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Main | Issues by Date | About CJRM

Summer 2004 Contents • L'été 2004 Table des matières

Having a regular doctor: rural, semi-urban and urban differences in Newfoundland

Maria Mathews, PhD
Alison C. Edwards, MSc

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Introduction: Recent studies suggest that 23% of adult Newfoundlanders do not have a regular doctor. Using data from the 1995 Newfoundland Panel on Health and Medical Care study, we examined the urban, semi-urban and rural differences in the characteristics of adult (age 20 and over) Newfoundlanders who did and did not have a regular doctor.

Methods: We used $*^2$ tests and logistic regression to analyze data from 11 789 respondents from randomly selected households in Newfoundland. The dependent variable was "Have a regular doctor" (Yes / No). The independent variable was "Place of residence" (Urban / Semi-urban / Rural) and covariates included socio-demographic and health-related variables.

Results: Fifteen percent (1771) of Newfoundlanders did not have a regular doctor. Of these, the largest proportion of respondents without a regular doctor lived in rural communities (74.4%); were male (62.6%); were 20-29 years old (28.7%); married (68.8%); of high socio-economic status (44.7%); working full-time (35.3%); had excellent or good health (83.0%); had no chronic illness (40.3%), disability (93.3%) or impairments to activities of daily living (98.0%); and were in excellent or good emotional health (90.7%). Compared to their urban counterparts, residents of semi-urban communities were as likely (odds ratio 1.03; 95% confidence interval [CI] 0.84-1.26) not to have a regular doctor and residents of rural communities were 4.03 (95% CI 3.50-4.65) times more likely than their urban counterparts not to have a regular doctor.

Conclusion: In 1995, fewer adult Newfoundlanders than previously estimated did not have a regular doctor. Rural residents were more likely not to have a regular doctor than residents of either urban or semi-urban communities.

Introduction : Des études récentes indiquent que 23 % des Terre-neuviens adultes n'ont pas de médecin attitré. À partir de données tirées de l'étude menée en 1995 par le Groupe d'étude sur la santé et les soins médicaux de la province, nous avons analysé les différences des caractéristiques des Terre-neuviens adultes (20 ans et plus) de milieux urbains, semi-urbains et ruraux qui avaient et n'avaient pas de médecin attitré.

Méthodes : Nous avons utilisé des analyses *[2] et la régression logistique pour analyser des données provenant de 11 789 répondants de ménages choisis au hasard à Terre-Neuve. La variable dépendante était : «a un médecin attitré» (oui/non). La variable indépendante était le «lieu de résidence» (milieu urbain/semi-urbain/rural) et les covariables incluaient des variables sociodémographiques et reliées à la santé.

Résultats : Quinze pour cent (1771) des Terre-neuviens n'avaient pas de médecin attitré. De ce nombre, le pourcentage le plus important des répondants sans médecin attitré vivaient dans des communautés rurales (74,4 %), étaient de sexe masculin (62,6 %), avaient de 20 à 29 ans (28,7 %), étaient mariés (68,8 %), de situation socioéconomique élevée (44,7 %), travaillaient à plein temps (35,3 %), étaient en excellente ou en bonne santé (83,0 %), n'avaient pas de maladie chronique (40,3 %), d'incapacité (93,3 %) ou de limitation des activités de la vie quotidienne (98,0 %) et étaient en excellente ou en bonne santé affective (90,7 %). Comparativement à leurs homologues urbains, les résidents des communautés semi-urbaines étaient aussi susceptibles (coefficient de probabilité 1,03; intervalle de confiance [IC] à 95 % 0,84-1,26) de ne pas avoir de médecin attitré et les résidents de communautés rurales étaient 4,03 (IC à 95 %, 3,50-4,65) fois plus susceptibles que leurs homologues urbains de ne pas avoir de médecin attitré.

Conclusion : En 1995, moins de Terre-neuviens adultes qu'on l'avait estimé auparavant n'avaient pas de médecin attitré. Les résidents des milieux ruraux étaient plus susceptibles de ne pas en avoir que ceux des communautés urbaines ou semi-urbaines.

Background

Recent reports estimate that between 14% and 30% of Canadians do not have a regular doctor (i.e., a family doctor or general practitioner [GP]).[1-3] Using data from the National Population Health Survey (NPHS) (1994-95), Talbot and colleagues[1] reported significant regional variations: almost 23% of Newfoundlanders did not have a regular doctor and were 4.35 times more likely than Ontarians not to have a regular doctor. Various factors have been suggested to contribute to diminishing physician supply, including the graying of the physician population, decreasing medical school enrollment, fewer physicians choosing to specialize in family medicine, and the "brain drain" (i.e., the exodus of doctors to the United States).[4-6]

Hutten-Czapski[7] estimated that there is nearly a 4-fold difference in physician-to-population ratios between urban (1:193) and rural (1:797) communities in Canada. Onerous workloads have long been cited as discouraging doctors from working in rural communities. For example, recent studies report that family doctors and GPs who worked in smaller centres worked longer hours[8] and had more demanding on-call schedules[9] than their counterparts in larger centres.

