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Health concerns of male and female farmers: implications for health promotion planning

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Farming is a dangerous occupation, and the need for effective health promotion programs for farmers has long been recognized. Canadian policymakers have also recognized the imperative for a better understanding of rural health needs. This article presents data from a non-clinical random survey conducted as a needs assessment in south central Alberta. The study was designed to gain a better understanding of farmers' views regarding agricultural health and safety issues. The results indicate that while farmers report generally good health, they experience a number of farm-related injuries and illnesses. In many cases, they worry more about the effects of farming on the health of family members than on their own health. Farmers vary in age, education, income and off-farm employment. Male and female farmers differ in important ways. The variation among farmers and in the types and sizes of farms, and the different needs farmers may have from their other rural neighbours or those who live in rural towns, points to the need for health promotion processes that incorporate this diversity.

L'agriculture est une occupation dangereuse et on reconnaît depuis longtemps le besoin de programmes efficaces de promotion de la santé à l'intention des agriculteurs. Les responsables des politiques au Canada reconnaissent aussi qu'il est impératif de mieux comprendre les besoins reliés à la santé rurale. Cet article présente des données tirées d'un sondage aléatoire et non clinique d'évaluation des besoins dans le centre-sud de l'Alberta. L'étude visait à aider à mieux comprendre les opinions des agriculteurs au sujet des questions de santé et de sécurité en agriculture. Les résultats indiquent que même si les agriculteurs se disent en général en bonne santé, ils sont victimes de nombreux traumatismes et maladies reliés à l'agriculture. Dans nombre de cas, ils s'inquiètent bien plus des effets de l'agriculture sur la santé des membres de leur famille que sur la leur. Les

agriculteurs varient selon l'âge, l'éducation, le revenu et l'emploi non agricole. Les agriculteurs et les agricultrices présentent des différences importantes. La variation entre agriculteurs ainsi que type et grosseur des fermes, ainsi que leurs différents besoins par rapport à leurs voisins ruraux ou aux habitants des villes rurales, indiquent que les mécanismes de promotion de la santé doivent tenir compte de cette diversité.

Introduction

There is a lack of data on health needs of rural residents.1,2 Farmers make up one sub-population of the rural population; a group that faces high rates of occupationally related injuries and illnesses. Farming as an occupation is one of the most dangerous in terms of injury and death.3-6 In addition to health consequences of injury, there are health risks associated with farming, such as respiratory problems,7 skin cancer,8 depression9 and suicide.6 These risks extend beyond the person designated as the farmer to farm hands and family members.10,11 In fact, the farm is usually both a workplace and a home. Hence, programs to prevent injury and ill health among members of farm families, particularly farm children, are common.12 However, programs for health promotion are needed not only to prevent illness and injury but also to maintain wellness and quality of life.

The 1990s brought a renewed interest in programs to prevent injuries that occur on farms.12 Assessment of the dangers inherent in farm work is usually based on data concerning mortality or injuries requiring medical attention and/or hospitalization. However, in most countries agriculture is not covered by occupational health and safety or workers' compensation legislation,3,4,13 and therefore data are difficult to obtain. Further, both farmers and health professionals tend to under-report farm-related injuries and illnesses in health settings.4

Racher14 reports that access to health care services is a priority for the residents of rural communities:15-17 "... rural residents experience decreased availability of health professionals;18,19 [there is] limited proximity to hospitals and emergency services;20 [including] challenges in receiving public health21 and mental health services,22,23 difficulty in acquiring home care and long-term care,24-26 and problems in ensuring that rural services provide quality care.27" Under these circumstances, the need for health promotion programs, in addition to those that prevent injury and disease, is evident.

In this article we present the results of a needs assessment conducted in South Central Alberta that was designed to gain a better understanding of farmers' views regarding agricultural health and safety issues. We collected data on the health status, behaviours and concerns of a representative sample of farmers. Here, we discuss the data concerning individuals; data describing the farms is as yet unpublished.

Method

A cross-sectional survey using mailed questionnaires was conducted between January and March 1994. The sampling frame of 3834 self-identified farmers was drawn from the Farm Business Communications List Service Group, a business that compiles names of people from magazine subscription lists for marketing purposes. These farmers resided in 1 of 4 municipalities or 3 counties in South Central Alberta surrounding the city of Calgary. A random sample of 600 farms was drawn from this frame using random number tables. Because 88.1% of farms in Alberta were reported to have joint male and female operators,28 two identical surveys with the same identifying code, marked Participant A and Participant B, were sent to each address.

