Pharmacy Education, 2014; 14 (1) 31 - 36

California pharmacy student perceptions of confidence and curricular education to provide direct pharmacy access to hormonal contraception

SALLY RAFIE[1]* & SHAREEN Y. EL-IBIARY[2]

[1] *University of California San Diego, Skaggs School of Pharmacy and Pharmaceutical Sciences, UC San Diego Health System, 200 West Arbor Drive, Mail Code #8765, San Diego, California 92103, USA.*

[2] *Midwestern University, College of Pharmacy-Glendale, 19555 N. 59th Ave. Glendale, Arizona 85308, USA.*

Abstract

Background: Pharmacist provision of reproductive health services has grown drastically and is being expanded to include direct pharmacy access to hormonal contraception (HC).

Aims: Assess pharmacy students' perceptions of confidence and curricular education to provide pharmacy access to HC in their near future practices.

Method: An anonymous self-administered questionnaire was administered to California pharmacy students who had completed their therapeutics curriculum but had not begun advanced pharmacy practice experiences.

Results: Over 65% of pharmacy students felt they have been adequately educated by their curricula to prescribe HC. Almost all reported they would like more education on appropriate product selection and switching between products. Students had the least confidence in safely prescribing HC for minors.

Conclusions: This study demonstrates pharmacy students' educational needs relating to the future provision of HC services. Schools should evaluate curricula and possibly expand training in family planning due the growing interest and need in providing these services.

Keywords: *Hormonal contraception, pharmacy access, pharmacy curriculum, pharmacy students*

Introduction

Unintended pregnancy in the United States remains a serious public health problem. Nearly half of pregnancies (49%) in the United States are unintended, 43% of which result in abortion (Finer & Zolna, 2011). Many of these unintended pregnancies occur in women using contraception inconsistently or incorrectly (Frost & Darroch, 2008). Gaps in contraceptive use also characterised women at risk for unintended pregnancies. Patient counselling by providers to support correct and consistent use is lacking; while 80% of obstetrician-gynecologists discuss side effects and satisfaction, fewer discuss correct and consistent use, such as instruction on correct condom use (23%) or what to do about missed pills (33%) (Landry *et al*., 2008). The percentages of family physicians discussing each of these topics are even lower (Landry *et al*., 2008).

Pharmacists remain one the most accessible healthcare providers with increasing roles in providing both patient education and healthcare services. Provision of hormonal contraception (HC) by a pharmacist directly to a patient without a prior prescription, known as pharmacy access, can increase access to and education about HC resulting in patient satisfaction (Gardner *et al*., 2008). Pharmacist education and provision of reproductive health services, particularly emergency contraception (EC) have grown drastically in the last two decades (Gardner *et al*., 2008; Maderas & Landau, 2007; El-Ibiary *et al*., 2007; Wells *et al*., 1998). In 2009, EC became accessible to consumers 17 years and older over-the-counter (OTC). In nine states, collaborative agreements or legislation existed to provide women EC through pharmacy access [Guttmacher Institute, unpublished data, available at http://www.guttmacher.org/statecenter/spibs/spib_EC.pdf]. California, in particular, allowed pharmacists to provide pharmacy access to EC to women of all ages through a statewide collaborative agreement available from the California State Board of Pharmacy and after completing a one-hour continuing education program on EC. In 2013, one EC product became available OTC to all ages.

Trends toward providing more expanded reproductive health services include pharmacy access to HC (Gardner *et al*., 2008; Maderas & Landau, 2007). In 2013, California SB 493 expanded the pharmacist scope of practice to include direct provision of self-administered HC to patients (Pharmacy Practice, 2013). In studies, pharmacists have successfully provided pharmacy access to the pill, patch, and ring forms of HC, as well as depot-medroxyprogesterone acetate (DMPA) re-injections at the pharmacy (Gardner *et al*., 2008; Maderas & Landau,

*Correspondence: Prof. Sally Rafie, Assistant Clinical Professor, Health Sciences (Non-Salaried) *University of California San Diego, Skaggs School of Pharmacy and Pharmaceutical Sciences, UC San Diego Health System, 200 West Arbor Drive, Mail Code #8765, San Diego, California 92103, USA. Tel: +00 1 619 543 3601. Email: srafie@ucsd.edu*

