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TEACHERS' TOPICS

Pharmacy Course on Women's and Men's Health

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Objective. To design and implement an integrated course dedicated to women's and men's health.
Design. A women's and men's health module that integrated the basic and clinical sciences was developed and implemented as part of the core undergraduate pharmacy curriculum. Instruction included classroom lectures, large- and small-group case discussion, self-directed learning assignments, and case-based simulations with standardized patients, all of which focused on conditions impacting women's and men's health.
Assessment. Assessment of student learning included multiple-choice and written examinations using case vignettes when possible, evaluation of documentation of patient care process with standardized patient interactions, and group case assignments. Students appreciated the scope of topics, the active-learning opportunities, and use of simulated patients, as well as teaching by experts in the area.
Conclusion. A mandatory course in women's and men's health was well received by students and ensured that these important issues were addressed in the undergraduate pharmacy curriculum.
Keywords: women's health, men's health, integrated course, curriculum, active learning

INTRODUCTION

Since the early 1990s, there has been a greater appreciation among health professionals of how gender issues impact health. The need for curricula to incorporate gender-related health issues has been raised by multiple health care disciplines including medicine, nursing, and pharmacy.[1-3] Much of this attention has focused on women's health, with several published descriptions of women's health content in the curricula. Examples include delivery of women's health courses, inclusion of objectives longitudinally across the curriculum, and incorporation of women's health in experiential components of the curriculum.[4-6] Although descriptions of elective courses in women's health for pharmacy students have been published,[5] literature describing women's health as part of the mandatory component of a pharmacy program is limited. To facilitate the delivery of women's health objectives across the pharmacy curricula, a curricular resource was made available in 2005 to colleges and schools through the US Department of Health and Human Services Administration (HRSA).[3]

Even less attention has been paid to men's health as an important component of health professional training compared with women's health. Although interest in developing policies for men's health has been increasing worldwide, there has been comparatively less recognition of men's health needs, possibly because of the differences between men and women in health seeking behavior and health services use.[7] Raising awareness about men's health issues should start with undergraduate training; however, there is a paucity of publications on men's health content in undergraduate curricula.

The Women's and Men's Health Module is a 2-credit mandatory course offered in second semester of the third year in the undergraduate pharmacy program at the University of Alberta. The bachelor of science program in pharmacy is currently 4 years, plus 1 preprofessional year. A new curriculum was launched in 2004, involving a major redesign of the content, structure, and teaching methods. The curriculum is primarily structured as system-based modules, with emphasis on the integration of knowledge and skills in the basic and clinical sciences. The Women's and Men's Health Module was designed as part of this new curriculum and was offered for the first time in 2007.

Content for the Women's and Men's Health Module was chosen based on women's and men's health needs identified in the literature.[1] Outcomes were mapped to the Association of Faculties of Pharmacy's Educational Outcomes for a Baccalaureate Pharmacy Graduate in Canada.[8] The curriculum committee approved the proposed content and delivery of the curriculum in 2003. The objectives, content, and teaching methods of the course on women's

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and men's health were further refined prior to the first offering. The HRSA curricular resource for women's health content in pharmacy curriculum was used as a guide.[3] Special consideration was given to the building of content and skills introduced earlier in the program. Each year, the course is modified in response to feedback from students and the content updated to coincide with changes in practice. An example is the legislation of prescribing privileges for pharmacists in Alberta in 2007.[9] Pharmacists can adapt a prescription and prescribe in an emergency, and pharmacists with additional prescribing authorization can prescribe independently, including initiating a prescription. (*Adapting* a prescription is modifying an existing prescription to meet the needs of the patient or to extend therapy duration for continuity of care.[9]) Aspects of prescribing were woven into the module in 2008 to expose students to the expanding scope of pharmacy practice.

This article will discuss the design and implementation of the Women's and Men's Health Module. The purpose of this course is to prepare pharmacy students with the necessary knowledge, skills, and attitudes to provide patient care for conditions relating to women's and men's health.