A 78-item self-administered questionnaire was developed using the Farm Family Survey,29,30 the Canadian Health Promotion Survey,31 the Western Canada Melanoma Study32 and a survey of the Alberta Cancer Board.33 Questions regarding demographics, farm characteristics, personal health habits and concerns, and sources of assistance were also included. The questionnaire was pre-tested on 6 farmers from another region of the province and then reviewed by a group of stakeholders.* These questionnaires were not included in the final analysis. This group commented on relevance, face validity and clarity. Finally, the questionnaire was edited to include interesting graphics and words of encouragement.† The initial mail-out was followed one week later by a reminder postcard, and at 4 and 8 weeks by two subsequent mail-outs to non-respondents. The timing of the survey was selected to avoid known peak production periods (e.g., seeding, harvest, calving).

[*Health unit personnel and board members, farmers, Alberta Agriculture Farm Safety personnel, Unifarm, Women in Support of Agriculture, United Farmers of Alberta.]

[†For example: "O.K. You are now three quarters of the way through. Congratulations. Keep going."]

The Conjoint Health Research Ethics Board of the Faculty of Medicine, University of Calgary, Calgary, Alta., approved the study.

Analysis was conducted using SPSS Version 10. Cronbach alpha inter-item reliability coefficients were calculated for 6 sections of the questionnaire: personal health habits (11 items); concerns about health and safety (5); chemical use (3); handling machinery (6); handling grain, feed or bedding (6); and agricultural services (4). The coefficients ranged from 0.66 to 0.96, all considered

acceptable.34

Results

Sample

Twelve addresses were dropped from the sample of 600 because they were outside the survey area, duplicates, or on a Hutterite colony. Sixty-two pairs of questionnaires were returned because the address was no longer valid or the addressee was deceased, retired, or not a farmer. From the eligible 526 farms we received 1 or more questionnaires from 375 farms for a return rate of 71.3%. Of these, 28 were refusals, leaving 347 farms and a response rate from farms of 66.0%. We cannot calculate an individual response rate for the 563 individual questionnaires received in total because we have no way of knowing the denominator or how many individual adult farmers were on these farms. There was a tendency for men (81.6%) to complete the Participant A questionnaire.

The participants were 332 men (59%), average age 49.9 years, and 231 women (41%) with an average age of 45.8 years. Ninety-one percent of participants were married. The women tended to be better educated than the men (Fig. 1). There were 451 children reported to be living on the farms, of which 80 (17.7%) were over the age of nineteen. Of the remaining 371, 76.4% were under the age of 15 years.

The majority of farms were beef (30.0%) or grain (26.6%) farms, with mixed grain and cattle operations the next most common (10.9%). More than half of the farmers (57.4%) reported that between 76% and 100% of their family income was from their farm operation. The most frequently report-ed income range was between $50 000 and $99 000 per year (31.9% of respondents) followed by $25 000 and $49 000 (24.7%), and then $100 000 and $249 000 (25.7%).

Employment on and off the farm

Among the men, 71.5% labelled themselves as primary managers on these farms, compared to 45.1% of the women. Among women, another 40.5% considered themselves to be co-equal managers and 3.6% assistant managers. Only 20.9% of men labelled themselves co-equal managers.

Women (40.1%) were more likely than men to be employed off the farm (31.7%) and were more likely than men to work in the health and education sectors when they did (Table 1). Among those who reported off-farm employment, 36.5% of men and 17.8% of women were self-employed; 23.3% of women and 1.0% of men were employed in health care; and 18.3% of men and 7.8% of women were employed in the agricultural industry. Among the women 15.6% had clerical jobs,

but no men did this type of work. Charlebois reported that, although the extra income reduced the financial concerns, off-farm work was a source of stress for farm families where both the man and woman were employed (Maya Charlebois, Faculty of Nursing, University of Calgary, Calgary, Alta: unpublished paper, MN program, 1994).

