

Rural–urban differences in health status of elderly Manitobans Philip D. St. John, MD, MPH, FRCP

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CJRM 2002;7(2):89-93

Introduction: There are few comparisons of the health status of elderly rural populations to elderly urban populations. Data from the Manitoba Study of Health and Aging offers an opportunity to study the health of rural Manitoba seniors.

Methods: A random sample of seniors (defined as over the age of 65) was drawn from residents of Manitoba and stratified on age and region. Demographic characteristics, self-rated health, satisfaction with health, and functional status were determined in rural and urban elderly.

Results: Rural respondents had similar self-rated health compared to their urban counterparts. Compared to urban elderly, rural elderly had slightly higher levels of impairment in some basic activities of daily living but had similar levels of impairment in instrumental activities of daily living. However, rural elderly were more likely to be satisfied with their health than urban elderly.

Conclusion: The greater satisfaction with health in rural populations should be considered in planning and delivering health services for rural elderly populations.

Introduction : Les comparaisons entre l'état de santé des personnes âgées des régions rurales et des régions urbaines sont rares. Les données tirées de l'étude sur la santé et le vieillissement au Manitoba présentent une occasion d'étudier la santé des personnes âgées des régions rurales du Manitoba.

Méthodes : On a prélevé un échantillon aléatoire de personnes âgées (plus de 65 ans) dans la population du Manitoba, qu'on a stratifié selon l'âge et la région. Les caractéristiques

démographiques, l'état de santé auto-évalué, la satisfaction à l'égard de l'état de santé et la capacité fonctionnelle ont été déterminés chez des personnes âgées des régions rurales et urbaines.

Résultats : Les répondants des régions rurales affichaient un état de santé auto-évalué semblable à celui de leurs homologues des milieux urbains. Comparativement aux personnes âgées en milieu urbain, les personnes âgées en milieu rural présentaient des niveaux d'incapacité un peu plus élevés dans certaines activités fondamentales de la vie quotidienne, mais des niveaux d'incapacité semblables dans les activités secondaires de la vie quotidienne. Les personnes âgées des régions rurales étaient toutefois plus susceptibles d'être satisfaites de leur état de santé que leurs homologues des régions urbaines.

Conclusion : Il faudrait tenir compte de la plus grande satisfaction des populations rurales face à la santé dans la planification et la prestation des services de santé aux personnes âgées des régions rurales.

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Introduction

Manitoba's rural seniors are a large and important group. In 1991 the province's population was 1 091 940. Of these people, 13.4% were over the age of 65.¹ Twenty-four percent live in rural areas, and a further 13% live in small towns (population 1000 to 13 000).^{2,3} It is important to understand the health status of rural seniors in order to plan services and clinical care for older people.

There are limited data regarding the health status of rural seniors versus their urban counterparts. Few studies have been published, and with conflicting results. Data from other countries are not easily extrapolated to the Canadian setting. Many countries have few truly rural areas, often designating semi-urban and suburban regions as being rural. Manitoba offers an opportunity to study differences in rural and urban health because the distinctions between rural and urban centres are fairly clear. The objective of this study was to describe the health status and functional status of seniors in rural Manitoba. A secondary objective was to compare the health and functional status of rural seniors to urban seniors, in terms of functional status, self-rated health, and satisfaction with health.

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Methods

We conducted a secondary analysis of data from the Manitoba Study of Health and Aging. This is a cross-sectional study that was conducted in the province of Manitoba in 1991 and 1992 in conjunction with the Canadian Study of Health and Aging.⁴ A random sample of people over 65 was obtained from a registry provided by Manitoba Health, the provincial health ministry. This list included all residents of Manitoba except the following groups: people living in a correctional institute, mental health hospital or other institute, people living in very remote regions, people residing in a nursing home, and members of the military or the Royal Canadian Mounted Police. There were 443 subjects who refused to participate, 480 subjects who were ineligible, 162 who could not be contacted and 42 who could not be screened. This resulted in a community sample of 1763 participants during the interview period of February 1991 to November 1992.⁵

