

The relationship between physician visits and some quality of life indicators

Results from a survey conducted in a rural BC community lead researchers to ask if frequent users of physician services might be better served by strategies that address their higher levels of stress and dissatisfaction with life.

ABSTRACT:

Background: A patient survey and chart review were conducted to determine if there is a relationship between the number of visits a patient makes to a family physician and eight quality of life indicators: self-rated health, self-rated stress, self-rating of health care received, satisfaction with life as a whole, satisfaction with health, spiritual fulfillment, overall quality of life, and happiness.

Methods: The survey required respondents to identify their level of concern or satisfaction with quality of life indicators using a Likert scale. Respondents consisted of adults (age 17 and older) living in British Columbia's Bella Coola Valley and attending the Bella Coola Medical Clinic. After respondents completed the survey, their charts were reviewed to determine the number of visits they made to family physicians. Data obtained from the survey answers were combined with data obtained from reviewing the charts. The relationships revealed by the two sets of data were then considered.

Results: An estimated 1734 Bella Coola residents were deemed eligible to complete the quality of life survey. A total of 968 usable surveys were returned, for a response rate of 56% (968 of 1734). One-way ANOVA testing revealed there is a relationship between the number of visits to a physician and the scores for self-rated health ($P < 0.001$) and stress ($P \leq 0.001$), satisfaction with life ($P < 0.001$) and health ($P < 0.001$), spiritual fulfillment ($P = 0.002$), overall quality of life ($P < 0.001$), and happiness ($P < 0.001$). No relationship was found between the number of visits to a physician and the respondents' rating of health care received ($P = 0.127$).

Conclusions: There is a relationship between the number of times a person visits a family physician and his or her self-rated health and stress, satisfaction with life and health, spiritual fulfillment, overall quality of life, and happiness. More visits to a physician were associated with greater dissatisfaction with life. Better understanding of these relationships may lead to strategies designed to reduce the number of visits to physicians.

Background

A common theme emerging from the many discussions, commissions, and inquiries about Canada's health care system is that "better management is required, not more money."¹⁻⁷ Health care planners and decision-makers are increasingly looking for ways to make the system more efficient and cost-effective. The questions being asked include:

- Who visits physicians?
- Why do people visit physicians?
- How necessary are these visits?
- How cost-effective are these visits?

The answers to these questions are not easy to obtain because many different physician-specific, patient-

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specific, and access-related factors can affect the number of patient visits per time period.

Physician gender, marital status, age, and place of graduation, along with physician-to-population ratios, size of community, and clinical demands are all family-physician-specific factors that affect physician workload.⁸⁻¹⁵ Studies on patient-specific factors and family physician visits have demonstrated that women visit family physicians more often than men, people of aboriginal descent visit family physicians more often than nonaboriginal people, older people visit family physicians more often than younger people, and people with chronic illnesses visit family physicians more frequently than those without. Aboriginal people have higher rates of smoking and chronic diseases such as diabetes and inflammatory arthritis, which presumably accounts for a portion of the greater number of visits reported by this group.¹⁶⁻²⁴

Studies have also shown that rural individuals utilize health services less often than their urban counterparts,²⁵⁻²⁹ despite the fact that rural residents are not as healthy as their urban counterparts and have higher rates of chronic disease, report being ill more frequently, and are more likely to report poorer health status.^{16,30-33} Poorer health among rural residents has in turn been attributed to lower levels of education,^{16,26} lower income,^{16,34} and the greater proportion of First Nations people in this population.^{17,34-36}

The World Health Organization defines health as not simply the absence of disease or disability but as a positive state of complete physical, mental, and social well-being.³⁷ If people visit physicians because they feel unhealthy, and if feeling unhealthy reflects negative social well-being, research should be able to demonstrate a relationship between social

well-being and visits to a physician. In fact, there is a study that shows frequent users of the health care system are experiencing high levels of psychosocial stress.³⁸ As far as we can tell no one has yet looked at the relationship between visits to family physicians and patients' subjective rating of health and quality of life. If it can be demonstrated that there is a strong relationship between overall quality of life and visits, time spent on improving these factors could, theoretically, result in fewer physician visits in the long run. The objective of this study was to determine if there is an association between visits to family physicians in a rural community and the patients' quality of life scores.