Health status

When asked to compare their health to that of others the same age, 66.8% of participants rated their health as very good to excellent. Women (69.0%) were only slightly more likely than men (65.4%) to rate their health as Very good or Excellent, and men were more likely than women to choose Good as their health rating (27.7% compared to 24.9% of women); however, there was no statistically significant difference in self-reported health ratings between sexes. When asked to report how many days they were away from work in the last year due to illness, injury or disability, 56.7% of men and 47.5% of women reported no days. The mean number of days off work due to illness, injury or disability was 3.1 for men and 2.5 for women.

With the relatively good health status of the participants, use of medications was also not common, except for over-the-counter pain relievers that were consumed by 83.3% of participants in the past 12 months. Women were significantly more likely than men to report use of antidepressants (women 10.2%; men 2.6%; $p = 0.001$); codeine, morphine or Demerol (women 8.7%; men 4.0%; $p = 0.039$); and over-the-counter pain relievers (women 87.3%; men 80.5%; $p = 0.035$). There was little difference by sex in the use of tranquilizers (women 2.2%; men 1.5%), diet pills or stimulants (women 1.7%; men 1.1%) or sleeping pills (women 6.0%; men 5.2%).

Exercise and smoking

Exercise was defined as vigorous activity not including work activity, and participants were asked how many times a week they exercised on average. Male and female exercise patterns varied, with the majority being infrequent exercisers (Fig. 2).

Smoking was reported by only 13.6% of men and 14.4% of women, a surprising finding given rates of smoking among Albertans, reported at 29.6% in 1994-95.35 No women over 65 reported smoking; however, more women than men in the 18-34 age group smoked (20% v. 15%). This is a concern because these are critical child-bearing years. In the 35-64 age group 14% of each sex reported smoking.

Concern over the effects of farming on health

Participants were asked to indicate on a 5-point scale how concerned they were for

themselves about several health problems that the literature identified as arising from farming. They were then asked to rate, on the same scale, how concerned they were that farming might contribute to these health problems in their farm family. Women were more likely to report concern over the effect of farming on family health than their own health for all problems except joint problems, although differences were sometimes small (Table 2). Men were more likely to report being concerned about the potential for hearing loss, eye problems, back trouble and joint problems for themselves than for other family members. This was especially true for back trouble. A significantly greater percentage of women than men reported concern over accident or injury, stress-related problems, and back trouble for their family. Women were generally more likely to report being concerned over the impact of farming on stress-related problems for themselves and their family.

With regard to other concerns about their own health, men and women were similar; however, men were more likely to be concerned about breathing problems and eye problems, and women more likely to be concerned about hearing loss.

Farther on in the questionnaire, participants were asked to indicate if they had experienced a variety of farm-related health problems in the last 2 years and whether medical treatment was sought for the problem. The 3 problems reported most often by men were back injuries, muscle/joint injuries and emotional problems or stress. Among women, the top 3 problems reported were emotional problems or stress, muscle or joint injury, and breathing problems (Table 3). Men were significantly more likely to report having had eye injuries, severe cuts or bruises, and back injuries than women (Table 3). The difference in injury rates is more obvious when the rate of specific injuries or illness is examined as a percent of total number for men and women over the previous 2 years (Fig. 3). About one-quarter of the problems reported by women were emotional problems or stress, and about one-quarter of the problems among men were back injuries.

Men and women reported seeking medical attention for their injuries or illnesses in about equal proportions (Fig. 4). The top 3 more frequently reported problems for which men sought treatment were eye injuries, back injuries and skin problems. The top 3 problems for which women sought medical treatment were eye injuries, back injuries and muscle or joint injuries. Men were least likely to seek medical attention for emotional problems or stress, and women for severe cuts and bruises. More than twice as many men than women sought medical attention for their severe cuts or bruises. While more men had back injuries, women were twice as likely to report that they had ongoing disability from their back injuries (men 21.2%; women 42.8%; $p = 0.04$). We calculated a relative risk of 2.09 for back injury, which indicated that women who reported having sustained a back injury were twice as likely as men to report ongoing disability from that injury. About 30% of participants reported ongoing disability as a result of having developed breathing problems, and about 15% as a result of emotional problems or stress.

