of dispensing, and do not recognize community pharmacies as a place to receive pregnancy prevention information. Previous studies have found people who have had positive experiences with pharmacy services are more likely to feel comfortable approaching pharmacists about health advice.^{25, 26} If pharmacists are to be involved in reducing the rate of unintended pregnancies, they need to promote themselves more explicitly as health advisors. It is critical to determine how to improve the ease and/or comfort of these types of discussions. In 2011 an opinion statement by the Women's Health Practice and Research Network of the American College of Clinical Pharmacy highlighted the importance of changing the oral contraceptive pill to an over-the-counter product.²⁷ This statement emphasized the importance of making the contraceptive pill more accessible to help reduce the rate of unintended pregnancies. Before the oral contraceptive pill is made available over-the-counter it is vital that pharmacists are trained adequately on the various aspects of this service. Landau's study exploring women's readiness and comfort with pharmacists providing contraceptives found that women believe pharmacists should be able to provide instructions on how to use contraceptive methods, provide screening and counseling regarding contraceptives and be able to answer questions.¹⁸ These results highlight the important role pharmacists have in providing contraceptive services to their women pharmacy consumers.

One aim of this study was to determine whether young women's perceptions and behaviours depend on the characteristics of the pharmacies they regularly visit. In the multiple logistic regression models investigating the types of pharmacy characteristics associated with more positive pharmacy perceptions and experiences, women who went to chain pharmacies had significantly less positive experiences than those who went to a grocery pharmacy. This was not expected. One reason could be that women feel more anonymous going to a grocery pharmacy for their contraceptive needs – they may be able to purchase all of their contraceptive needs without having to speak to a pharmacy staff member. This may be because, as this study has shown, women do not feel comfortable discussing their contraceptives with pharmacy staff. Another surprising finding was that young women were significantly more likely to have an overall positive pharmacy experience and were significantly more likely to have a very positive attitude towards pharmacy staff providing pregnancy prevention information if condoms at their regular pharmacy had limited availability. Young women actually having to talk to someone at the pharmacy to buy condoms when condoms are locked behind glass doors or located behind the counter, may lead to open lines of communication, and could explain the more positive finding. Furthermore, young women who went to pharmacies employing female pharmacists versus male pharmacists had more positive attitudes and behaviours, although these findings were not statistically significant. Thus, women may feel more comfortable approaching a female pharmacist about contraceptive advice.

This study examined the effect of pharmacy characteristics on women's experience with contraceptives. It cannot, however, be assumed that more positive experiences translates to better contraceptive use. It would therefore be useful to know how pharmacy characteristics affect women's actual contraceptive use. Knowing this, certain pharmacy features can be incorporated into intervention projects to reduce unintended pregnancy. Future work is needed focussing on what young women pharmacy consumers consider important in a pharmacy visit. This information will be crucial to develop interventions targeting young women that suit their expectations and what they consider important. This information is currently lacking in the literature. Furthermore, additional work needs to be conducted to explore pharmacists and pharmacy staff views on providing contraceptive services, whether or not they currently initiate counseling on contraceptives, and what further education, if any, is needed to facilitate provision of these services.

Additionally, this study focussed on very positive experiences of women pharmacy consumers (A 5 response to the scale questions). This may be underestimating positive experiences by women pharmacy consumers, however it was important to determine the community pharmacy characteristics that influence very positive experiences to appropriately determine significant associations.

Limitations

There are several limitations in this study. The respondents were not a random sample. Although we sought to contact all participants in the randomly-selected RDSL sample that study took place in a single county in Michigan, not all contact information was usable. A portion of the sample could not be contacted due to invalid email addresses and/or out-of-state or out-of-county residence. In the pharmacy survey, direct observation of the ages and roles of each of the staff members were based on the staff present at the time of observation. Thus, the results may under-estimate minority employees. Nevertheless, this study collected information on all of the community pharmacies in the county. By linking this data with the PPE data, it was possible to examine women's experiences in the exact pharmacy they selected. This is an important strength, as most studies look at community pharmacies in general and cannot link women's experiences to a specific pharmacy. In addition, this study explored women's perceptions and experiences on several different types of contraceptive methods readily available in pharmacies, and does not focus exclusively on EC, as many previous studies have done.