DESIGN

The Women's and Men's Health Module was designed to cover a 5-week block and encompass 26 hours of lectures, 12 hours of seminar, and 12 hours of skills laboratories. The module was structured such that foundational biomedical knowledge, such as anatomy, physiology, pharmacology, and medicinal chemistry, is covered first, followed by therapeutic topics specific to women's and men's health. More time is devoted to women's than men's health topics as several men's health topics, such as benign prostatic hyperplasia and prostate cancer are covered earlier in the curriculum. Topics, including osteoporosis and breast cancer, also are covered in other modules. Table 1 and Table 2 provide lists of objectives and topics covered in the module.

Multiple instructional strategies were used to meet course objectives including classroom lectures, large- and small-group case discussion, self-directed learning assignments, and case-based simulations. Teaching was a collaborative effort with instructors from a wide range of disciplines including anatomy, physiology, medicine, and nursing, as well as faculty members from both the pharmacy practice and pharmaceutical sciences divisions. There also were guest lecturers from the birth control center and sexual assault center. All course material, assignments, practice cases, and links to readings were available on the University of Alberta's Web-based learning management system (Blackboard Vista).

Case-based Seminars

Case-based seminars were structured to supplement learning in lectures and to help students synthesize, integrate, and apply knowledge. Four seminars were held during the module covering the following areas: barrier methods of contraception, hormonal contraception, sexual assault and the role of the pharmacist, and menopause. (Future offerings of the course will include a seminar on fetal alcohol spectrum disorder.) Seminars sessions included either half (ie, 65 students) or a quarter (ie, 30 students) of the class with students divided into groups of 5 to 6 students. In each seminar, time was provided for small group work, followed by larger group discussion with the instructor. Different formats were used for the seminars. For example, in the hormonal contraception seminar, students worked in small groups to discuss options for a series of mini-cases highlighting different therapeutic issues with hormonal contraception (ie, how to deal with side effects or what to do with missed doses). In the seminar on menopause, cases were used to highlight menopause management, as well as the importance of patient assessment and responsibilities of prescribing. Because other aspects of prescribing (ie, adapting a prescription) were covered in earlier modules, initiating a prescription was the focus of this module. The students were responsible for assessing a patient (with the facilitator playing the patient), developing a care plan, and initiating therapy. Prescription pads were provided and students were asked to write a prescription for the patient. Students also were asked to design a follow-up and monitoring plan for each patient. This seminar provided an opportunity not only to discuss therapeutic issues, but also to experience having the responsibility of initiating a prescription and the importance of patient assessment and follow-up. In addition, perspectives on the changing roles and responsibilities of pharmacists with prescribing privileges were discussed.

Skills Laboratories

The module included 2 skills laboratories involving simulated cases, peer evaluation, and feedback, as well as discussions with teaching assistants. The curriculum integrated skills laboratories with each of the modules. In the skills laboratories, students practiced providing patient care and applied knowledge. The first skills laboratory, on contraception involved groups of 6 students working with standardized patients (from the University of Alberta Standardized Patient Program). Each student was responsible for patient assessment, patient education, and documentation of care plans. Approximately 10 minutes were allotted for each standardized patient interaction and 10 minutes for feedback. Students were assessed

Table 1. Summary of Learning Objectives for a Required Women's and Men's Health Module for Undergraduate Pharmacy Students