ISSN 1447-2701 online

2007). In light of these advances, women's health curricula in pharmacy are under scrutiny. The latest survey conducted by the U.S. Health and Human Services Health Resources and Services Administration (HRSA) and American Association of Colleges of Pharmacy (AACP) in 2004 revealed that slightly less than 40% of programs mentioned women's health in their curricula [U.S. Department of Health and Human Services, Health Resources and Services Administration, Office of Women's Health & American Association of College of Pharmacy, unpublished data, available at http://mchb.hrsa.gov/womenshealth/pharmacyschool.pdf].

With the possibility of pharmacy access to HC, it is unknown if pharmacists will require specific training in HC. It is important to assess the perception of confidence and curricular education of students and pharmacists in providing HC services. To date, no study has characterised pharmacy student perceptions' of their training and confidence in providing HC as future pharmacists. The objective of this descriptive study was to assess the confidence and training of California pharmacy students in providing pharmacy access to HC services if the authority were to become available in the future and to characterise students' experiences regarding HC education.

Methods

Over a five month period, between February and July of 2007, a survey was conducted among pharmacy students enrolled in California Schools of Pharmacy which included Loma Linda University School of Pharmacy (LLU), Touro University College of Pharmacy (Touro), University of California San Diego Skaggs School of Pharmacy and Pharmaceutical Sciences (UCSD), University of California San Francisco School of Pharmacy (UCSF), University of the Pacific Thomas J. Long School of Pharmacy and Health Sciences (UOP), University of Southern California School of Pharmacy (USC), and Western University of Health Sciences College of Pharmacy (Western). The schools will be referred to anonymously from here out. Students were included in the study based on completion of the pharmacotherapeutic curriculum in HC and prior to beginning of advanced pharmacy practice experiences or clinical clerkships/rotations. Representatives were contacted at each institution to disseminate the survey to their students. All seven schools participated in the study and each institution elected either paper or online versions of the self-administered, anonymous, 10-15 minute survey. The online version of the survey was executed via SurveyMonkey.com (SurveyMonkey.com, Inc., Palo Alto, CA, USA). Three schools utilised the online data collector and were issued at least one e-mail reminder message inviting them to participate in the study. The online surveys included an incentive drawing for a USD$25 gift card. A total of three gift cards were issued to one student from each of the online-participating schools. Paper surveys were administered to eligible students during class time. Data from the paper surveys were entered into the online tool. We obtained informed consent information by providing a cover sheet reviewing the purpose, risks, and benefits of participating in the study. Participation in the survey constituted consent.

The introduction to the survey included the following statement regarding provision of HC: "Clinical breast and pelvic examinations are no longer considered necessary for screening for hormonal contraceptives, which can be provided safely on the basis of careful medical history and blood pressure measurement" with the source cited (Stewart *et al.,* 2001). We collected demographic information including professional background and assessed confidence in providing HC services in their future practices assuming a community pharmacy practice setting, opinions regarding curricular education to provide these services, aspects of service provision requiring more education and preferred educational format. Several questions employed 5-point Likert-type scale. The survey was developed by pharmacy experts in the field and was reviewed by health professionals, public health experts, and pharmacy students for content and clarity. The survey instrument can be viewed online (Rafie & El-Ibiary, 2011).

We exported data into Microsoft Excel for descriptive analysis. The study was approved by the University of California San Francisco Committee on Human Research Institutional Review Board.

Results

Response Rate

We administered surveys to 790 students out of 803 in the sample population, as 13 students were not present in class on the day of survey, and 502 (63.5%) responded. The individual response rates at each school of pharmacy were 87.5% (28 of 32) for School A, 58.4% (73 of 125) for School B, 44.2% (84 of 190) for School C, 26.2% (16 of 61) for School D, 57.1% (36 of 63) for School E, 95.8% (184 of 192) for School F and 54.3% (76 of 140) for School G. Among the respondents, five individuals did not indicate their school of pharmacy and are therefore only included in the overall response rate. Administration of paper surveys in class generally yielded higher response rates than online surveys.