Methods

Bella Coola Valley is a remote community located in the central coast region of British Columbia. According to the 2001 census 2285 people live in the Bella Coola Valley, and 46% of these people are of aboriginal descent.^{39,40} Bella Coola Valley is part of the traditional territory of the Nuxalk Nation, a tribe of Salish-speaking coastal Indians.⁴¹⁻⁴⁴ Details of the medical services available in this community have been reported previously.^{45,46}

Research was carried out in a participatory fashion, following the recommendations outlined in recently published policy statements on working with aboriginal peoples.^{47,49} There was extensive consultation with the Nuxalk Band Council, community members, and local health care providers on our plans to study determinants of health and disease of people living in the Bella Coola Valley. We obtained letters of support from the Nuxalk Band Council, from the Bella Coola Transitional Health Authority, and from the Central Coast Regional District. Ethics approval to collect data was obtained from research ethics

committees located at both the University of British Columbia and the University of Northern British Columbia. Nuxalk health authorities reviewed the final manuscript and approved it for publication.

A survey about health and health care⁵⁰ was offered to all adults (age 17 and older) living in the Bella Coola Valley between August 2001 and May 2002. Questionnaires were mailed out three times: the first mailing was in August 2001, the second mailing was in November 2001, and the third mailing was in January 2002. Questionnaires were also distributed at the Bella Coola Medical Clinic, the emergency department of the Bella Coola Hospital, and in two local grocery stores. Booths were set up at the grocery stores and at the clinic where research assistants administered the questionnaire to people who might not normally respond to a mail-out survey, including elderly people and those with literacy problems. Questionnaires were also hand-delivered on the local reserve by two Nuxalk research assistants and picked up later. All recipients were asked to read an informed consent form or were read an informed consent form prior to completion of a survey.

The first question on the survey (see **Table 1**), which is also the first question in the SF-36 survey,⁵¹ asked respondents to rate their general health. The next question asked respondents to rate their current life stress level.⁵² Next, each respondent was asked to rate the personal health care he or she receives in the Bella Coola Valley. Respondents were also asked to provide scores for five additional quality of life items: satisfaction with life as a whole, satisfaction with health, spiritual fulfillment, overall quality of life, and happiness. These quality of life questions have good reliability and validity and have been

part of numerous surveys distributed throughout North America.^{53,54}

An identification number was assigned to each survey and used for remailing surveys and for linking survey responses to clinic chart information. Dr Harvey Thommasen was the only researcher able to link the two sets of data. He was also the researcher who did the chart review. During the chart review he added up the number of times a patient visited a family physician in Bella Coola in 2001. Survey answers and visit information were entered into an Excel spreadsheet, from which results were summarized. Names and addresses were removed from this linked data set and passed on to statisticians and other researchers for further analyses. One-way ANOVA tests were then performed.⁵⁵

Results

A total of 971 surveys were returned, of which 968 could be used for the purposes of this project. An estimated 1734 Bella Coola residents were eligible to complete this survey, so the estimated response rate was 56%. Of the 968 surveys, 964 could be linked to names on the Bella Coola Medical Clinic patient list.

Table 2 presents the mean quality of life score, mean number of visits to a physician in 2001, and the one-way ANOVA probability value (*P*) for each survey item. Survey respondents did not answer all questions, so the total number of respondents varies from item to item.

Analysis reveals that scores indicating poorer health and more stress are associated with *increasing* visits to family physicians ($P \leq 0.001$). Analysis also reveals that scores indicating greater satisfaction with life and health, and greater spiritual fulfillment, overall quality of life, and happiness are associated with *decreasing* visits to family physicians

Table 1. Quality of life indicators from survey.

Survey item	Likert scale range
Self-rated health	1 (excellent) to 5 (poor)
Self-rated stress	1 (unstressful) to 7 (stressful)
Rating of health care received	1 (poor) to 5 (good)
Satisfaction with life as whole	1 (dissatisfied) to 7 (satisfied)
Satisfaction with health	1 (dissatisfied) to 7 (satisfied)
Spiritual fulfillment	1 (dissatisfied) to 7 (satisfied)
Overall quality of life	1 (dissatisfied) to 7 (satisfied)
Happiness	1 (unhappy) to 7 (happy)

Table 2. Comparison of mean quality of life scores and physician visits.

