Canadian Journal of Rural Medicine | Journal canadien de la médecine rurale

Fall 2003 Contents • Automne 2003 Table des matières

Stress in male and female farmers: an ecological rather than an individual problem

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CJRM 2003;8(4):247-54 [résumé]

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A study of the health concerns of male and female farmers found that emotional problems and stress were among the top 3 problems mentioned by both sexes. In this paper we present results from this non-clinical random survey of farmers in South Central Alberta. The participants were 332 men and 231 women representing 347 farms in South Central Alberta. Multivariate analysis reported in this article reveals that the predictors of stress for male and female farmers differed. Remembering past events or accidents, having only 2 family members working the farm and having a larger farming operation predicted stress for women when age, health status and worrying about the effects of farming on their health were in the model. For men, believing farming was more dangerous than other occupations and having no employees predicted stress when age, health status and worrying about the effects of farming on their health were included in the model. These findings support a recent call for an ecological model of mental health promotion; that is, a model that acknowledges that social, economic, physical and environmental factors interact to influence health.

Une étude sur les problèmes de santé des agriculteurs et agricultrices a démontré que les troubles émotifs et le stress se classaient parmi les trois principaux problèmes signalés par les personnes des deux sexes. Cet article présente les résultats de ce sondage aléatoire non clinique mené auprès de 332 agriculteurs et de 231 agricultrices représentant 347 fermes du centre-sud de l'Alberta. L'analyse multidimensionnelle mentionnée dans l'article a révélé que les prédicteurs de stress différaient chez les hommes et les femmes. Le fait de se souvenir d'événements ou d'accidents passés, celui de n'avoir que deux membres de la famille travaillant sur la ferme et celui d'avoir une grosse exploitation agricole représentaient des prédicteurs de stress chez les femmes lorsque l'âge, l'état de santé et le fait de s'inquiéter des effets de l'agriculture sur leur santé étaient incorporés au modèle.

Pour les hommes, c'était plutôt le fait de croire que l'agriculture était un emploi plus dangereux que d'autres et celui de n'avoir aucun employé qui représentaient des prédicteurs de stress lorsque l'âge, l'état de santé et le fait de s'inquiéter des effets de l'agriculture sur leur santé étaient incorporés au modèle. Ces constatations appuient l'appel lancé récemment en faveur d'un modèle écologique de promotion de la santé mentale, c'est-à-dire un modèle qui tienne compte de l'influence des facteurs sociaux, économiques, physiques et environnementaux sur la santé.

Introduction

The public health significance of mental health problems and disorders is considerable, and yet there is limited literature that documents the extent and experience of mental health problems in rural and remote communities.1,2 Much of the existing literature is based on large, population-level studies that treat rural areas as homogenous and fail to account for the influence of different social, economic, historical and geographic contexts on mental health.3 In this paper we examine the findings related to mental health from a cross-sectional survey that explored health status, behaviours and concerns of farmers from South Central Alberta.

Our focus on mental health is prompted by the overall results of the study in which "emotional problems or stress" was 1 of the top 3 reported farm-related health problems for male and female farmers.4 This finding supports the work of others1,3 and adds to a growing body of literature focusing on mental health issues in rural and remote areas. In our study (see page 239),4 approximately one-quarter of the health problems reported by women were emotional problems or stress, whereas men were more likely to report back injuries. Both men and women were least likely to seek medical attention for emotional problems or stress than other problems, but "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%; $p = 0.035$)."4 About 15% of participants reported ongoing disability as a result of having developed emotional problems or stress. Female farmers were generally more likely to report being concerned over the impact of farming on stress-related problems.4 In this article we specifically explore the predictors of stress in male and female farmers with the intent of providing information of use to clinicians who provide care in similar rural and remote areas.

Method

The cross-sectional mail survey was conducted between January and March 1994. A 78-item self-administered questionnaire was developed using the Farm Family Survey,5 the Canadian Health Promotion Survey,6 the Western Canada Melanoma

Study,7 and a survey of the Alberta Cancer Board.8 A sample of 600 farms was drawn from a sampling frame of 3834 self-identified farmers compiled by the Farm Business Communications List Service Group. Because 88.1% of farms in Alberta are reported to have joint male and female operators,9 2 identical surveys with the same identifying code were sent to the same address but labelled Participant A and Participant B. Further details regarding the sampling methods and the demographics of the participants can be found in Boutiller and colleagues10 and Hope and coworkers.11

Stress was assessed using the question, "Would you describe your life as: very, somewhat, not very, or not at all stressful." Responses were dichotomized as very/somewhat and not very/not at all. Independent variables were selected for analysis based on a review of the literature and the availability in the current study. These included: demographics (sex, marital status, age, education, years on current farm, years living on a farm, family income, percent of income from farming, number of children on farm); self-reported health status; farm operation variables (role on the farm, number of employees, percent of total family income from farming, off-farm employment, principle commodity); and farm health and safety concerns (view of safety of farming, relative concern over safety, concerns over own or family's health, events or accidents). Respondents were also presented with 38 possible responses to the question, "What, if anything, caused you excess worry, 'nerves' or stress in the last six months?"