Characteristics of Sample

Participant characteristics are described in Table I. The characteristics of our sample are representative of pharmacy students in California, notably with respect to gender (female 74.5%). The mean age of respondents was 26 years (range 20-49). A high proportion of respondents have been involved with one or more pharmacy experience (99.0%), such as volunteering or working in a pharmacy-related job. Many students had additional service training in emergency contraception (55.4%) and pharmacy-based immunisation delivery (94.8%). While most students did not indicate plans to work in community pharmacies when they become pharmacists, 30% indicated plans to work in community chain pharmacies and 7% in community independent pharmacies.

Table I: Descriptive Characteristics of Pharmacy Students Responding to Survey (n=502)

Variable	n (%)
Gender	
Male	125 (24.9)
Female	365 (72.7)
Unknown	12 (2.4)
Age, years	
20-24	178 (35.5)
25-29	238 (47.4)
30-34	41 (8.2)
35+	13 (2.6)
Unknown	32 (6.4)
Race/Ethnicity	
Caucasian	125 (24.9)
Hispanic/Latino/a	12 (2.4)
Asian/Pacific Islander	305 (60.8)
Black/African-American	7 (1.4)
Other	26 (5.2)
Unknown	27 (5.4)
Religion	
Christian	245 (48.8)
Buddhist	51 (10.2)
Jewish	12 (2.4)
Muslim	8 (1.6)
No Religion (Atheist/Agnostic)	111 (22.1)
Other	35 (7.0)
Unknown	40 (8.0)
School of Pharmacy	
A	28 (5.6)
B	73 (14.5)
C	84 (16.7)
D	16 (3.2)
E	36 (7.2)
F	184 (36.7)
G	76 (15.1)
Unknown	5 (1.0)
EC-certified	
Yes	278 (55.4)
No	217 (43.2)
Unknown	7 (1.4)
Immunisation-certified	
Yes	476 (94.8)
No	22 (4.4)
Unknown	4 (0.8)
Pharmacy Volunteer/Work Experience	
Yes	497 (99.0)
No	2 (0.4)
Unknown	3 (0.60)
Intern Work Settings*	
Community independent	116 (23.1)
Community chain	346 (68.9)
Hospital or HMO, outpatient	111 (22.1)
Inpatient	151 (30.1)
Home health care	9 (1.8)
Mail order	3 (0.60)
Pharmacy administration	6 (1.2)
Other	26 (5.2)
Unknown	4 (0.8)

*Values sum to >100% because some students have work experience in multiple pharmacy settings as an intern.

Confidence

Students reported the most confidence in skills related to counselling, such as counselling patients on the proper use of HC (94% moderately to extremely confident) and providing patient counselling for contraceptive failures, mishaps, and barrier methods of contraception (95.2% moderately to extremely confident). Students also indicated confidence in knowing when referral to a physician is necessary (93.9% moderately to extremely confident) and in screening patients with appropriate questions prior to ordering HC (91.3% moderately to extremely confident). A lower percentage of students felt confident in therapeutic knowledge to adjust orders or switch between products (72.4% moderately to extremely confident), and safely ordering HC for minors (68.7% moderately to extremely confident).

Table II: Confidence in Providing Hormonal Contraceptive Services

Rank	Item	Median*	Confidence Rating** (%)				
			5	**4**	**3**	**2**	**1**
1	Counselling on proper use	4	24.7	37.8	31.5	5.3	0.6
2	Counselling for failures, mishaps, barrier methods	4	23.5	38.2	33.5	4.1	0.6
3	Know when referral to physician is necessary	4	25.2	34.8	33.9	4.9	1.2
4	Screening with appropriate questions	3	14.5	32.6	44.2	7.5	1.2
5	Adjusting/ switching products	3	11.2	21.8	39.4	22.0	5.5
6	Order safely for minors	3	10.6	21.6	36.5	23.3	8.0

*Equivalent to mode for all six question responses
**5 – Extremely Confident; 3 – Moderately Confident; 1 – Not at All Confident

Education

The majority of students (65.4%) reported being adequately educated in their respective pharmacy curricula to provide pharmacy access to HC, whereas 34.6% reported not being adequately educated in their pharmacy curricula. The results by school varied, with up to 78.6% of students from one school reporting adequate education to only 44.4% at another. Data reported by school are shown in Figure 1.

