

The Canadian Optometry Survey: Report on the Demographic and Practice Profiles of Canadian Optometrists

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Abstract

Implemented in the Fall of 1988, the Canadian Optometry Survey represents the first national survey of optometrists conducted in Canada. The purpose of this publication is to present some of the findings from the questionnaire pertaining to the demographic and practice characteristics of the profession in Canada. A questionnaire was sent to a random sample of optometrists across the country. The overall response rate obtained by this survey was in excess of 90%, from which it can be concluded that the bias associated with non-response does not pose a threat to the validity of the survey's findings.

Résumé

Realisé à l'automne de 1988, le sondage sur l'optométrie au Canada est le premier sondage national des optométristes du Canada. Le but de cette publication est de présenter quelques résultats du questionnaire sur les caractéristiques démographiques et les pratiques des optométristes du pays. Le questionnaire a été distribué selon un échantillonnage probabiliste; aussi, peut-on conclure que la non-réponse n'entache en rien la validité des résultats du sondage.

In the course of conducting a literature review on optometrists and DPA use, it was discovered that information pertaining to demographic and practice characteristics was lacking in the literature. In response to this, one of the objectives of the Canadian Optometry Survey was to collect sufficient information to construct

representative demographic and practice profiles of Canadian optometrists.

In addition to collecting demographic and practice data, this survey was also designed to discover how Canadian optometrists have reacted to the recent introduction of diagnostic pharmaceutical agent (DPA) legislation and to determine if there are any demographic and/or practice variables which are predictors of DPA use. The results pertaining to DPA utilization by Canadian optometrists will be published in *Optometry and Vision Science*.¹

Methods

A stratified random sampling procedure² was used to select 230 optometrists, or roughly 10% of the practicing profession for inclusion in the study. Subjects' names were obtained at random from the Optometrist's Desk Reference³ which provides an up-to-date roster of all licensed optometrists in Canada.

A questionnaire was designed, pretested, translated into French and mailed as a bilingual survey to all subjects. An advance notification letter and three follow-up mailings were used to maximize the response rate.⁴⁻⁸

Results

Response Rate

During the course of the study it was determined that 17 subjects were ineligible and as such were excluded from the analysis (six were retired, three were deceased, two were not in practice during the previous year, one was randomly selected twice and five had moved without leaving forwarding addresses). 192 out of a possible 213 optometrists completed and returned a mailed questionnaire producing a response rate of 90.1%. Individual provincial response rates are shown in Table 1.

Demographic Profile

The results reveal that at the time the survey was implemented the majority (78.1%) of optometrists practicing in Canada were male.

Table 2 shows that the largest percentage of optometrists (37.0%) occupy the age group 30-39. It was also discovered that even though 75.1% of optometrists are under the age of 50, a relatively

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TABLE 1
Provincial Response Rates

Province	Sample	Response Rate (%)
Alberta	17	82.4
British Columbia	17	88.2
Manitoba	9	88.9
New Brunswick	10	100.0
Newfoundland	9	100.0
Nova Scotia	9	100.0
Ontario	60	93.3
Prince Edward Island	7	85.7
Quebec	66	84.8
Saskatchewan	9	100.0

TABLE 2
Age Distribution of Optometrists in Canada

Age	Number of Optometrists	Percent (%)
20 - 29	34	18.0
30 - 39	70	37.0
40 - 49	38	20.1
50 - 59	17	9.0
60 - 69	26	13.8
70 or more	4	2.1

large number (15.9%) continue to practice into and beyond their sixties. This trend can also be observed in Table 3 which shows the number of years in practice. Nearly 60% of optometrists have been in practice for less than 15 years while 18.7% have been practicing for more than 30 years.

Just over 11% of optometrists reported graduating from optometry schools outside of Canada. Of the remaining 88.9%, 41.3% reported graduating from the University of Waterloo, 32.3% from the University of Montreal and the remaining 15.3% reported obtaining their optometry school training from the College of Optometry of Ontario. It was discovered that the majority of optometrists have little post-secondary education other than their optometry school training. Less than one-third reported

TABLE 3
Number of Years in Practice

Years Practiced	Number of Optometrists	Percent (%)
Less than 1 year	2	1.1
1 - 4	36	19.2
5 - 9	39	20.7
10 - 14	35	18.6
15 - 19	16	8.5
20 - 24	14	7.5
25 - 29	11	5.9
30 - 34	9	4.8
35 - 39	14	7.5
40 or more	12	6.4

TABLE 4
Highest Level of Post-Secondary Education Other Than Optometry Degree

Level of Education	Number	(%)
No other post-secondary studies	76	42.0
Some post-secondary education	44	24.3
Completion of an undergraduate program	49	27.1
Some graduate degree work	4	2.2
Completion of a graduate degree program	8	4.4

having an undergraduate or graduate level degree (Table 4). This finding however, is likely dependent on the year in which training was completed.