Survey item	Number of respondents	Quality of life score Mean ± SD	Visits to physician Mean ± SD	<i>P</i> value
Self-rated health	910	2.8 ± 1.0	4.3 ± 5.2	<0.001
Self-rated stress	926	4.5 ± 1.5	4.3 ± 5.1	≤0.001
Rating of health care received	937	3.5 ± 1.1	4.3 ± 5.2	0.127
Satisfaction with life as a whole	923	5.4 ± 1.5	4.3 ± 5.1	<0.001
Satisfaction with health	918	4.9 ± 1.6	4.2 ± 5.0	<0.001
Spiritual fulfillment	850	5.2 ± 1.6	4.3 ± 5.0	0.002
Overall quality of life	927	5.5 ± 1.4	4.3 ± 5.2	<0.001
Happiness	940	5.5 ± 1.6	4.3 ± 5.1	≤0.001

($P \leq 0.002$). Scores indicating the respondents' rating of health care services received are not associated with either increasing or decreasing visits to family physicians ($P \leq 0.127$).

Conclusions

Our data suggest that there is a relationship between the number of times a patient visits a physician and his or her self-rated health and stress, satisfaction with life and health, spiritual fulfillment, overall quality of life, and happiness. One might be tempted to assume that poor self-rated health is the sole reason for an increase in visits to family physicians, and that it also

accounts for dissatisfaction, unhappiness, and poorer overall quality of life. However, numerous studies have shown that there is little or no relationship between how individuals rate their health and their satisfaction ratings for life as a whole, overall quality of life, or happiness. As noted by Michalos, "When researchers use the SF-36 as a measure of health-related quality of life, they are begging the question about the relationship of good health to good quality of life because they are assuming SF-36 measures both equivalently. What's worse, by confounding these notions, they are preventing themselves from

actually measuring the impact of the former on the latter and they are making it more difficult for others to even recognize this important issue.^{7,56}

The finding of a relationship between self-rated quality of life indicators and number of visits to a family physician implies we might be able to influence number of visits by undertaking community-based interventions to improve quality of life in our patients. If nothing else, this observation makes for interesting hypothesis generation. For example, high users of physician services are frequently labeled as being abusers of health care systems.^{7,11} In Bella Coola, 15% of residents account for 52% of all family physician clinic visits.⁹ Perhaps the best way to deal with this problem is not by ordering hundreds of medical tests, but by examining issues of stress, overall quality of life, and happiness, and by engaging the population in strategies to improve these areas of their lives.

There are some limitations in this study. While the data may not be easily applicable to all communities, Bella Coola Valley is like many rural and remote communities in British Columbia and Canada with a high percentage of aboriginal residents. We encourage others to duplicate this survey in their communities to determine if the results are truly comparable and if we should be advocating more community approaches to issues affecting health.

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Competing interests

None declared.

References

1. Mhatre SL, Deber RB. From equal access to health care to equitable access to health: A review of Canadian provincial health commissions and reports. *Int J Health Serv* 1992;22:645-648.
2. Sutherland R, Fulton J. *Spending Smarter and Spending Less: Policies and Partnerships for Health Care for the 1990s*. Ottawa, ON: Canadian Hospital Association Press, 1994. Canadian Medical Association.
3. College of Family Physicians of Canada. "Green" Paper. Managing change: A discussion document on primary health care reform in Canada. 19 September 1995:50.
4. Caulfield T. The Mazankowski Report. *Parkhurst Exchange* 2002;10:166.
5. Canadian Health Services Research Foundation. Kirby report recommends federal reform. *Links* 2002;5:7.
6. Romanow RJ. *Building on Values: The Future of Health Care in Canada*. Ottawa, ON: Commission on the Future of Health Care in Canada; 2002. 356 pp.
7. Reid RJ, Barer ML, McGrail KM, et al. High users of physician services: A framework and exploratory empirical analysis. Centre for Health Services and Policy Research. Project No. 6610-2368-001. March 2001.
8. Martin S. Fee-for-service v. salary: The debate is heating up. *CMAJ* 2003; 169:701.
9. The Practicing Physician Community in Canada, 1989/90 to 1998/99: Workforce and Workload as Gleaned through Billing Profiles for Physician Services. Ottawa, ON: Canadian Institute for Health Information; 2001. 37 pp.
10. Thommasen HV, Grzybowski S, Sun R. Physician-to-population ratios in British Columbia. *Can J Rural Med* 1999;4:139-145.
11. Coyte PC, Catz M, Stricker M. Distribu-

tion of physicians in Ontario: Where are there too few or too many family physicians and general practitioners? *Can Fam Physician* 1997;43:677-683, 733.