Descriptive analyses revealed significant differences in response by sex in this study; therefore, two multivariate models were constructed to examine predictors of stress in men and women. This also ensured statistical independence on farm variables, since 81.6% of Participant A respondents were male and 76% of Participant B respondents were female (Thurston WE, Blundell-Gosselin HJ: unpublished observations, 2002).

The relationships between stress and independent variables were first assessed in separate bivariate analyses. Variables that were not significant at this level were excluded from further analysis for that sex. When coefficients for ordinal variables were statistically similar and combinations were logical, categories were collapsed. Logistic regression was used to assess the variables in multivariate analyses for each sex. The causes of stress were analyzed as separate groups to determine which remained as significant predictors of reporting stress when others were in the model. Stepwise analysis was used to assess interactions and "confounding." Causes that were no longer significant were no longer included.

Results

Of the 526 eligible farms (i.e., a current address within the survey area, not duplicates and not Hutterite colonies), completed questionnaires were received

from 347 farms for a response rate of 66.0%. The participants were 332 men and 231 women. The farmers resided in one of 4 municipalities or 3 counties in South Central Alberta. The participants were primarily beef and grain farmers.

The majority of farmers reported their lives to be very or somewhat stressful (Fig. 1). There was no difference between men or women in this regard. Ninety-one percent of respondents were married; however, 11.5% of men and 5.6% of women were single. As Table 1 indicates, men and women differed in age and educational attainment. The range in ages was 23 to 81 years. Both men and women had on average spent most of their lives as a member of a farm household, but men had been on the current farm longer than women and more men appeared to have grown up on farms. About 30% of farmers reported their family income to be between $50 000 and $100 000 a year. More than half of the farmers (57.8%), whether men or women, reported that between 76% to 100% of their income came from the farm operation. As Table 1 indicates, men and women did not differ significantly in either the number of children under or over the age of 20 living on the farm. The majority of both men and women considered themselves to be in excellent or very good health (Table 1).

Men and women differed in their self-reported perceived role on the farm. More women than men had off-farm employment. Similarly, men and women differed in their opinions as to how many family members worked on the farm; however, they agreed on the number of employees (Table 2). When asked how dangerous they thought farming was compared to other occupations, the majority of farmers said "More dangerous." More men than women thought farming was the same as other occupations in terms of danger; the women were more likely to be unsure. However, these differences were not statistically significant. When asked if they were more concerned about health and safety than their child's education, quality of the environment, farm product prices, crop yields or soil erosion, the majority of both men and women placed health and safety above at least one of these things; very few placed this above their child's education (Table 3).

Men and women were as likely overall to report having experienced a farm-related injury or illness in the previous 2 years (Table 3); however, when broken down by type of injury, men and women did not differ in animal-related (men 8.8%; women 7.9%) or pesticide-related (men 2.1% men; women 1.7%) incidents but only men (5.4%) had machinery-related accidents. Given this, it is not surprising that men were significantly more likely to have experienced eye injuries, severe cuts or bruises, and back injuries than women (Table 4).

Predicting stress in men and women

Apart from age, health rating and concerns about the effects of farming on health,

the variables that remained in logistic regression models to predict stress differed for men and women (Table 5). Given the sample size, we have not presented odds ratios as the confidence intervals are very wide indicating a lack of precision in the estimate of the odds ratio.

Remembering past events or accidents, having only two family members working the farm and having a larger farming operation* predicted stress for women when age, health status and worrying about the effects of farming on their health were included in the model. For men, believing farming was more dangerous than other occupations and having no employees predicted stress when age, health status and worrying about the effects of farming on their health were in the model. Age and health had confounding effects on stress in both sexes. Women aged 30 to 59 reported more stress, with the peak being in the 30-39 age group. Men aged 18-59 also reported more stress, and the peak age group was the same as for women. Being in excellent or very good health was associated with less stress in both sexes.

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*Having a small number of family members working on the farm was correlated with having employees and with having a larger farming operation.

For women, reporting no concerns about the effects of farming on their health predicted less stress when family income was controlled. Our analysis indicates that having concerns about the effect of farming on their health is stressful for women when in combination with having a larger farm operation (i.e., having employees or a larger family income). Having an event or accident that changed their attitudes, awareness or practices of farm safety was associated with reporting stress. Also, having less than 3 family members working on the farm was more stressful than having 3 or more.

For men, having 1 to 5 concerns about the effects of farming on their health was significantly predictive of stress. Having no concerns appeared to be associated with less stress, but the results were not statistically significant. Thinking farming was more dangerous than other occupations was associated with reporting stress, but a smaller operation, indicated by having no employees, was protective.