Knowledge
By the end of the module the student will be able to:
Explain anatomy and physiology of female and male reproductive systems
Describe epidemiology, etiology and risk factor for each condition
Describe pathophysiology, clinical presentation, symptomology, health consequences
Apply concepts of pharmacology, medicinal chemistry, therapeutic principles in selecting and monitoring drug for the management of each condition.
Describe the laboratory and diagnostic tests in diagnosis and monitoring of each condition
Describe therapeutic approach including lifestyle, pharmacological and Complementary and Alternative Medicine for each condition
Discuss the methods of contraception available for men and women
Describe societal and economic considerations of women's and men's health
Discuss pharmacokinetics changes in pregnancy
Identify cultural, ethnic or racial influences in women's and men's health
Discuss social and economic issues impacting women's and men's health
Discuss sexual assault and its impact on women's and men's health
Describe the role and responsibility of the pharmacist in women's and men's health
Contrast the issues between women's and men's health (ie health seeking behaviour)
Discuss issues of health promotion in women's and men's health
Skills
By the end of the module the student will be able to (for each of the conditions):
Provide a patient assessment, including a detailed patient history
Review the presenting signs and symptoms
Interpret laboratory values and other diagnostic tests
Identify drug related problems
Apply principles of medicinal chemistry, pharmacology, pharmacokinetics and pathophysiology when selecting drug therapy
Discuss options with a patient and share decision making
Develop a care plan, including monitoring parameters
Educate patients on the care plan
Document the care plan
Identify when to refer to physicians or other caregivers when there are warning signs
Provide drug information
Apply evidence based approach to patient care
Initiate a prescription
Attitudes
By the end of the module the student will:
Develop caring, empathetic attitude for patient experiences
Appreciate the need for attention to women's and men's health
Appreciate the interdisciplinary nature of women's and men's health

using a standard rubric that was used for skills laboratories throughout the program. Teaching assistants assessed students' interactions with the standardized patient and provided constructive feedback. Students also received feedback from peers in their group and the standardized patient. Table 3 highlights debriefing instructions for the standardized patient interactions. No grades were provided for the standardized patient interaction; however, documentation notes were evaluated and marked. Grading focused on the students' ability to summarize their care plan, with emphasis placed on their assessment and recommendations. The second skills laboratory covered prenatal and postpartum care, pregnancy and ovulation testing, and men's health products (ie, testosterone). This laboratory concentrated on patient counselling skills. Simulated cases were used and the teaching assistant played the patient. The teaching assistant used a standard assessment rubric to provide feedback to the students on their patient counselling skills. A written group assignment covering aspects of prenatal/postpartum care also was completed during the laboratory. As part of the assignment, students discussed and provided solutions to a series of case scenarios.

Table 2. Topics Covered in the Women's and Men's Health Module

Anatomy
Male and female reproductive system
Physiology
Female reproductive system including phases of women's life, menstrual cycle, hormones, pregnancy, and sexual response
Male reproductive system including phases of men's life, spermatogenesis, hormones, and sexual response
Pharmacology
Sex steroids and drugs used in each of the conditions
Medicinal Chemistry
Sex steroids and hormones
Therapeutic Topics
Women's health:
Hormonal contraception
Emergency contraception
Dysmenorrhea
Abnormal uterine bleeding
Endometriosis
Polycystic ovarian syndrome
Menopause
Pregnancy and ovulation testing
Prenatal and postpartum care
Treatment issues in pregnancy
Drugs in pregnancy and lactation (including pharmacokinetics)
Fetal alcohol syndrome
Mood disorders in women including postpartum depression
Premenstrual syndrome/premenstrual dysphoric disorder
Men's health:
Erectile dysfunction
Hypogonadism/andropause
Both women's and men's health:
Contraception
Infertility
Sexual dysfunction
Sexual assault

Table 3. Guiding Questions for Debriefing Session for Standardized Patient Interactions in the Women's and Men's Health Module

A. Expectations of the debriefing session.
B. Gather personal reflections from the student(s) who completed the interview.
1) How did you feel the patient interview went? How did you feel about your interaction with the patient?
2) Did you feel you collected all the information you needed? Do you feel you missed any information?
3) What would you do differently next time?
C. Gather feedback from the standardized patient.
1) How did you feel about the interview?
2) Did you feel the student(s) collected all the information that would be important to you?
D. Gather feedback from other students.
1) How did you feel about the interview?
2) Did you feel the student (s) collected all the important information? Was there anything missing?

EVALUATION AND ASSESSMENT

Learning was assessed through a midterm multiple-choice examination worth 40% and a cumulative final examination with multiple-choice and written responses worth 50% of the final grade. Case vignettes were used whenever possible to assess the application of knowledge to clinical problems. There was no formal assessment of the students' performance in the seminars; however, material covered in patient case discussions was evaluated in the examinations.

