Women and pharmacologic therapy in rural and remote Canada

Beverly D. Leipert, PhD, RN

Chair, Rural Women's Health Research; Associate Professor, Faculty of Health Sciences and Faculty of Medicine and Dentistry, University of Western Ontario, London, Ont.

Doreen Matsui, MD, FRCPC

Departments of Paediatrics and Medicine, Faculty of Medicine and Dentistry, University of Western Ontario, London, Ont.

Michael J. Rieder, MD, PhD

CIHR-GSK Chair in Paediatric Clinical Pharmacology; Division of Clinical Pharmacology, Departments of Paediatrics, Physiology and Pharmacology and Medicine, Schulich School of Medicine and Dentistry, University of Western Ontario, London, Ont.

Correspondence to:
Dr. Beverly D. Leipert, Faculty of Health Sciences and Faculty of Medicine and Dentistry, Rm. H029, Health Sciences Addition, University of Western Ontario, London ON N6A 5C1

Most people who live in rural and remote settings in Canada experience compromised access to health care services and resources.[1] However, women in these settings have unique health care needs and issues.[2,3] Women are often the decision-makers, not only for themselves but for family members, regarding access to health care, including pharmacotherapy resources. In addition, women as a group are prescribed pharmacotherapy agents to a sometimes excessive degree.[4] Women living in rural and remote settings are at risk of being prescribed or using drugs inappropriately and of not being able to obtain the medications and drug-related information they need. They are at risk because of limited access to health care and information, lack of transportation, limited finances, distance to nurses, physicians and pharmacists, the nature of rural physician practice, and local attitudes and beliefs.[3,5–7]

In this commentary we highlight pharmacological issues of women in rural and remote settings. Very little published research is focused on this topic. The scant literature that does exist suggests important directions in research and practice for pharmacists, physicians and nurses in rural and remote Canada.

Health Canada defines rural and remote communities as those with populations of <10 000 and removed from many urban services and resources.[3] Almost 9 million Canadians — 30% of the population and 1 in 5 women — live in rural and remote areas of the country.[3] Overall, the health of rural residents, especially women, is worse than their urban counterparts.[8,9] For example, life expectancy for Ontario women is the lowest in northern and rural areas of the province.[8]

Rural physician populations

In 2001, rural areas in Canada were served by only 17% of family physicians (FPs) and 3% of specialists.[10] The FP:population ratio in rural Canada in 2002 was 1:1201 compared with 1:981 for Canada as a whole.[11] The situation is even worse for the 1 in 5 Canadian women who live in a rural area and who prefer a female physician. In 1998 the rural generalist practitioner was 2.8 times more likely to be male than female.[10]

Gender issues

The shortage of health care professionals extends beyond physicians. Only 18% of registered nurses in Canada work in rural areas.[12] In many rural settings the community health nurse is the only health care professional or the only female health care professional.[13] In the rural areas that lack a community health nurse, women's access to health promotion and illness and injury prevention services, and to care provided by a woman, is thus limited or non-existent. Care may be restricted to that provided by male physicians, an option that may be inappropriate or unacceptable to some women. Rural women who prefer access to female health care

providers for information about or prescriptions for drugs for sensitive issues, such as for mental health and reproductive reasons, are particularly compromised. As a result, these women may avoid, postpone or not use the limited or inappropriate pharmacotherapy resources available in their communities.[7]

Pharmaceutical services and privacy issues

Although the availability of pharmaceutical services in rural areas is less studied, these areas often do have difficulties retaining pharmacists and pharmacies, and many small, independent pharmacies are under financial stress.[14] In addition, rural women may choose to not use the services of the local pharmacy, especially for sensitive issues, because the pharmacist or staff are known to them outside of the workplace. These limits in health care resources restrict rural women's ability to obtain information and take appropriate decisions and actions.