12. Chan B, Anderson GM, Theriault M-E. High-billing general practitioners and family physicians in Ontario: How do they do it? An analysis of practice patterns of GP/FPs with annual billings over \$400,000. *CMAJ* 1998;158:741-746.
13. Woodward CA, Hurley J. Comparison of activity level and service intensity of male and female physicians in five fields of medicine in Ontario. *CMAJ* 1995;153: 1097-1106.
14. Norton PG, Dunn EV, Soberman L. Family practice in Ontario: How physician demographics affect practice patterns. *Can Fam Physician* 1994;40:249-256.
15. Dedobbeleer N, Constandriopoulos A-P, Desjardins S. Convergence or divergence of male and female physicians' hours of work and income. *Med Care* 1995;33:796-805.
16. British Columbia Provincial Health Officer. A report on the health of British Columbians: Provincial Health Officer's annual report 1996. Victoria, BC: Ministry of Health and Ministry Responsible for Seniors; 1997.
17. British Columbia Provincial Health Officer. The health and well-being of aboriginal people in British Columbia. In: A report on the health of British Columbians: Provincial Health Officer's annual report 2001. Victoria, BC: Ministry of Health and Ministry Responsible for Seniors; 2002.
18. First Nations and Inuit Regional Health Survey National Steering Committee. First Nations and Inuit Regional health survey. National Report 1999. Ottawa, ON: Assembly of First Nations.
19. Tobacco use in BC 1997: A report on a survey done by the Heart and Stroke Foundation of BC and Yukon. [http://www .hlth.gov.bc.ca/tobacrs/summary/index .html](http://www.hlth.gov.bc.ca/tobacrs/summary/index.html) (accessed 23 March 2005).
20. MacMillan HL, MacMillan AB, Offord DR, et al. Aboriginal health. *CMAJ* 1996; 155:1569-1578.