Discussion

These data were originally collected and analyzed in 1994, with secondary analysis completed in 2002; however, the results remain relevant today. If anything, the economic status of Canadian family farms is more precarious than it was 9 years ago, accentuating the concerns that were expressed by farmers at that time. While the data were collected in South Central Alberta, similarities in issues faced by farmers across Canada and the sampling strategies used in this study give us confidence that the results could be applied to other Canadian farmers. The farmers in this survey reported themselves to be in good general health. Their reports were similar to the Health Promotion Survey for Alberta.31 Yet, their reported experiences of farm-related health problems in the previous 2 years supports the contention that injury and health problems are frequent and often serious enough to require medical attention.3-6 Most of these farmers were aware of the risks of farming, a first step in being ready for preventive action. These farmers were worried about respiratory problems7 and mental health issues6,9 for themselves and the family.10,11 The data, however, present other challenges to planners of health promotion interventions for farmers.

Firstly, farmers overall were more worried about the effects of farming on the health of family members than on their own health. There were many young children living on these farms. In addition, a large number of family members, including children, worked on the farms (Thurston WE, Blundell-Gosselin HJ: unpublished observations, 2002). Occupational health and safety messages aimed at the farmer, therefore, may not be addressing the focus of their concern. On the other hand, we were not able to identify in the published literature a program logic model or a planning model for combining occupational and family health. A challenge for health promotion practitioners is to combine theoretical models of the family as setting36 and the workplace as setting.37

The second challenge is gender differences in roles on the farm, experiences of injury and concerns about the effects of farming on health. Some women thought they played a co-equal role but their male partners believed management rested primarily with them. Workplace decision-making is a factor in work satisfaction.37 Women tended to be better educated and were more likely to also work off the farm, a fact that can explain some men's perceptions of the woman's lesser role in farm management. Disagreement over roles can add to family conflict and increase stress levels. It is important from a program planning perspective that key stakeholders be involved and that planners not overlook the role of women as farmers.38

There were important similarities and differences between women and men in their experiences of injuries and health problems. Equal proportions of men and women

experienced breathing problems and they were equally likely to report ongoing disability. Although more men reported back injuries, more women reported ongoing disability as a result of their back injuries. Men and women were equally likely to report emotional problems or stress. This points to the advisability of using sex disaggregated data in needs assessments and planning as a minimum strategy. Gender analysis39 would be a more comprehensive approach to understanding the needs of male and female farmers.

The stress and mental health concerns of farmers raises a larger issue. The fact that 10% of the women reported using antidepressants in the previous year compared to 2.6% of men points to the importance of mental health promotion for farmers, particularly farm women40 with attention to orientation of health services and prescribing practices. In fact, the predictors of stress for men and women were found to differ in this study population (see page 247).41 The stress that farmers report suggests that health promotion practitioners must have realistic expectations of how much time and other resources farmers can contribute to the planning and delivery of health promotion initiatives42 because their input is considered critical.1 Gerrard's40 approach to capacity building addresses this dilemma. She identifies the strengths among the people in a community as well as the challenges they face. The process is iterative and includes needs assessment and developing interest in an issue among community people until cooperation and collaboration in action are achieved.

Finally, the data in this study challenge the major disease prevention agencies to partner with other programs and to shape their health promotion to respond to the concerns of farmers. Specifically, cancer and heart disease were not among the top 5 problems most likely to be a concern for farmers for either their own or their family's health. This is not to say that cancer and heart disease are not rural health problems, but rather that engaging farmers in health promotion may require designing a back injury prevention program that builds the capacity of farmers to prevent cancer or heart disease, rather than starting with those diseases as the focus.

Conclusion

Farms vary greatly in size of operation, type of commodity, income generated, number of employees, and so on. Because of this, we recommend a comprehensive approach to farm health promotion rather than one that treats farms as though the setting itself implies greater homogeneity (Thurston WE, Blundell-Gosselin HJ: unpublished observations, 2002). Similarly, the people on farms vary in many ways, not the least of which may be gendered roles and expectations. While rural living has much to offer in terms of geographical and social benefits to health,43 for farmers there are also ever present threats to health associated with the work. One added stress for farmers is that these threats extend to other family members. The participation of farmers in recommending and designing programs1,40 is

essential because their needs may differ greatly from those of other rural neighbours or from those who live in rural towns.

This article has been peer reviewed.

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