The 2 skills laboratories were worth 10% of the final grade. In the first skills laboratory, the students were evaluated regarding their standardized patient interaction using a standard rubric. No formal grades were given, however, students received verbal feedback as part of the debriefing. The documentation note, worth 5% of the overall grade, was assessed and written feedback was provided. The group assignment in the second skills laboratory, which also counted 5% of the final grade, was marked using a detailed key. In this laboratory, verbal feedback was provided as part of the patient counselling session, however, no grades were assigned.

Students evaluated the course through a standardized 10-item Instructor Designed Questionnaire system at the University of Alberta. The first 5 questions related to the delivery of the course and the last 5 questions evaluated the course instructor. Students rated each question on a 5-point Likert scale where 1 = strongly disagree and 5 = strongly agree. Each evaluation form included a section for written comments to the following 2 questions: "What aspects of the course did you like the best?" and "What aspects of the course will you change?"

Five hundred eight students completed the course over 4 years, with evaluations received from 60%. Student evaluations for the 4 offerings of the course are included in Table 4. Open-ended comments have been positive. Aspects of the course that students liked the best included case-based discussions in seminars, standardized patient interactions in skills laboratories, and incorporation of prescribing into seminars. In addition, students appreciated the content covering the women's health continuum and being taught by experts in the field. The areas that students indicated needed improvement changed each year as the course was modified with every

Table 4. Final Course Evaluations for the Women's and Men's Health Module from 2007-2010 (n=305)

Survey Items	Median Response[a] 2007	Median Response[a] 2008	Median Response[a] 2009	Median Response[a] 2010
The goals and objectives of the course were clear.	4.2	4.5	4.3	4.7
In-class time was used effectively.	4.2	4.4	4.4	4.8
I am motivated to learn more about these subject areas.	4.3	4.6	4.4	4.7
I increased my knowledge of the subject areas in this course.	4.3	4.7	4.6	4.8
Overall, the quality of the course content was excellent.	4.2	4.6	4.4	4.8

[a] Responses based on a 5 point Likert scale where 1 = strongly disagree and 5 = strongly agree.

offering; however, ongoing comments from students include a desire for more case-based seminars to supplement classroom/lecture-based learning and the inclusion of additional topics in men's health.

DISCUSSION

This course would be of interest to colleges and schools of pharmacy considering implementing women's and men's health components into their curriculum. The course effectively blends biomedical science with therapeutics, and involves collaborative teaching, not only from pharmacy but other disciplines, such as instructors from physiology, medicine, and nursing. Each section of the module builds on knowledge learned in the previous section, as course content progresses from the basic sciences to clinical information. In lectures and patient case discussions, foundational knowledge was integrated with therapeutic knowledge whenever possible. For example, the pharmacological differences between progestins used in hormonal contraception are taught in the seminars when discussing patient cases. Another example is the discussion of physiologic changes during pregnancy with cases used in the skills laboratories. Exposure to different disciplines helps students appreciate the complexities of women's and men's health and the need for an interdisciplinary approach to care.

Pharmacists' have a recognized role in women's health.[10] Potential opportunities for pharmacists involvement in men's health care also exist.[11] Equipping pharmacy students with the skills necessary to provide patient care for the continuum of women's and men's health is important. Marshall and colleagues described an elective course to increase awareness of women's health issues that was well received by students.[5] Similarly, students' evaluations from our module have been positive. To our knowledge our module is the first description of an integrated course on women's and men's health as part of a mandatory component of the curriculum.

Strengths of our module include the wide variety of topics covering the spectrum of women's health, integration of basic science and clinical practice, collaborative teaching within our faculty and other disciplines, and the blend of various instructional methods including lectures and active-learning opportunities. The use of standardized patients to practice patient assessment skills and apply knowledge is another strength as patient simulation in pharmacy programs enhance student learning.[12] Finally, the introduction of prescribing abilities, especially tying it to patient assessment, is an important aspect in preparing students for future practice.