Conclusion

Young women frequently use contraception and visit community pharmacies. This study demonstrates an opportunity to improve practice with regard to contraception in community pharmacies. Based on our analyses, observed pharmacy characteristics may not be particularly important in considering future interventions. But, the very small proportion of women who had ever received any information about contraception from a pharmacist presents a unique opportunity. By improving existing communication and initiating new communication strategies, pharmacists may improve contraceptive use, thereby reducing

unintended pregnancy. The findings from this study have laid the foundation to investigate other aspects of how pharmacy practice can reduce unintended pregnancy.

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References

1. Finer LB, Zolna MR. Unintended pregnancy in the United States: incidence and disparities, 2006. *Contraception*. 2011; 84(5):478–85. [PubMed: 22018121]
2. Finer LB, Zolna MR. Shifts in intended and unintended pregnancies in the United States, 2001–2008. *Am J Public Health*. 2014; 104(Suppl 1):S43–8. [PubMed: 24354819]
3. Singh S, Sedgh G, Hussain R. Unintended pregnancy: worldwide levels, trends, and outcomes. *Stud Fam Plann*. 2010; 41(4):241–50. [PubMed: 21465725]
4. US Department of Health and Human Services. [accessed Accessed May 13, 2014] Healthy People 2020. <http://healthypeople.gov/2020/topicsobjectives2020/overview.aspx?topicid=13>
5. Rafie S, Haycock M, Yen S, et al. Direct pharmacy access to hormonal contraception: California physician and advanced practice clinician views. *Contraception*. 2012; 86(6):687–93. [PubMed: 22717185]
6. Farris KB, Ashwood D, McIntosh J, et al. Preventing unintended pregnancy: pharmacists' roles in practice and policy via partnerships. *J Am Pharm Assoc (2003)*. 2010; 50(5):604–12. [PubMed: 20833619]
7. Landau S, Besinque K, Chung F, et al. Pharmacist interest in and attitudes toward direct pharmacy access to hormonal contraception in the United States. *JAPhA*. 2008; 49(1):43–50. [PubMed: 19196596]
8. Jones J, Mosher W, Daniels K. Current contraceptive use in the United States, 2006–2010, and changes in patterns of use since 1995. *National health statistics reports*. 2012; 60:1–25. [PubMed: 24988814]
9. Administration USFaD. FDA approves Plan B One-Step emergency contraceptive for use without a prescription for all women of child-bearing potential. Jun. 2013
10. Gardner JS, Miller L, Downing DF, et al. Pharmacist prescribing of hormonal contraceptives: results of the Direct Access study. *J Am Pharm Assoc (2003)*. 2008; 48(2):212–21. 5 p following 21. [PubMed: 18359734]
11. Barlas S. FDA Considers a New Paradigm For Over-the-Counter Medications: More Power—but More Burdens—for Pharmacists and Pharmacies. *Pharmacy and Therapeutics*. 2012; 37(5):300. [PubMed: 22876088]
12. Black KI, Mercer CH, Kubba A, et al. Provision of emergency contraception: a pilot study comparing access through pharmacies and clinical settings. *Contraception*. 2008; 77(3):181–5. [PubMed: 18279688]
13. Free C, Lee RM, Ogden J. Young women's accounts of factors influencing their use and non-use of emergency contraception: in-depth interview study. *BMJ*. 2002; 325(7377):1393. [PubMed: 12480855]
14. Ragland D, Payakachat N, Stafford RA. Emergency Contraception Counseling in a Retail Pharmacy Setting A Pilot Study. *Journal of Pharmacy Practice*. 2014
15. Seston EM, Elliott RA, Noyce PR, et al. Women's preferences for the provision of emergency hormonal contraception services. *Pharm World Sci*. 2007; 29(3):183–9. [PubMed: 17279450]
16. Whelan AM, Langille DB, White SJ, et al. Knowledge of, beliefs about, and perceived barriers to the use of the emergency contraception pill among women aged 18–51 in Nova Scotia. *Pharm Pract (Granada)*. 2011; 9(3):148–55. [PubMed: 24367469]
17. Wilkinson TA, Vargas G, Fahey N, et al. "I'll see what I can do": What adolescents experience when requesting emergency contraception. *J Adolesc Health*. 2014; 54(1):14–9. [PubMed: 24360593]