When asked which aspects of HC students would like more education about, appropriate product selection was selected by most students (79.3%) and consistently between schools (range 66.7-86.3%), followed by switching between products (*e.g.*, pill to pill, patch to

ring) (77.0%) also consistently between schools (range 57.1-82.7%). Students were asked to select all answer choices that apply and therefore, there was substantial interest in all aspects, which also included off-label use (*e.g.*, delaying time to menses), drug interactions, counselling on contraceptive mishaps (*e.g.*, what do if missed dose, how to use HC with EC), side effects and possible risks, when to refer to a physician, and contraindications [see Figure 2]. Contraindications was selected the least commonly, but 46.2% of students still indicated a need for more education on this topic.

Students were asked to indicate their preferences for the format of HC education. Of the four options presented, students indicated their primary preference was a specific educational program, similar to an elective continuing education program, with approximately one to two hours duration. This was followed by a comprehensive educational program offered as an approximately 10-hour elective course, added lecture time in the required therapeutic curriculum, and finally, added small group discussion or role-play opportunities in a required course.

Figure 1: Student opinions about their pharmacy curricula thus far to provide pharmacist-ordered hormonal contraception

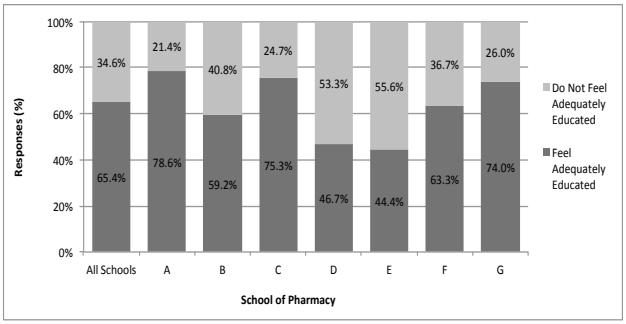
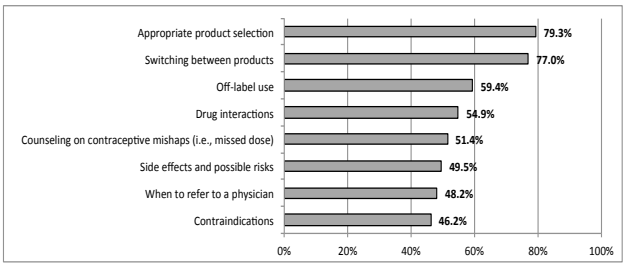


Figure 2: Aspects of hormonal contraception where students would like more education



Discussion

Additional findings from this survey study were reported elsewhere (Rafie & El-Ibiary, 2011). Student pharmacists indicated interest (96.2%) in providing HC (pill, patch, and ring) services under statewide protocol. Most student pharmacists would like to provide HC services to both minors and adults (53.3%), whereas others would like to provide services to adults only (40.6%), or minors only (6.2%). EC training and female gender were found to be associated with a significantly stronger interest in providing HC services ($p<0.001$ and $p=0.0212$, respectively). Additionally, most students (83.3%) indicated that they would value the ability to authorise refills for HC without consulting the prescriber or when the prescriber was not available. Nearly all student pharmacists agreed that patients would benefit from improved HC access and advice, that it would be a valuable service for many women, and that provision of HC services was within the pharmacist's scope of practice. Inadequate pharmacist time was deemed the most important barrier in determining whether pharmacists could efficiently and effectively provide their services, followed by lack of private counselling area in the pharmacy, inadequate patient health information, and lack of appropriate incentive structure.