All participants underwent a screening interview, including the collection of demographic variables, the Modified Mini-Mental State (3MS) Examination,⁶ and measures of health status. Urban areas were defined as Winnipeg and Brandon.^{2,3} Rural areas were defined as other small towns and farms. Education was measured as years of school completed. Age and gender were self-reported and reported by Manitoba Health. Self-rated health was recorded using the question "How would you say your health is these days?" and rated as Very good, Good, Not too good, Poor, or Very poor. For our analysis, those people who rated their health as Good or Very good were considered to have good self-rated health. Those people who rated their health as Not too good, Poor or Very poor were considered to have poor self-rated health.

Satisfaction with health was measured using the Terrible–Delightful Scale.^{7–9} Participants were asked to rate their satisfaction with life as it was at that moment, using descriptive words or phrases on a 7-point scale (Terrible; Very dissatisfying; Dissatisfying; Mixed; Satisfying; Very satisfying; Delightful). For the purposes of our analysis, elderly people who claimed that their health was Satisfying, Very satisfying or Delightful were considered to be satisfied with their health. Those who rated their health as Mixed, Dissatisfying, Very dissatisfying or Terrible were considered to be dissatisfied with their health. Activities of daily living (ADL) were measured using the Older American Resource Study.¹⁰ This measures basic ADL functions, as well as instrumental activities of daily living. For our analysis, those who required help from only a device, or were able to perform the task, were classified as not being disabled. Those needing assistance from a person, or a person and a device, and those unable to do the task were classified as being disabled for that task.

Statistical analysis

Associations between variables were sought using chi-squared tests. For analyses of functional status, Fisher's exact test was used, because there were less than 5 observations in some cells. Continuous variables were compared with the Student's t-test for independent samples with unequal variance. Multivariate analyses were conducted using logistic regression modelling. One

model was constructed for the outcome variable of self-rated health, and one model for the outcome variable of satisfaction with health. Age, education and 3MS exam scores were entered into both of these models as continuous variables. Rural residence and gender were entered as dummy variables and coded as 0 or 1. All analyses were conducted in SPSS for personal computers, version 7.5.

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Results

The baseline demographics are shown in [Table 1](#). Differences in self-rated health are shown in [Table 2](#). The difference in self-rated health between rural and urban areas was not large and not statistically significant. This lack of association did not change after adjustment for age, gender, education and 3MS exam score. However, the rural elderly were more likely to be satisfied with their health. While relatively small, this difference in health satisfaction is likely important. Even after controlling for age, gender, education and 3MS exam score, this relationship was maintained. Advancing age, female sex and lower 3MS exam scores were also associated with lower satisfaction with health in both bivariate and multivariate analyses ([Table 3](#)).

In general, the rates of disability were low in both rural and urban regions. The rural elderly respondents had slightly higher rates of disability than the urban respondents for most ADLs. Rural elderly participants were less likely to be able to transfer out of bed, or to do stairs than urban seniors. However, while statistically significant, these differences were very small. Trends were seen toward poorer functional status in the rural elderly in the other basic ADLs, but these were not statistically significant. There were no differences between rural and urban elderly in terms of instrumental ADLs, except with regard to managing their finances and doing heavy housework ([Table 4](#)).

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Discussion

Strengths and limitations

There are several limitations to this study. First, the results may not be able to be generalized to other areas. Manitoba's rural elderly may differ from other rural populations in terms of

education, income, access to health care and other important determinants of health. They may also differ in terms of health expectations. Second, this was a cross-sectional study. Thus, temporal relationships are not known: seniors with poor health status may relocate. However, Verhaj and colleagues¹¹ have reported that only extremely high levels of selective migration would make differences in health status between rural and urban populations noticeable at an aggregate level.