21. Young TK. *The Health of Native Americans: Toward a Biocultural Epidemiology*. New York: Oxford University Press; 1994. 275 pp.
22. Young TK, Szathmary EJE, Evers S, et al. Geographical distribution of diabetes among the native population of Canada: A national survey. *Soc Sci Med* 1990; 31:129-139.
23. Johnson S, Martin D, Sarin C. Diabetes mellitus in the First Nations population of British Columbia, Canada. Part 3. Prevalence of diagnosed cases. *Int J Circumpolar Health* 2002;61:260-264.
24. Coutts JV, Thommasen HV. Prevalence of rheumatoid arthritis in the Heiltsuk people of Bella Bella. *BCMJ* 1998;40: 250-251.
25. Statistics Canada. Health services access survey 2001. 15 July 2002. www.statcan.ca/Daily/English/020715/d020715a.htm (accessed 25 July 2002).
26. Nemet GF, Bailey AJ. Distance and health care utilization among the rural elderly. *Soc Sci Med* 2000;50:1197-1208.
27. Saag KG, Doebbeling BN, Rohrer JE, et al. Arthritis health service utilization among the elderly: The role of urban-rural residence and other utilization factors. *Arthritis Care Res* 1998;11:177-185.
28. Neese J, Abraham I, Buckwalter K. Utilization of mental health services among rural elderly. *Psychiatr Nurs* 1999;13:30-40.
29. Casey M, Thiede Call K, Klingner J. Are rural residents less likely to obtain recommended preventive healthcare services? *Am J Prev Med* 2001;24:182-188.
30. Call KT, Casey M, Radcliff T. Rural beneficiaries with chronic conditions: Does prevalence pose a risk to Medicare managed care? *Manag Care Q* 2000;8:48-57.
31. Rohrer J, El-Urdaneta M, Vaughn T, et al. Physician visits in a farming-dependent county. *J Rural Health* 1998;14:338-345.
32. Yesalis CE, Lemke JH, Wallace RB, et al. Health status of the rural elderly according to farm work history: The Iowa 65+ Rural Health Study. *Arch Environ Health* 1985;40:245-253.
33. Mitura V, Bollman RD [Statistics Canada]. The health of rural Canadians: A rural-urban comparison of health indicators. *Rural and Small Town Canada Analysis Bulletin*. 2003;4:1-23. Catalogue no. 21-006-XIE.
34. Wood E, Sallar A, Schechter M, et al. Universal health care? Poor men more likely to die from "avoidable" causes in British Columbia. *The Evidence Speaks*. Monograph Number 1, 1999. www.cheos.ubc.ca/publications.html (accessed 10 March 2005).
35. Gobrial M, Mekael H, Anderson N, et al. Diabetic blood sugar control: An urban/rural comparison. *BCMJ* 2002;44:537-543.
36. Canadian Institute for Health Information. Aboriginal peoples' health. In: *Improving the health of Canadians*. www.cihi.ca (accessed 1 March 2004).
37. Boelen C. *Towards Unity for Health: Challenges and Opportunities for Partnership in Health Development*. Geneva: World Health Organization; 2000:84.
38. Mehl-Madrona LE. Frequent users of rural primary care: Comparisons with randomly selected users. *J Am Board Fam Pract* 1998;11:105-115.
39. British Columbia Vital Statistics Agency. P.E.O.P.L.E. 27. BC Ministry of Management Services. Health Data Warehouse; 2003.
40. British Columbia Vital Statistics Agency. 2001 British Columbia census. Victoria, BC: Government of British Columbia; 2003.
41. Kennedy DID, Bouchard RT. Bella Coola Indians. In: Suttles W (ed.). *Handbook of North American Indians*. Washington, DC: Smithsonian Institute; 1990: 323-339.
42. McIlwraith TF. *The Bella Coola Indians*. Toronto, ON: University of Toronto Press, 1992.
43. Thommasen HV. Prehistoric medicine on BC's Central Coast. *BCMJ* 1999;41: 343-346.
44. Acheson S. Culture, contact, demography and health among the aboriginal peoples of British Columbia. In: Stephenson PH, Elliott SJ, Foster LT, et al. (eds). *A Persistent Spirit: Towards Understanding Aboriginal Health in British Columbia*. Canadian Western Geographical Series. Volume 31. Victoria, BC: Western Geographical Press; 1995: 1-42.
45. Bella Coola General Hospital. Welcome to the Bella Coola General Hospital. http://bellacoola_hospital.tripod.com/ (accessed 12 August 2002).
46. Thommasen HV, Newbery P, Watt WD. Medical history of Central Coast of British Columbia. *BCMJ* 1999;41:464-470.
47. Smylie J [Aboriginal Health Issues Committee]. *A guide for health professionals working with aboriginal peoples: Health issues affecting aboriginal peoples*. J SOGC 2001;100:54-68.
48. Macaulay AC, Gibson N, Freeman W, et al. Participatory research maximizes community and lay involvement. *BMJ* 1999;319:774-778.
49. Cave AJ, Ramsden VR. Hypothesis: The research page. *Participatory action research*. *Can Fam Physician* 2002;48: 1671-1672.
50. Michalos AC, Thommasen HV, Anderson N, et al. Determinants of health and the quality of life in the Bella Coola Valley. *Soc Indic Res* 2005; In press.
51. Ware, JE, Snow KK, Kosinski M, et al. *SF-36 Health Survey: Manual and Interpretation Guide*. Boston, MA: The Health Institute, New England Medical Center; 1993.
52. Hudson WW. *The Clinical Measurement Package: A Field Manual*. Homewood, IL: Dorsey Press; 1982.
53. Michalos AC. *Prince George Papers on the Quality of Life*. Institute for Social Research and Evaluation. Prince George, BC: University of Northern British Columbia; 2002.
54. Zumbo BD, Michalos AC. Quality of life in Jasper, Alberta. *Soc Indic Res* 2000; 49:121-145.
55. Snedecor GW, Cochran WG. *Statistical Methods*. 7th ed. Ames, IA: Iowa State University Press; 1980.
56. Michalos AC, Zumbo BD, Hubley A. Health and the quality of life. *Soc Indic Res* 2000;51:245-286.