Access to appropriate pharmaceutical resources for these women is also affected by other factors. Many services in rural and remote communities are modelled on the needs of men and overlook the specific needs of women.[6,15] For example, drug therapies are sometimes more accessible for physical care related to hunting, farm and forestry needs rather than for menopause or reproduction issues.[7] In addition, if women do not feel respected by, or have sufficient time with, a care provider, it is likely that they will postpone or avoid access to that care provider, thereby compromising their access to advice about drug therapy.[2]

Travel considerations

The need to travel great distances to obtain care also affects women's health, especially if they are ill or must travel in winter over treacherous terrain, or with children. Elderly women are less physically able to cope with vehicle or weather problems. These issues cause them to postpone or not access care, which results in poorer health outcomes.[2,9]

Occupational and sociocultural factors

Occupational and sociocultural factors also have implications for women's health in geographically isolated environments.[13] Limited employment for women restricts their financial ability to obtain expensive drug therapy that is not covered by provincial drug plans, or that is available only at a distance. Many farm women lack supplementary health insurance, and this, coupled with recent economic downturns in farm economies, severely compromises their access to expensive drug therapies. Attitudes and behaviours that minimize or contradict women's health care needs combined with the familiarity characteristic of rural communities compromise anonymity and contribute to rural women not seeking care.[7] For example, access to birth control and early contraception may be compromised and discouraged in communities where procreation may be preferred and promoted, and where abortion may be viewed negatively. In short, rural women's access to drug-related health care is compromised locally as well as at a distance.

Need for research

Pharmacological research

As previously noted, rural women form a sizeable proportion of the Canadian population; however, the paucity of information regarding the health of these women suggests a great need for further research. Since virtually no research has focused on the pharmacologic needs and issues of rural and remote women in Canada, this research is long overdue.

Teen pregnancy

Research about the drug-related needs of specific age groups is especially urgent. The highest rates of teen pregnancy are often located in rural and northern settings.[8] Some research indicates that in rural areas where women could access female physicians or young physicians or where women had more time with nurses, there were lower rates of pregnancy.[16] More research is needed to explore reasons for the effectiveness of these interactions in helping women make wise reproductive decisions.

Seniors

Elderly people residing in rural areas are at high risk for poor health and hence have an increased need for drug therapies.[14] Because isolated rural communities are increasingly comprised of elderly women who outlive their marriage partners, research that assists understanding of their needs regarding drug therapy is especially urgent.

Research on other health issues

Cardiovascular disease, cancer, mental health issues, obesity, spousal violence, alcohol and other substance abuse are all rural issues that can be affected by pharmacotherapies and illness prevention and health promotion initiatives.[17] More information is needed on how pharmacological therapies are used, and not used, to promote the health of rural women, and on factors that facilitate or hinder health promotion efforts regarding drug use.

Prescribing practices

Prescribing practices of rural physicians may differ from their urban counterparts. Lower rates of new drug utilization were shown among generalists and specialists in rural areas of Quebec.[18] It was postulated that this difference may be related to characteristics of physicians who elect to practise in rural communities, the relative isolation of rural physicians from colleagues, or differential intensity of visits by drug industry representatives related to geographic inaccessibility.[18] As well, new drugs tend to be more costly than older drugs, perhaps providing an indirect disincentive to prescribing new agents. Thus, it is likely that rural women, some of Canada's poorest and most vulnerable citizens,[3] have less access to drugs that are new to the market and that may be most beneficial.

In a study of general practitioners practising in rural and remote settings in Queensland, Australia, most respondents agreed that they prescribe differently in rural practice compared with city practice.[19] The majority agreed that the expectations of rural patients would have an effect on their prescribing practices, although there were differing opinions on whether they were a more or less demanding population.[19] Women's higher rates of medication use for mental health–related issues could be related to physician tendency to over-prescribe these medications for women,[4] which may, in turn, be related to the limited availability of other resources, such as counselling.

Prescription error

The issue of medical prescribing errors is particularly problematic in rural settings.[20] Characteristics of rural practice that contribute to an increased risk of error include broader scope of practice, relative isolation, increased familiarity with patients, and decreased specialist availability.[20] Because of limited education or choices, and other vulnerabilities, rural women may require more confidence, empowerment and encouragement to act as equal partners in their care.[7] As a result, these women are at enhanced risk of receiving no or inappropriate medication, compared with their urban counterparts.

Natural health products

Herbs and teas are often favoured by women as supplements to or substitutions for prescribed pharmaceuticals, especially in underserved areas.[2] A recent study by Health Canada[21] used a national random telephone survey of 2004 adult Canadians to explore awareness and use of natural health products (NHPs). Interesting information on rural and urban populations and female and male populations (but not for each gender within rural and urban populations) was found. See Table 1 for a brief summary.

Table 1 data indicate that rural people favour, and use, NHPs and are likely to continue to do so over the next 10 years. A study conducted with rural and remote women in northern BC revealed similar findings.[2] The women in this study remarked that natural remedies served to replace, as well as supplement, physician-prescribed pharmacologic remedies.