Greater than 90% of pharmacy students reported strong confidence levels when related to counselling on HC, providing physician referrals and screening patients for HC. This level of confidence is in line with findings from the Direct Access study, which showed that pharmacists provided HC appropriately to women 97% of the time (Gardner *et al*., 2008). Similar confidence levels were reported by California pharmacy students completing a tobacco cessation curriculum, where 94% of students indicated good, very good, or excellent overall tobacco cessation counselling skills and 95% of students felt confident in providing physician referrals for tobacco cessation (Corelli *et al*., 2005). However, lower levels of confidence (69-72%) were reported regarding knowledge of when to switch products and providing adolescents with HC. When comparing confidence in therapeutic knowledge of tobacco cessation pharmacotherapy, about 95% of students reported sufficient knowledge of tobacco cessation pharmacotherapy, which is higher than students' reported levels of confidence in knowledge of HC (Corelli *et al.,* 2005). This discrepancy suggests a need for more HC content in pharmacy curricula. A direct comparison with other health professions students cannot be made. A literature search failed to find recent information about U.S. medical and nursing students' confidence in discussing HC with patients indicating a need to assess these groups as well. This study measured confidence only and not competence.

Though confidence was relatively high among pharmacy students and pharmacists, our findings are also consistent with previously established pharmacist calls for focused education and training prior to service provision (Landau *et al*., 2009). Landau *et al*. conducted a cross-sectional study surveying pharmacist training and comfort in providing HC. Despite the strong interest and comfort pharmacists conveyed in providing HC, pharmacists reported a need for additional training on various aspects of service provision, such as selecting the best method for each patient, identifying patients who are not candidates for HC use, advising patients on preventative services (screenings for sexually transmitted infections, cervical cancer, and breast cancer), risks and benefits of HC and general information about HC options (Landau *et al*.,

2009). These results mirrored our study suggesting that education on determining patient candidacy and method selection need to be expanded in pharmacy curricula. In addition, our data suggests more information needs to be provided regarding HC provision to minors.

Given these findings, pharmacy school curricula should ensure adequate training in the area of HC including information such as service provision, identifying patients who are not candidates for HC use, HC options, method selection for individual patients, providing information on risks and benefits of HC, and educating on preventive services. This could be in the form of example HC patient cases, oral exams, observed structured clinical exams related to HC, mock patient interviews regarding use of HC or having to start/switch a product, facilitating journal clubs related to HC, incorporating electives in reproductive health or focusing on contraception, and increasing clinical experience opportunities in reproductive health settings.

In the 2004 HRSA/AACP report, 48 courses pertaining to women's health were identified in only 34 of 89 pharmacy schools evaluated. There were 21 didactic elective courses dedicated to women's health issues, two elective experiential courses in women's health; three didactic electives in which women's health was one of the topics mentioned among a variety of others, and 22 required courses in which women's health content was incorporated with a majority being therapeutics courses though number of instruction hours were not specified in this report [U.S. Department of Health and Human Services, Health Resources and Services Administration, Office of Women's Health & American Association of College of Pharmacy, unpublished data, available at http://mchb.hrsa.gov/womenshealth/pharmacyschool.pdf]. It was concluded that women's health topics were likely included in more schools than identified by this study due to variability in course descriptions at various schools and the details provided in those syllabi. While California is only a subset of these data, pharmacy schools nationally should take the initiative to review their curricula for gaps and incorporate more training in HC as the profession progresses toward a more active pharmacist role in family planning service provision.

The findings of this study were limited by its sample size and geographic location. While the sample was diverse and an accurate representation of the California pharmacy student population, a majority of respondents were women. Paper surveys yielded higher response rates than online surveys, as time was allotted in class to take the paper survey, whereas online surveys were in addition to class time. California is also a state that has had pharmacy access to EC for several years and the second state to offer a statewide collaborative protocol for EC provision to women of all ages, including those younger than 17 years of age. It is possible that this practice and integration into curricula may affect the students surveyed and may not be representative of other populations. In addition, different schools may offer varying curricula with respect to reproductive health services and were not evaluated. The timing of when this information was presented to students in the course of their education may have been different and may have influenced their responses. In addition, the depth and complexity of the information presented in various pharmacy curricula may have increased awareness of issues related to contraception thus giving students a sense of less preparation versus those that may have been given less complex information giving them a sense of mastery. This survey was conducted before the minimum age for purchasing EC OTC was decreased from 18 to 17 years of age or older in 2009 and before the age restriction was removed altogether from one EC OTC product in 2013. Pharmacy students may be more familiar with EC and HC products since these changes. We also did not assess whether participants had used HC or had a sexual partner, friend, or family member that used HC, which may have affected knowledge of HC.

