

Significant disparities in eyeglass insurance coverage in Canada

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ABSTRACT •

Objective: To describe patterns of access to eyeglass insurance by Canadians.

Design: A population-based, cross-sectional survey.

Participants: A total of 134 072 respondents to the Canadian Community Health Survey 2003 who were aged ≥ 12 years.

Methods: We compared self-reported insurance coverage for eyeglasses or contact lenses provided by private, government, or employer-paid plans.

Results: Overall, 55.0% of Canadians aged ≥ 12 years had insurance that covers all or part of the costs of optical correction. School-age children (63.3%) and individuals aged 20–39 years (55.9%) and 40–64 years (59.5%) had higher coverage rates than seniors (aged ≥ 65 years) (33.8%, $p < 0.05$). Canadians residing in the 3 territories had the highest coverage (76.9%), while those in Quebec had the lowest coverage (39.1%, $p < 0.05$). Lower coverage was reported among immigrants (47.3%) versus nonimmigrants (57.4%, $p < 0.05$), nonwhites (49.2%) versus whites (56.4%, $p < 0.05$) and aboriginals (70.7%), and the self-employed (38.5%) versus employees (63.8%). Among Canadians in the 20–64 years age group, individuals in the lower or middle income bracket were 40% (prevalence ratio [PR] 0.60, $p < 0.05$) less likely to have insurance than those in the upper-middle or higher income bracket after adjusting for ethnicity, immigrant status, and education. Compared to those with university or college education, individuals with less than secondary school education were 13% (adjusted PR 0.87, $p < 0.05$) less likely to have insurance.

Conclusions: Significant disparities exist in eyeglass insurance coverage in Canada. Individuals with low levels of income and education, and the self-employed, seniors, immigrants, nonwhites, and residents of Quebec had less coverage. Studies are needed to understand whether these disparities contribute to the visual impairment burden in Canada.

Eyeglasses and contact lenses are the primary means to correct vision problems resulting from refractive errors. One study reported that 57% of Canadians over the age of 20 years had some form of vision problem requiring optical correction.¹ This percentage increased to 80% among Canadians over the age of 50 years. In the U.S., a similar study reported that clinically important refractive errors affect half of the population.²

Despite the fact that vision problems due to refractive error are common and readily correctable, uncorrected or undercorrected refractive errors (URE) account for 53% of moderate and severe visual impairment globally.³ In the United States and Australia, recent data indicate that almost three quarters of individuals with visual impairment had URE as the cause.^{4–6} URE is an issue in both developing and developed countries.^{7,8} The World Health Organization has established a global initiative for eliminating avoidable blindness and has identified URE as one of the 5 working priorities to achieve this goal.⁹

We believe the cost of corrective eyeglasses or contact lenses may in part account for these findings. We previously reported that the average cost of a pair of prescription eyeglasses in Canada is in the range of \$240–\$1000.¹⁰ Furthermore, no Canadian provincial health

insurance plans cover the cost of eyeglasses and contact lenses. Vision benefits cover part of the cost of eyeglasses through provincial low-income assistance or disability assistance programs for individuals meeting program requirements.^{11,12} Supplemental health benefit programs also cover part of the cost of eyeglasses for specific populations (e.g., veterans, refugees, First Nations, and Inuit).^{13–15} The majority of Canadians, however, pay out of pocket or rely on private or employment-associated insurance plans to obtain optical correction.

To date, no studies have reported on the number of individuals with eyeglass insurance coverage. In this study, we describe the self-reported pattern of access to eyeglass insurance in Canada and examine associated sociodemographic and geographic factors.

METHODS

Data source

We analyzed the nationwide self-reported data from the Canadian Community Health Survey (CCHS) Cycle 2.1. The CCHS is a survey of individuals aged 12 years or older and living in private dwellings in Canada. The survey has been performed regularly since 2000 with

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contents changing from cycle to cycle. Nearly 10 CCHS surveys have been conducted so far, but Cycle 2.1 in 2003 is the only survey that asked information on insurance coverage at a nationwide level. Survey subjects were randomly chosen from a complex design with 2 sampling processes: household sampling and individual sampling.¹⁶ Standardized questionnaires were used to collect information. In Cycle 2.1, 134 072 Canadians responded to the survey, representing an 87.1% response rate at the household level and 92.6% at the individual level.¹⁶ More survey details are available from Statistics Canada.¹⁶

Information on insurance coverage

Information regarding insurance coverage was obtained from the following survey question¹⁷:

“Now, turning to your insurance coverage. Please include any private, government or employer-paid plans.