Understanding intra-provincial rural-urban differences in physician distribution is an important step in developing and evaluating human resources policies.[10] In 1995 we conducted a population-based telephone survey of a random sample of households in Newfoundland as part of the Newfoundland Panel on Health and Medical Care.[11,12] With approximately 42% of the population living in rural areas, this data set provides an opportunity to validate the findings of the study using data from the NPHS[1] and explore the rural-urban distribution of family doctors and GPs in the province. This article examines the characteristics of Newfoundlanders who do not have a regular doctor. We hypothesized that residents of rural communities are more likely not to have a regular doctor than residents of either semi-urban or urban communities.

Methods

We used data from the 1995 population-based telephone health survey from the Newfoundland Panel on Health and Medical Care. We surveyed a random sample of households selected by random digit dialing on the island of Newfoundland (pop. 523 000). In selected households, all adults 20 years or older were interviewed, with a response rate of 84.8%. Details about the design and the results of the survey can be found in a paper[11] and on a Web site.[12] The survey covered the non-institutionalized population who had a telephone and were covered by the provincial health insurance plan. It excluded members of the armed forces, the Royal Canadian Mounted Police, and foreign and out-of-province students. Students with parental homes elsewhere in the province were also excluded. These individuals would have been included in the survey if their parental home had been randomly selected.

Our dependent variable was "Have a regular doctor" (Yes / No). Respondents who either did not have a regular doctor or whose doctor frequently changed were coded as not having a regular doctor. The independent variable in the study was "Place of residence" and was coded as urban, semi-urban or rural. Respondents who lived in a community of 100 000 or more residents were coded as "urban," those who lived in communities of 10 000 to 99 999 were coded as "semi-urban," and those who lived in communities of less than 10 000 were coded as "rural."

Our control variables captured socio-demographic and health-related factors.

The socio-demographic variables considered were the following: sex; age (20-29, 30-39, 40-49, 50-59, 60-69 and >=70); marital status (Married/Common-law or Unmarried [i.e., single, living common-law <1 yr, separated, divorced or widowed]); socio- economic status (derived from combining the education variable with the income adequacy variable and coded into 3 levels: Low, 1-3; Mid, 4-6; and High, 7-9); and employment status (Full-time [i.e., year-round employment], Part-time/Seasonal, Not working [i.e., looking for employment, laid off or on strike] and All Others [i.e., retired, keeping house, students, unable to work]).

Health-related variables included self-reported health status (Excellent, Good, Fair or Poor); self-reported presence of a disability; activities of daily living score (the sum of 8 questions grouped into 3 categories: No Limitations, 0; Some, 1-3; and Many, 4-8); number of chronic conditions (0, 1, 2 or >=3); and self-reported emotional status (Excellent, Good, Fair or Poor).

We analyzed unweighted data using the SPSS (version 11.5). We used frequencies to describe the characteristics of the study sample and $*^2$ tests to identify differences between people who had and did not have a regular doctor. To test our hypothesis, we used multiple logistic regression, which allowed us to look at the association between place of residence and not having a regular doctor, after controlling for other significant predictors. Univariate logistic regression was used to identify significant (p ¾ 0.01) control variables to include in the multiple logistic regression. Collinearity between explanatory variables was examined a priori. Large standard error values, indicative of multicollinearity, were not found in any of the regression models. Finally, we used $*^2$ tests to identify differences in the characteristics of urban, semi-urban and rural Newfoundlanders without regular doctors.

Results

Table 1 summarizes the characteristics of the 11 789 respondents in the sample, of which 85% (10 018) had a regular doctor and 15% (1771) did not. The largest proportion of

respondents lived in rural communities, were female, under the age of 50, married, of middle socio-economic status and worked full-time. The majority reported good or excellent emotional and general health, had one or no chronic illness, were disability free, and had no difficulty with activities of daily living.

Compared to those with a regular doctor, a larger proportion of residents without a regular doctor lived in rural communities, were male, of younger age, unmarried, of lower socio-economic status, worked seasonal or part-time jobs or did not work at all (**Table 2**). In terms of health, a larger proportion of those without regular doctors reported either excellent or good health, none or one chronic illness, and no disability or impairment to their activities of daily living than those who had a regular doctor. Although a larger proportion of individuals without regular doctors reported good emotional health than their counterparts with a regular doctor, a smaller proportion reported excellent health.