Third, the study did not survey extremely remote regions. However, the elderly population in these regions is very small,⁵ and the results would not likely be greatly influenced by not including these groups. Furthermore, in other studies the health status of these populations is worse than the rest of Manitoba.^{12,13} Thus, their inclusion would likely serve to increase the differences that we have noted.

The study has several strengths. First, it was a large study that surveyed a high proportion of rural seniors. Second, the analysis was stratified on region, ensuring adequate rural representation. Third, data were collected by trained interviewers using standardized, validated, reliable measures. A final strength of the study is the relatively clear distinction between rural and urban regions in Manitoba. In many other countries, areas defined as rural include suburban and semi-rural settings, making comparison between rural and urban difficult.

Interpretation

In Manitoba, rural elderly had very slightly higher rates of disability than urban elderly. This is consistent with the PAQUID study in the Gironde region of France.¹⁴ This study found that rural populations had very slightly higher rates of disability than urban populations. In multivariate analysis, however, it was found that these differences were not significant. In the Manitoba Study of Health and Aging, multivariate analysis of the functional status variables is not appropriate due to the very small numbers of disabled people. Therefore, it is difficult to say if these differences in functional status are due to differences in age, gender or education.

Self-rated health was similar in urban and rural elderly respondents, in both bivariate and multivariate analysis. However, the rural participants' satisfaction with their health was considerably better than their urban counterparts. This relationship was maintained even after adjustment for potential confounders such as age and gender. This relationship may be due to several factors. First, rural seniors may be in better health and this difference was simply not adequately measured by self-rated health or by functional status measures. There was a trend toward better self-rated health in rural seniors. However, this difference was not large and not statistically significant. Also, other studies have not shown that the rural elderly are in better health than urban seniors. Indeed, Mainous and coworkers¹⁵ found that rural seniors had significantly poorer health status than urban elders. In addition, rural elders had significantly poorer functioning, as measured by the SF20 subscales. A second plausible explanation is that the rural elderly population is simply more satisfied in general. This, however, appears not to be the case. Rural seniors were not more likely to be satisfied with housing, income, or

transportation in this study (data unpublished). Third, rural seniors may have lower expectations of health than their urban counterparts. Having tended to work at heavier physical tasks all their lives they may have expected to experience "poorer" health in old age (or throughout life) than their more "privileged" urban peers.

Our finding that rural residents have similar self-reported health to urban residents is different from the findings of Eggbeen and Lichter.¹⁶ They found that rural residents in the US had slightly worse self-rated health than their urban counterparts although they had fewer health conditions. The reason for this difference is not clear. In our analysis, and in Eggbeen and Lichter's analysis, differences in education, age and gender were accounted for. Thus, the differences are not due to any of these confounders. There may be important differences in the health, or in the perception of health between rural Manitobans and rural Americans, which account for these different findings.

The findings that there are differences in health satisfaction and in functional status are important for planning health and social programs. First, there is a slightly higher prevalence of basic ADL impairment in rural regions. Services must be delivered to these seniors in order to help maintain them in the community. This is often difficult in rural regions. Many rural communities are relatively isolated, and delivering rehabilitative services is more difficult and potentially more costly than in urban regions. Despite these difficulties, there is little difference in access to health care in rural regions in Manitoba. Indeed, the rate of hospitalization has been reported as higher in rural Manitoba than in Winnipeg, with little difference in overall health care use.^{17–19}

The finding that rural seniors are more satisfied with their health is also important in evaluating health care. Patient satisfaction questionnaires and health status questionnaires may yield different results in rural and urban populations, making interpretation difficult.

Further research is needed to determine reasons for rural–urban differences in health status and functional status. Notably, further investigation of differences in health attitudes and beliefs, social networks and depressive symptoms is required. Finally, longitudinal studies are needed to determine if these differences persist over time, and to measure the long-term consequences of these differences.

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The Manitoba Study of Health and Aging was supported by a grant from Manitoba Health.

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