18. Landau S, Tapias M, McGhee B. Birth control within reach: a national survey on women's attitudes toward and interest in pharmacy access to hormonal contraception. *Contraception*. 2006;463–70. [PubMed: 17157103]
19. Barber, JS.; Kusunoki, Y.; Gatny, HH. Design and implementation of an online weekly survey to study unintended pregnancies: preliminary results. *European Population Conference*; 2010; p. 1-4.
20. [accessed 16/04/14] Fact Sheet: Contraceptive Use in the United States. Aug. 2013 http://www.guttmacher.org/pubs/fb_contr_use.html
21. Barber JS, Gatny H, Kusunoki Y. The results of an experiment: effects of intensive longitudinal data collection on pregnancy and contraceptive use. *PSC Research Report*. 2012; 12–781
22. Choi A, Dempsey A. Strategies to improve compliance among oral contraceptive pill users: a review of the literature. *Open Access Journal of Contraception*. 2014; 5:17–22.
23. Rada C, Albu A, Petrariu FD. Age at initiation of sexual life, protection at first intercourse and sources of information regarding sexual and reproductive health. *Rev Med Chir Soc Med Nat Iasi*. 2013; 117(4):994–1001. [PubMed: 24502081]
24. Johnson S, Pion C, Jennings V. Current methods and attitudes of women towards contraception in Europe and America. *Reprod Health*. 2013; 10(7)
25. Krska J, Morecroft CW. Views of the general public on the role of pharmacy in public health. *Journal of Pharmaceutical Health Services Research*. 2010; 1(1):33–8.
26. Eades C, Ferguson J, O'Carroll R. Public health in community pharmacy: A systematic review of pharmacist and consumer views. *BMC Public Health*. 2011; 11(1):582. [PubMed: 21777456]
27. McIntosh J, Rafie S, Wasik M, et al. Changing oral contraceptives from prescription to over-the-counter status: an opinion statement of the Women's Health Practice and Research Network of the American College of Clinical Pharmacy. *Pharmacotherapy*. 2011; 31(4):424–37. [PubMed: 21449630]

Table 1

Characteristics of young women respondents

	Total respondents n=343 n (%)	Respondents with regular pharmacy in study county n=210 n (%)	Respondents with unknown pharmacy n=133 n (%)	P- value
Race				0.53
Non-African American	262 (76.6)	158 (75.2)	104 (78.2)	
African American	81 (23.6)	52 (24.8)	29 (21.8)	
Working for pay				0.011
Yes	258 (75.2)	148 (70.5)	110 (82.7)	
No	85 (24.8)	62 (29.5)	23 (17.3)	
Enrolled in school				0.77
Yes	110 (32.1)	66 (31.4)	40 (30.1)	
No	236 (68.8)	143 (68.1)	93 (69.9)	
Frequency visiting a pharmacy				0.035
More than once per month	96 (28.4)	57 (27.1)	36 (27.1)	
About once per month	94 (27.8)	68 (32.4)	26 (19.5)	
About once every 1–3 months	85 (25.1)	55 (26.2)	30 (22.6)	
Less than every 3 months	52 (15.4)	25 (11.9)	27 (20.3)	
Never	11 (3.3)	5 (2.4)	6 (4.5)	
Frequent pharmacy user (binary)				0.12
Frequent (> once every month)	190 (55.4)	125 (59.5)	65 (48.8)	
Not frequent (< once every month)	148 (43.1)	85 (40.5)	63 (47.4)	
Currently using anything to prevent pregnancy				0.46
Yes	207 (62.3)	124 (60.8)	83 (62.4)	
No	125 (37.7)	80 (39.2)	45 (33.8)	