The module is continually revised based on student feedback. Over the past 4 years, changes have included greater attention to prenatal/postpartum care and additional case-based discussions. Further adjustments to the course content will include additional men's health lectures and health care needs of special populations such as transgender and homosexual individuals. The course also has spawned a Professional Development Course on Women's Health for pharmacists through the University of Alberta Practice Development Department and provided opportunities for practice-based research.[13]

There were several limitations to this course. The module was not evaluated for its curricular design. Although 4 years of student evaluations are available, a formal student survey to evaluate the course in meeting learning objectives would be beneficial. Another challenge has been the use of assessment techniques for student learning. The overall grade is heavily weighted on examinations (90% of the overall grade). Unfortunately, it is difficult to measure assessment of process of care or application of knowledge with this method. Feedback on student performance with patient interactions is provided in the skills laboratory, but is not included as part of the overall formal assessment. Attempts are made to measure application of knowledge through case vignettes in examinations; however, the effectiveness of this method is questionable. Further offerings of the module will include reassignment of overall grades to include assessment of the patient care process in the skills laboratories.

CONCLUSION

A mandatory course in women's and men's health ensured that gender-related health issues were part of the core pharmacy curriculum. Students developed a better appreciation of women's and men's health issues. Students especially appreciated the scope of topics covered, active-learning opportunities, and simulated patients interactions, as well as teaching by experts in the area.

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REFERENCES

1. Cain JM, Donoghue GD, Magrane DM, Rusch RB. Why is it important to ensure that women's health, gender-based competencies are woven into a fabric of undergraduate medical education? *Am J Obstet Gynecol*. 2002;187(3):S1-3.
2. Correa-de-Araujo R. A wake-up call to advance women's health. *Women Health Iss*. 2004;14(2):31-34.
3. US Department of Health and Human Services Health Resources and Service Administration (HRSA). Health professional training, education and competency: women's health in pharmacy school curriculum. http://mchb.hrsa.gov/womenshealth/pharmacyschool.pdf Accessed June 15, 2011.
4. Stalburg CM, Stein TA. An interdisciplinary course in women's health integrating basic and clinical sciences: clinical anatomy and women's health. *Am J Obstet Gynecol*. 2002;187(3):S49-52.
5. Marshall LL, Ashworth LE. An elective course in women's health. *Am J Pharm Educ*. 2010;74(1):1-6.
6. Autry AM, Meurer LN, Barnabei VM, et al. A longitudinal women's health curriculum: a multi-method, multiperspective needs assessment. *Am J Obstet Gynecol*. 2002;187(3):S12-14.
7. Smith JA, Bollen C. A focus on health promotion and prevention through the development of the national men's health policy. *Health Promot J Aust*. 2009;20(2):98-101.
8. Association of Faculties of Pharmacy of Canada. Educational Outcomes for a Baccalaureate Pharmacy Graduate in Canada. 1998. http://www.afpc.info/downloads/1/Outcomes_Undergrad_1998.pdf. Accessed June 6, 2011.
9. Yuksel N, Eberhart G, Bungard TJ. Prescribing by pharmacists in Alberta. *Am J Health-Syst Pharm*. 2008;65(22):2126-2132.
10. Maderas NM, Landau SC. The continuum of care: a case for pharmacists as key members of the reproductive health care team. *Contraception*. 2008;77(3):139-142.
11. Boyle TC, Coffer J, Palmer T. Men's health initiative risk assessment study: effect of community pharmacy-based screening. *J Am Pharm Assoc*. 2004;44(5):569-577.
12. Seybert AL, Kobulinsky LR, McKaveney T. Human patient simulation in a pharmacotherapy course. *Am J Pharm Educ*. 2008; 72(2):Article 37.
13. Yuksel N, Schindel TJ. Changing perceptions of practice following a continuing professional development program in menopause: a qualitative study. North American Menopause Society (NAMS) 21st Annual Meeting, Chicago, IL. October 3-9, 2010. *Menopause*. 2010;17(6):P85, 1246