Alternative medicines may be selected because of their purported benefits rather than because of dissatisfaction with traditional medicine. However, in some rural settings, alternative medicines are selected to avoid dissatisfaction with limited or non-existent mainstream health care.[2] Factors in rural settings that limit women's ability to use alternative therapies include limited resources, funds and time; these therapies are often available only in distant urban settings.[2,3] More research is needed to further articulate how and why rural women make decisions regarding the use of NHPs, and to learn which NHPs these women prefer, have access to, and use.

Accessing health information

Lack of access to reliable health information has been identified by rural women as an important issue.[2,3,22] Lack of physicians, nurses and pharmacists in rural Canada limits women's access to drug and other health information, since these health care providers are key sources in rural settings.[3,6] As a result, these women often rely on the advice of

Table 1. Selective summary of findings regarding the use of natural health products (NHPs) by Canadians[21]

Topic	Location, %		Gender, %	
	Rural	Urban	Female	Male
Incidence of NHP use	70	72	78	64
Sense that NHPs are better than conventional drugs and toxin-free	34	27	32	24
Sense that NHPs can be used to maintain or promote health	44	38	44	33
Sense that NHPs can be used to treat illness	37	29	33	29
Canadians most likely to agree that Canadians have the right to use any NHP they wish	54	46	NR	NR
Canadians most likely to agree that if a health product is made of natural substances, there are no risks associated with its use	32	40	41	36
Canadians who agree that NHPs are better than conv entional medicine	23	17	22	14
Canadians with the most interest in potential side effects from NHPs	NR	NR	59	45
Canadians who agree that the use of NHPs will increase over the next 10 years	NR	NR	46	38

NR = Not reported

friends and family when making decisions about health-related matters, including the use of drug therapies.[2,3,6,13] Development of Web sites by health care professionals to facilitate accurate information gathering and utilization by rural residents is one solution.[22] However, rural women's use of the Internet to access health information has not been specifically studied; also, Internet technology is not available in all rural communities. Thus, more research is needed on how the Internet would be useful for rural women seeking pharmaceutical information.

Conclusion

Rural and remote women require better access to quality pharmacological care in their communities. These women have unique health care and pharmacotherapeutic concerns. Accordingly, enhanced practice and research are needed. With enriched research, data regarding diverse rural women's drug-related issues and solutions can be identified. These data, when incorporated into health care practice and policy, will enhance the health of women and their families in rural and remote locations throughout Canada.

Acknowledgement: Dr. Rieder holds a peer-reviewed endowed Chair awarded through the Canadian Institutes of Health Research (CIHR). GlaxoSmithKline (GSK) provided support through CIHR but has no proprietory or other interest in this Chair, which provides salary support for Dr. Rieder.

Competing interests: None declared.

References

1. Romanow RJ. *Building on values: the future of health care in Canada*. Saskatoon: Commission on the Future of Health Care in Canada; 2002. Available: www.hc-sc.gc.ca/english/care/romanow/hcc0086.html (accessed 2006 Aug 4).

2. Leipert B, Reutter L. Developing resilience: how women maintain their health in Northern geographically isolated settings. *Qual Health Res* 2005;15:49-65.

3. Sutherns R, McPhedran M, Haworth-Brockman M. *Rural, remote, and northern women's health: policy and research directions: final summary report*. Winnipeg (MN): Prairie Center of Excellence for Women's Health; 2004.

4. Provincial Health Officer. *Provincial Health Officer's annual report 1995*. Victoria (BC): Ministry of Health and Ministry Responsible for Seniors; 1996.

5. Leipert B. Rural women's health issues in Canada: an overview and implications for policy and research. *Can Woman Studies* 2005;24(4): 109-15.

6. Leipert B. Women's health and the practice of public health nurses in northern British Columbia. *Pub Health Nurs* 1999;16:280-9.

7. Leipert B, Reutter L. Women's health in northern British Columbia: the role of geography and gender. *Can J Rural Med* 2005;10:241-53.

8. Gucciarda E, Birnie-Lefcovitch A. Rural and northern women. In: Stewart D, Cheung A, Ferris L, et al, editors. *Ontario women's health status report*. Available: www.womenshealthcouncil.on.ca/userfiles/page_attachments/chaptersPDF/Chapter27.pdf (accessed 2006 Aug 4).

9. Nagarajan K. Rural and remote community health care in Canada:

beyond the Kirby Panel Report, the Romanow Report and the federal budget of 2003. *Can J Rural Med* 2004;9(4):245-51.