In conclusion, this study demonstrates pharmacy students' perceived confidence and educational needs relating to the future provision of hormonal contraceptive services. Given the potential for expanded pharmacist roles in the provision of reproductive health services, next steps would be to evaluate pharmacy curricula with respect to HC to ensure all future pharmacists are adequately trained to provide these family planning services.

Acknowledgements

We would like to thank our colleagues who helped disseminate the survey to students: Mark A. Iannuzzo (Western University), Dr. Eric J. Mack (Loma Linda University), Charlene Chiu (Touro University), Dr. Anthony Manoguerra (University of California, San Diego) and Dr. Kathleen Besinque (University of Southern California). We are grateful for the support and insights contributed by Nicole Monastersky Maderas and Sharon Cohen Landau of Pharmacy Access Partnership. For funding used in execution of this project, we thank Vincent Isnardi and the University of California, San Francisco School of Pharmacy.

Disclosures

Authors do not have any conflicts of interest or financial interests to disclose.

Presented previously at the American Pharmacists Association Annual Meeting, San Diego, CA, March 14-17, 2008.

This publication was supported by NIH/NCRR UCSF-CTSI Grant Number UL1 RR024131. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the NIH.

References

Corelli, R.L., Kroon, L.A., Chung, E.P., Sakamoto, L.M., Gundersen, B., Fenlon, C.M. & Hudmon, K.S. (2005) Statewide evaluation of a tobacco cessation curriculum for pharmacy students. *Preventative Medicine*, **40**, 888-95.

El-Ibiary, S.Y., Raine, T., McIntosh, J., Darney, P.D. & Harper, C.C. (2007) Pharmacy access to emergency contraception: perspectives of pharmacists at a chain pharmacy in San Francisco. *Journal of American Pharmacists Association*, **47**, 702-10.

Finer, L.B. & Zolna, M.R. (2011) Unintended pregnancy in the United States: incidence and disparities, 2006. *Contraception,* **84,** 478-85.

Frost, J.J. & Darroch, J.E. (2008) Factors associated with contraceptive choice and inconsistent method use, United States, 2004. *Perspectives on Sexual & Reproductive Health*, **40**, 94-104.

Gardner, J.S., Miller, L., Downing, D.F., Le, S., Blough, D. & Shotorbani, S. (2008) Pharmacist prescribing of hormonal contraceptives: results of the Direct Access study. *Journal of American Pharmacists Association*, **48**, 212-21.

Landau, S., Besinque, K., Chung, F., Dries-Daffner, I. Maderas, N.M., McGhee, B.T. & Foster, D.G. (2009) Pharmacist interest in and attitudes toward direct pharmacy access to hormonal contraception in the United *Journal of American Pharmacists Association*, **49**, 43-50.

Landry, D.J., Wei, J. & Frost, J.J. (2008) Public and private providers' involvement in improving their patients' contraceptive use. *Contraception*, **78**, 42-51.

Maderas, N.J.M. & Landau, S.C. (2007) Pharmacy and clinic partnerships to expand access to injectable contraception. *Journal of American Pharmacists Association*, **47**, 527-31.

Pharmacy Practice, SB 493, California (2013) Available at: http://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201320140SB493. Accessed 16th November, 2013.

Rafie, S. & El-Ibiary, S.Y. (2011) Student pharmacist perspectives on providing pharmacy-access hormonal contraception services. *Journal of American Pharmacists Association*, **51**, 762-5.

Stewart, F.H., Harper, C.C., Ellertson, C.E., Grimes, D.A., Sawaya, G.F. & Trussell, J. (2001) Clinical breast and pelvic examination requirements for hormonal contraception. *Journal of the American Medical Association*, **285**, 2232-9.

Wells, E.S., Hutchings, J., Gardner, J.S., Winkler, J.L., Fuller, T.S., Downing, D. & Shafer, R. (1998) Using pharmacies in Washington State to expand access to emergency contraception. *Family Planning Perspectives*, **30**, 288-90.