Table 2

Distribution of pharmacies by type

Type of pharmacy	Pharmacies in the county N= 94 n (%)	Pharmacies identified by women as a regular pharmacy n=67 n (%)	Women with regular pharmacy n=210 n (%)
Chain	42 (44.7)	37 (55.2)	135 (64.3)
Grocery/Mass merchandise	30 (31.9)	22 (34.3)	60 (28.6)
Independent	22 (23.4)	8 (10.4)	15 (7.1)

Table 3

Pharmacy characteristics of all pharmacies in county (N=94) and pharmacies (chain or grocery) identified by women as their *regular* pharmacy (n=59)

	All pharmacies in county	Pharmacies not part of the analysis*	Pharmacies identified by women	Chi- squared
Characteristics	n (%)	n(%)	n (%)	P –value
<i>Panel A. Responses from both faxed and observed pharmacies</i>	<i>N = 94</i>	<i>N = 35</i>	<i>N = 59</i>	
Race of employees in pharmacies	<i>N = 404</i>	<i>N = 151</i>	<i>N = 253</i>	
African American	39 (9.7)	23 (15.2)	16 (6.3)	0.003
Asian	28 (6.9)	13 (8.6)	15 (5.9)	0.30
White	320 (79.2)	106 (70.2)	214 (84.6)	< 0.001
Other	17 (4.2)	9 (6.0)	8 (3.2)	0.18
Any African-American staff				
Yes	22 (23.4)	12 (34.3)	10 (16.9)	0.06
No	72 (76.6)	23 (65.7)	49 (83.1)	
Gender of employees in pharmacies	<i>N = 430</i>	<i>N = 137</i>	<i>N = 293</i>	0.95
Male	134 (31.2)	43 (31.4)	91 (31.1)	
Female	296 (68.8)	94 (68.6)	202 (68.9)	
Gender of pharmacists in pharmacies	<i>N = 149</i>	<i>N = 64</i>	<i>N = 85</i>	0.89
Male	101 (67.8)	43 (67.2)	58 (68.2)	
Female	48 (32.2)	21 (32.8)	27 (31.8)	
Ability to counsel privately on contraception				
Yes	75 (80.6)	28 (82.4)	47 (79.7)	0.75
No	18 (19.4)	6 (17.6)	12 (20.3)	
Patient education brochures about contraception available				
Yes	3 (3.2)	3 (8.8)	0 (0)	0.05
No	90 (96.8)	31 (91.2)	59 (100)	
Location of condoms				
Behind locked glass	3 (3.2)	0 (0)	3 (5.1)	0.29
Behind unlocked glass	1 (1.1)	1 (2.9)	0 (0)	0.37
Behind the pharmacy counter	6 (6.4)	5 (14.3)	1 (1.7)	0.03
On the shelf with other OTC products	72 (76.6)	20 (57.1)	52 (88.1)	<0.001
Not available for sale in the pharmacy	6 (6.4)	5 (14.3)	1 (1.7)	0.03
Other/could not locate	6 (6.4)	4 (11.4)	2 (3.4)	0.19
Self check-out available				
Yes	11 (9.9)	3 (8.8)	8 (13.6)	0.74
No	82 (73.9)	31 (91.2)	51 (86.4)	
Hours open per week	Mean ± SD	Mean ± SD	Mean ± SD	<0.001
	75.0 ± 20.8	62.03 ± 12.72	82.46 ± 20.9	
<i>Panel B. Responses from only faxed pharmacies</i>	<i>N = 41</i>	<i>N = 17</i>	<i>N = 24</i>	