10. Society of Rural Physicians of Canada. *Comparative regional statistics*. 2002. Available: www.srpc.ca/numbers.html (accessed 2006 Aug 4).

11. Rourke J; for the Task Force of the Society of Rural Physicians of Canada. Strategies to increase the enrolment of students of rural origin in medical school: recommendations from the Society of Rural Physicians of Canada [editorial]. *CMAJ* 2005;172(1):62-5.

12. Macleod M, Kulig J, Stewart N, et al. *Final report to Canadian Health Services Research Foundation*. Sept 15, 2004. Available: www.ruralnursing.unbc.ca/reports/study/RRNFinalReport.pdf (accessed 2006 Aug 7).

13. Leipert B, Reutter L. Women's health and community health nursing practice in geographically isolated settings: a Canadian perspective. *Health Care Women Int* 1998;19:575-88.

14. Xu K, Borders T. Characteristics of rural elderly people who bypass local pharmacies. *J Rural Health* 2003;19:156-64.

15. Bushy A. Rural women: lifestyle and health status. *Nurs Clin N Am* 1993;28:187-97.

16. Langille D, Graham J, Marshall E, et al. Developing understanding from young women's experiences in obtaining sexual health services and education in a Nova Scotia community. *Cent Excell Womens Health Res Bull* 2000;1:20-1.

17. Canadian Institute for Health Information. *How healthy are rural Canadians? An assessment of their health status and health determinants*. Ottawa: The Institute; 2006.

18. Tamblyn R, McLeod P, Hanley J, et al. Physician and practice characteristics associated with the early utilization of new prescription drugs. *Med Care* 2003;41:895-908.

19. Cutts C, Tett S. Influences on doctors' prescribing: is geographical remoteness a factor? *Aust J Rural Health* 2003;11:124-30.

20. Campbell S, Croskerry P. Medical error in rural practice. *Can J Rural Med* 2003;8:33-7.

21. Health Canada. *Baseline natural health products survey among consumers: final report, March 2005*. Ottawa: Health Canada; 2005. Available: www.hc-sc.gc.ca/dhp-mps/pubs/natur/eng_cons_survey_e.html (accessed 2006 Sept 19).

22. Thomlinson E, McDonagh M, Crooks K, et al. Health beliefs of rural Canadians: implications for practice. *Aust J Rural Health* 2004;12:258-63.

Instructions for Authors

The *Canadian Journal of Rural Medicine* (*CJRM*) is a quarterly peer-reviewed journal available in print form and on the Internet. *CJRM* seeks to promote research into rural health issues, promote the health of rural (including native) communities, support and inform rural practitioners, provide a forum for debate and discussion of rural medicine, provide practical clinical information to rural practitioners and influence rural health policy by publishing articles that inform decision-makers.

Material in these areas will be considered for publication. **Original articles:** research studies, case reports and literature reviews of rural medicine. **Commentary:** editorials, regional reviews, opinion pieces. **Clinical articles:** practical articles relevant to rural practice. Illustrations and photos are encouraged. **Off Call articles:** a grab-bag of material of general interest to rural doctors (e.g., travel, musings on rural life, essays). **Cover:** artwork with a rural theme.

Manuscript submission: Submit 3 hard copies of the manuscript to the Editor, *CJRM*, Box 1086, Shawville QC J0X 2Y0; 819 647-2972, fax 819 647-9972, and an electronic version to cjrm@lino.com. Include a covering letter indicating that the piece has not been published or submitted for publication elsewhere. Hard copies of the manuscript should be double-spaced, with a separate title page, an abstract of no more than 200 words, followed by the text, full references and tables (each table on a separate page).

"Uniform requirements for manuscripts submitted to biomedical journals": see www.cmaj.ca/misc/ifora.shtml

Written permissions: Written permission must be provided for reproduction of previously published material, for illustrations that identify human subjects, and from any person mentioned in the Acknowledgements or cited as the source of a Personal Communication.

Illustrations and electronic figures: Illustrations must be good quality unmounted glossy prints no larger than 8 × 10 in (20.3 × 25.4 cm). If figures are submitted electronically they should meet the specifications outlined in www.cma.ca/cjrm (click on "Instructions for Authors").

References: Please ensure that references are not prepared using electronic EndNotes or Footnotes.

Accepted manuscripts: Authors will be required to submit the most recent version of the manuscript by email or on diskette. Please specify the software used.