Do you have insurance that covers all or part of:

- the cost of your prescription medications?
- your dental expenses?
- the costs of eye glasses or contact lenses?
- hospital charges for a private or semi-private room?”

An answer was positive if respondents indicated they had insurance coverage for the relevant question.

Other study information

Age, sex, and province of residence of respondents were self-reported. If a respondent was not born a Canadian citizen, this respondent was classified as an immigrant. If the cultural or racial origin of the respondent was self-reported as white, he or she was labeled as white. Respondents who identified as nonwhite and those who identified as aboriginal were considered separately because First Nations and Inuit health insurance are separately covered by the federal government.

The highest education level acquired by any member of the household was obtained through a series of questions and was grouped into 4 categories by Statistics Canada: less than secondary school graduation, secondary school graduation but no postsecondary education, some postsecondary education, and postsecondary degree/diploma.

Similarly, income data were classified into 5 categories by Statistics Canada based on total household income in

2002 and the number of people living in the household, as shown in Table 1.

Statistical analyses

The survey weights provided by Statistics Canada were used for all analyses. These weights accounted for the complex survey design and sample selections; they also adjusted for nonresponse, seasonal effect, and poststratification. The weighted data are therefore more representative of the survey population and are required by Statistics Canada for reporting when producing population estimates.¹⁶

Insurance coverage was calculated as the proportion of people who self-reported having insurance coverage for the question surveyed among all respondents. The 95% confidence interval for coverage was calculated using PROC SURVEYFREQ for proportions in SAS (SAS Institute, Cary, N.C.) with the bootstrap weight provided by Statistics Canada. The association between insurance coverage and examined sociodemographic factors was measured using prevalence ratios (PR), rather than odds ratios, due to the common occurrence of the outcome. Adjusted PR was estimated through multivariate log-Poisson regression analyses with robust variance estimation.^{18,19}

RESULTS

Overall, 55.0% of Canadians aged 12 years or older self-reported having insurance that covers all or part of the costs of eye glasses or contact lenses. This coverage was lower than insurance for prescription medications (78.9%, $p < 0.05$), dental expenses (61.1%, $p < 0.05$), and hospital coverage for private or semiprivate rooms (61.8%, $p < 0.05$).

Seniors (33.8%, $p < 0.05$) had the lowest eyeglass insurance coverage compared with individuals in the working age groups of 20–39 years (55.9%) and 40–64 years (59.5%) and school-aged individuals aged 12–19 years (63.3%). The coverage for seniors in the lower to middle income bracket (18.1%) was about half that of their peers in the upper-middle to higher income group (37.5%, $p < 0.05$).

Canadians residing in the 3 territories had the highest eyeglass insurance coverage (76.9%), whereas those living in Quebec had the lowest coverage (39.2%, $p < 0.05$, Fig. 1). Compared with nonwhites (49.3%), white Canadians (56.4%, $p < 0.05$) had 7.1 additional individuals with eyeglass insurance per 100 people. Aboriginal respondents had the highest coverage (70.7%) compared with white and nonwhite Canadians. Within whites, individuals with less than secondary school graduation had significantly lower levels of insurance coverage than those in the other categories of education (Table 2). This finding held true in each age group.

Table 1—Income classification of the Canadian Community Health Survey Cycle 2.1

Lowest	<\$10 000 if 1 to 4 people, or <\$15 000 if 5+ people
Lower-middle	\$10 000 to \$14 999 if 1 or 2, or \$10 000 to \$19 999 if 3 or 4, or \$15 000 to \$29 999 if 5+
Middle	\$15 000 to \$29 999 if 1 or 2, or \$20 000 to \$39 999 if 3 or 4, or \$30 000 to \$59 999 if 5+
Upper-middle	\$30 000 to \$59 999 if 1 or 2, or \$40 000 to \$79 999 if 3 or 4, or \$60 000 to \$79 999 if 5+
Highest	≥\$60 000 if 1 or 2, or ≥\$80 000 if 3+

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