	All pharmacies in county	Pharmacies not part of the analysis*	Pharmacies identified by women	Chi-squared
Characteristics	n (%)	n(%)	n (%)	P-value
Overall rating as a place to get information about contraception				
Poor	1 (2.4)	1 (5.9)	0 (0)	0.50
Fair	7 (17.1)	3 (17.6)	4 (16.7)	0.41
Good	20 (48.8)	8 (47.1)	12 (50)	0.85
Excellent	13 (31.7)	5 (29.4)	8 (33.3)	0.79
Average prescriptions per day	Mean ± SD	Mean ± SD	Mean ± SD	0.53
	221.5 ± 87.4	210.94 ± 119.04	228.9 ± 58.2	
Availability of emergency contraception				
Yes	30 (75.0)	8 (80.0)	22 (91.7)	0.56
No	10 (25.0)	2 (20.0)	2 (8.3)	
Emergency contraception sales during typical week				
0	9 (28.1)	5 (50.0)	4 (16.7)	0.10
1–3	17 (53.1)	4 (40.0)	13 (54.2)	0.45
4–6	4 (12.5)	0 (0)	4 (16.7)	0.28
7–10	1 (3.1)	0 (0)	1 (4.2)	1.0
11	1 (3.1)	1 (10.0)	0 (0)	0.31

* Pharmacies that were not part of the analysis included pharmacies not selected by the respondents as their regular pharmacy (n = 27) and Independent pharmacies selected by the respondents as their regular pharmacy (n = 8).

Table 4

Perceptions and experiences with community pharmacies and contraception n=195*

	n (%) or Mean $\pm$ SD
Panel A. Perceptions and Experiences with Pharmacies in General	
Positive attitude toward pharmacists providing pregnancy prevention information	
Yes	41 (21.0)
No	143 (79.0)
Constructed from:	
1. Number who chose each category as one of their top three responses to: "If you had questions about the different ways to prevent pregnancy, which of these people would you feel most comfortable with?"	
Friends	105 (53.8)
Mother	80 (41.0)
Partner	94 (48.2)
Other family member	28 (14.4)
Pharmacist	9 (4.6)
Nurse	33 (16.9)
Doctor	122 (62.6)
2. Number who chose each category as one of their top three responses to: "If you had questions about the different ways to prevent pregnancy, which of these people would be the easiest to get information from?"	
Friends	86 (44.1)
Mother	77 (39.5)
Partner	55 (28.2)
Other family member	23 (11.8)
Pharmacist	24 (12.3)
Nurse	38 (19.5)
Doctor	120 (61.5)
3. Number who chose each category as one of their top three responses to: "If you had questions about the different ways to prevent pregnancy, which of these people are the most trustworthy ?"	
Friends	58 (29.7)
Mother	95 (48.7)
Partner	69 (35.4)
Other family member	21 (10.8)
Pharmacist	24 (12.3)
Nurse	55 (28.2)
Doctor	141 (72.3)
Panel B. Perceptions and Experiences at Respondent's Regular Pharmacy	
Ever talked to pharmacy staff about contraception	
Yes	51 (26.2)
No	132 (73.8)
Constructed from:	
Ever talked to someone at pharmacy about condoms	
Yes	10 (5.1)
No	184 (94.4)

	n (%) or Mean $\pm$ SD
Ever talked to someone at pharmacy about birth control pills	
Yes	36 (18.5)
No	159 (81.5)
Ever talked to someone at pharmacy about emergency contraception	
Yes	17 (8.7)
No	177 (90.8)
Very positive attitude toward pharmacy staff providing pregnancy prevention information	
At least one “very” response for condoms or OCP or EC	
Yes	61 (31.3)
No	123 (68.7)
Constructed from:	
1. Overall, how comfortable would you feel talking to the pharmacist or other staff at your drug store about the different ways to prevent pregnancy?	2.74 $\pm$ 1.40,
2. Overall, how easy would it be to talk to the pharmacist or other staff at your drug store about the different ways to prevent pregnancy?	2.79 $\pm$ 1.37
3. Overall, if you were to talk about the different ways to prevent pregnancy with the pharmacist or other staff at your drug store, how trustworthy would the information be?	3.64 $\pm$ 1.15
Ever purchased contraception at a pharmacy	
Yes	153 (78.5)
No	142 (21.5)
Constructed from:	
Ever gotten condoms from a drug store?	
Yes	96 (49.2)
No	99 (50.8)
Ever gotten birth control pills from a drug store?	
Yes	112 (57.4)
No	81 (41.5)
Ever gotten emergency contraception at a drug store?	
Yes	42 (21.5)
No	152 (77.9)
Very positive attitude toward pharmacy as a place to purchase contraception	
At least one “very good” response for condoms or OCP or EC	
Yes	100 (51.3)
No	74 (48.7)
Constructed from:	
1. How is your pharmacy as a place to buy condoms?	3.97 $\pm$ 0.98
2. How is your pharmacy as a place to buy birth control pills?	3.85 $\pm$ 1.10
3. How is your pharmacy as a place to buy emergency contraception?	3.46 $\pm$ 1.09
Overall Experience at Regular Pharmacy	4.07 $\pm$ 0.86
Very positive experience	
5 – Very good	69 (35.4)
4	77 (39.5)
3	44 (22.6)