In univariate logistic regression, compared to those who lived in an urban centre, residents of semi-urban centres were as likely to not have a regular doctor and rural residents were 3.80 times more likely to not have a regular doctor (**Table 3**). Women were less likely than men, and married people were less likely than unmarried people to not have a regular doctor. Respondents who were in the older age groups or of higher socio-economic status had a lower likelihood of not having a doctor than those who were in the lowest age group or socio-economic status respectively. With the exception of emotional status, for the health variables, generally respondents in poorer health categories had lower likelihood of not having a regular doctor than respondents in better health categories. However, compared to those with excellent emotional health, those with good emotional health were more likely not to have a regular doctor while those with either fair or poor emotional health were as likely to not have a regular doctor. After controlling for significant covariates (**Table 4**), residents of semi-urban communities were just as likely not to have a regular doctor, compared to their urban counterparts, and residents of rural communities were 4.03 times more likely not to have a regular doctor.

Almost three-quarters of those who did not have a regular doctor lived in rural communities. To gain a better understanding of Newfoundlanders without regular doctors, we also looked at rural and urban differences in their characteristics (**Table 5**). Compared to their urban or semi-urban counterparts, larger proportions of rural residents without a regular doctor are female, married, have low socio-economic status, and have seasonal/ part-time jobs or no job at all. Relative to their urban counterparts, larger proportions of both semi-urban and rural Newfoundlanders without regular doctors are in the older age groups (50 and older). In terms of health, smaller proportions of rural residents without regular doctors are in the healthier categories (e.g., almost twice the proportion of rural residents without regular doctors reported fair health or emotional status or had 3 or more chronic illnesses than either their urban or semi-urban counterparts).

Discussion

Using data from the 1995 Newfoundland Panel of Health and Medical Care, we found that roughly 1 in 7 (15%) adult Newfoundlanders did not have a regular doctor, significantly less than the estimate based on data from the 1994-95 NPHS, which suggested that roughly 1 in 5 (23%) adult Newfoundlanders did not have a regular doctor.[1] Both studies surveyed all adult members of randomly selected households on the island portion of the province, although the Newfoundland Panel of Health and Medical Care used a larger sample than the NPHS. Nonetheless, this substantial difference underlines the importance of independently validating results.

While other studies suggest that residents without regular doctors are more likely to be young, male, well-off, and healthy, our study showed significant rural-urban differences in the characteristics of people without regular doctors. We found that unlike their urban and

semi-urban counterparts, larger proportions of rural residents without regular doctors are older, and female. Moreover, rural residents without regular doctors also reported poorer health. These findings suggest that unlike rural residents, for whom not having a regular doctor is related to access, for urban or semi-urban residents it may also be a matter of personal choice. We also found that larger proportions of rural residents without a regular doctor come from lower socio-economic status and did not have full-time employment. However these findings likely reflect the nature of rural areas (fewer professionals, higher unemployment, and seasonal industries) rather than income-related restrictions to doctors.

In our study, we categorized respondents who either said they "did not have a regular doctor" or "doctor often changes" as not having a regular doctor. By including those whose doctor frequently changes, our definition of "no regular doctor" implies that continuity of care and not solely access to a doctor is an integral component of primary care. This interpretation is consistent with the philosophy of family medicine as described by the College of Family Physicians of Canada as well as primary care researchers.[13-15] Supplementary analysis of the characteristics of respondents who said that they did not have a regular doctor and those whose doctors often change show that there were no significant differences between these groups on the variables included in this study (data not shown).

Although the study used a large, randomly selected sample, our findings may underestimate the number of individuals without a regular doctor in the province. Since we used a telephone survey, we will have excluded individuals without a telephone who are more likely to be of lower socio-economic status and more likely not to have a doctor. Telephone coverage for the area surveyed is close to 98%. Our survey was also limited to the island of Newfoundland and excluded residents of Labrador, where there are many small, isolated communities. Further study is also needed to assess the impact of not having a regular doctor on health service utilization and long-term health outcomes. Moreover, studies with more recent data (such as the Canadian Community Health Survey) may highlight the impact of the decrease in medical school enrolment in Canadian universities in the 1990s.[6,16,17] and the effectiveness of the various initiatives in Newfoundland and Labrador[5] on physician distribution.

Conclusion

In 1995, roughly 1 in 7 (15%) of adult Newfoundlanders did not have a regular doctor. Place of residence was the strongest predictor of not having a regular doctor. Residents of rural communities are less likely to have a regular doctor than residents of either semi-urban or urban communities.

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Correspondence to: Dr. Maria Mathews, Division of Community Health, Health Science Centre, Memorial University of Newfoundland, St. John's NL A1B 3V6

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