Discussion

Gerrard12 highlights the importance of conceptualizing mental health issues, such as farm stress, from an ecological as opposed to an individual perspective; that is, from a perspective that acknowledges that social, economic, physical and environmental factors interact to influence health. One of the major stressors appears to be that the farm is simultaneously the home setting13 and the workplace setting,14 2 important places for health promotion. Farm occupational health and safety practitioners and rural health promoters describe farm work as one of the

most dangerous occupations.11,15-17 A recent review of their programs, however, found little evidence of success in modifying risk or preventing injury.18 Hearing about and observing the dangers of farming while seeing little change may be iatrogenic for farmers and their stress. On the one hand, their homes, which are their workplaces as well, are being characterized as risky; our results show they accept this. On the other hand, there have been few successes in stopping the incidents of injury and illness that farmers in this study report as having a lasting affect on their reports of stress.

The majority of farmers in this study report their lives to be stressful, yet their health is reported as excellent or very good. Despite their reports of good health, emotional health was a major concern for farmers in this study. This may be a paradox of rural living and farming. It may be that farmers enjoy the benefits of rural living, while suffering the stress related to farming as an occupation.

The results of this study point to the importance of gender in understanding physical and mental health concerns of farmers.19,20 Both farm women and farm men report stress from role conflict; however, the source of this role conflict differs between the sexes. The major source of stress for farm women has been identified as role overload: too many responsibilities and too little time to accomplish everything. "Farm women report significantly high levels of stress as they struggle to balance their domestic duties, keep farm records, care for the family, keep the yard and garden, and act as a workhand when hired help is no longer affordable. A significant proportion of farm women have off-farm employment as well."19,21 Men report stress from competing demands of off-farm and farm work and not meeting their personal standards for success of the farm.22

Our findings suggest that men may find the situation where there are no employees less stressful. Bultena and colleagues23 found that those persons with large operations, as measured by acreage and gross farm sales, were the most financially distressed according to debt-to-asset ratios. Walker and Walker,20 however, found that among farm women those involved in the farm business had higher stress symptom scores compared to those not involved in the business. A small operation with your wife by your side may be less stressful for the male farmer, therefore, but more stressful for the female farmer. Given our findings that there is also often disagreement over the role that each partner plays in farm management, the combination of home and workplace may also be a source of tension that farm couples have to resolve. Others have reported that the most frequently reported cause of stress for the female farmer is conflict with her spouse.24 Berkowitz and Perkins25 found that farm women who are able to reach agreement with their husbands about their farm roles, who feel supported by their husbands, or who are happy with their marriages were less likely to report stress-related health symptoms.

Numerous studies have shown that younger farmers report more stress than older farmers.20,23,26,27 Some of the factors proposed to explain this include equity levels and debt loads resulting in greater feelings of economic hardship23,26,27 and vulnerability to displacement and capitalization.26,28 While these economic issues are clearly important, our data suggest that their impact cannot be understood outside of a broader framework that includes home factors. In addition to these economic and farm management issues, farmers in the age group that reported the most stress (aged 30-39) are also most likely to have both young children and children capable of working on the farm (i.e., in their teen years). The mothers are more likely than the fathers to be working off the farm when they are in the 30-39 age range. We also know that people in this age group are also likely to have parents who are increasingly experiencing health problems.29 If caring for these parents is also part of the "as needed" work on the farm, such as provision of child care or direct farming activity, this may be another source of stress for the farmers.

Conclusion

A variety of factors, some of which are both uncontrollable and unpredictable, has been found to contribute to farmers' stress.24,27 In this study we have identified very different experiences of farming for men and women. Farming operations vary considerably, making the farm-as-workplace settings model largely inappropriate for planning farm health promotion (Thurston WE, Blundell-Gosselin HJ: unpublished observations, 2002).

Fuller and colleagues1 found that residents of rural and remote communities in South Australia preferred seeking treatment for mental health problems from generalist mental health workers or general practitioners with backup support from mental health specialists. The findings from our study suggest that predictors of stress are different for male and female farmers; it is therefore important that practitioners who deal with mental health issues among farmers use an ecological approach to care. Awareness of the social, economic, environmental, as well as the physical context of male and female farmers will assist in providing appropriate support for their mental health needs. This article underscores that treating stress among farmers as if it stems from any single issue (e.g., the individual, work, home or global economics) will result in missing major contributing factors.

This article has been peer reviewed.

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Competing interests: None declared.

Acknowledgements: We thank the health unit personnel and board members, farmers, Alberta Agriculture Farm Safety personnel, and representatives of Unifarm, Women in Support of Agriculture, and United Farmers of Alberta for their assistance with questionnaire development and support of this project. Michael Vine of Olds College Extension Service, Red Deer, Alta., did an exemplary job in questionnaire layout and design. Kathy Dirk provided copy editing.

The research was partially funded by the Southern Occupational Health Service, Department of Community Health Sciences, University of Calgary; the Regional Centre for Health Promotion and Community Studies at the University of Lethbridge; and the Alberta Association of Registered Nurses.

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