	n (%) or Mean $\pm$ SD
2	3 (1.5)
1 – Not at all good	2 (1.0)

* Only women who visited a chain or grocery pharmacy have been included in this analysis

Table 5

Multiple logistic regression using pharmacy characteristics to predict young women's perceptions and experiences at community pharmacies (Odds Ratio and 95% confidence interval) *

	Pharmacies in general		Respondent's regular pharmacy					
	Behaviour	Attitude	Behaviour			Attitude		Experiences
	Frequency of visiting a pharmacy N= 185	Positive attitude toward pharmacists providing pregnancy prevention information N= 184	Ever talked to staff at regular pharmacy about contraception N= 183	Ever gotten contraception at a pharmacy N= 183	Very positive attitude toward regular pharmacy as a place to purchase contraception N= 174	Very positive attitude toward pharmacy staff providing pregnancy prevention information N=184	Very positive overall experience N= 185	
Pharmacy type								
<i>Grocery (ref)</i>	-	-	-	-	-	-	-	-
Chain	1.09 (0.52, 2.28)	0.80 (0.33, 1.99)	0.76 (0.34, 1.72)	1.34 (0.53, 3.37)	0.66 (0.31, 1.40)	0.52 (0.24, 1.13)	0.35 (0.16, 0.75)	
Any African-American staff								
<i>No (ref)</i>	-	-	-	-	-	-	-	-
Yes	0.69 (0.32, 1.48)	0.89 (0.37, 2.36)	1.20 (0.51, 2.82)	3.27 (0.91, 11.78)	1.23 (0.55, 2.71)	0.68 (0.29, 1.60)	0.57 (0.25, 1.33)	
Any Female pharmacists								
<i>No (ref)</i>	-	-	-	-	-	-	-	-
Yes	0.61 (0.31, 1.17)	2.0 (0.90, 4.44)	1.87 (0.91, 3.83)	2.15 (0.88, 5.27)	1.01 (0.51, 2.01)	1.38 (0.68, 2.78)	0.85 (0.42, 1.67)	
Ability to counsel privately on contraception								
<i>No (ref)</i>	-	-	-	-	-	-	-	-
Yes	0.57 (0.25, 1.31)	1.18 (0.43, 3.28)	1.19 (0.47, 3.02)	1.02 (0.37, 2.78)	0.85 (0.38, 1.89)	0.85 (0.36, 2.02)	0.94 (0.40, 2.22)	
Availability of condoms								
<i>Limited or no availability (ref)</i>	-	-	-	-	-	-	-	-
Available	0.53 (0.19, 1.49)	0.99 (0.28, 3.55)	2.15 (0.64, 7.24)	1.13 (0.32, 4.01)	1.99 (0.70, 5.62)	0.34 (0.12, 0.98)	0.32 (0.12, 0.89)	
Hours open per week	1.00 (0.99, 1.01)	0.99 (0.98, 1.01)	1.00 (0.99, 1.02)	1.00 (0.99, 1.01)	1.001 (1.00, 1.03)	0.99 (0.98, 1.01)	1.00 (0.99, 1.01)	

* Only women who chose a chain or grocery pharmacy as their regular pharmacy are included in this analysis