Practice Profile

When asked to classify their occupation in terms of clinical practitioner, research, education or other, 99.0% of subjects classified themselves as clinical practitioners. The majority of optometrists reported working either in solo practice (45.3%) or group practice (50.5%). The remaining 4.2% described their type of practice as either being a multidisciplinary group practice or some other type of practice. Table 5 shows that optometrists locate their practices in all sizes of cities and towns across Canada with nearly 44% reporting their practices in communities of less than 50,000 population. Most optometrists (67.9%) reported a travel time of less than thirty minutes to the nearest ophthalmologist. The remaining 32.1% reported a travel time in excess of thirty minutes, suggesting that a substantial number of optometrists set up practice in areas removed from those where ophthalmologists practice.

TABLE 5
Approximate Population in Which Practice was Located

Years Practiced	Number of Optometrists	Percent (%)
Less than 5,000	11	5.8
5,000 - 9,999	19	10.0
10,000 - 49,999	53	27.9
50,000 - 99,999	30	15.8
100,000 - 199,999	18	9.4
200,000 - 499,999	14	7.4
500,000 or more	45	23.7

The majority of optometrists (58.6%) reported practicing from 41 to 48 weeks per year, with an additional 28.8% working more than 48 weeks. The average number of hours worked per week (Table 6) was found to be more variable than the number of weeks worked per year. Table 7 shows that the majority of optometrists (79.7%) schedule between 30 and 89 patient visits per week. On closer analysis of the data, it was found that as optometrists get older, there is a trend towards working fewer hours per week. Optometrists aged 50 and over also tend to see fewer patients

TABLE 6
Average Number of Hours
Spent Examining Patients Per Week

Hours	Number of Optometrists	Percent (%)
1 - 29	26	13.6
30 - 34	50	26.2
35 - 40	72	37.7
41 - 48	32	16.7
49 or more	11	5.8

per week, on average. It was also found that there was no apparent relationship between the number of patient visits scheduled per week and the population in which the practice was located.

With respect to DPA utilization by Canadian optometrists, the main predictors of drug use were found to be the age of the optometrist and the presence of legislation permitting DPA use.¹ Optometrists are significantly more likely to use diagnostic agents in provinces with legislation than in provinces without legislation. It was also found that there was a distinct decline in DPA use with increasing age.

Table 8 provides a summary of the amount of time, on average, optometrists spend providing general optometric, contact lens, low vision and binocular vision services. It is evident from the responses that some optometrists specialize in each of these areas. Finally, Table 9 provides an estimate of how often optometrists reported involvement in a variety of optometric activities.

TABLE 7
Average Number of Scheduled Visits Per Week

Number of Visits	Number of Optometrists	Percent (%)
0 - 29	19	9.9
30 - 49	49	25.5
50 - 69	62	32.3
70 - 89	42	21.9
90 - 109	17	8.9
110 or more	3	1.5

Discussion

The Canadian Optometry Survey represents the first national study of optometrists and the optometry profession. A questionnaire consisting of four sections and 50 questions was sent to a random sample of optometrists across Canada. Since the overall rate obtained by this survey was in excess of 90%, it can be concluded that the bias associated with non-response does not pose a threat to the validity of the survey's findings.⁹⁻¹¹ In other words, the results obtained in the Canadian Optometry Survey should, in fact, be representative of Canadian optometrists in general. Representative baseline comparative data is therefore now available to other researchers who intend on studying this professional group in the future.

The authors would like to thank all those who took the time to complete and return their questionnaires. The high response rate in combination with the random selection process has ensured that the responses are representative of profession as a whole in Canada.

TABLE 8
Time Spent Providing Optometric Services*
(expressed as percentages)

	General Optometric	Contact Lens	Low Vision	Binocular Vision
Mean	75.7	18.2	2.2	3.9
Minimum	0.0	0.0	0.0	0.0
Maximum	100.0	80.0	100.0	60.0
Std. Dev.	17.2	13.1	9.9	6.9

Std. Dev. = Standard Deviation
*Based on 192 respondents

TABLE 9
Frequency of Involvement in Optometric Activities
(expressed as a percentage of all optometrists)

D=Daily Activity	A=Almost Daily		O=Occasionally		N=Never	
	D	A	O	N	O	N
Optical Services (Dispensing)		66.8	7.9	13.7	11.6	
Pediatrics (19 and Under)		62.1	31.0	6.4	0.5	
Geriatrics (60 and Over)		59.3	34.9	5.3	0.5	
Counselling and Advising		59.1	18.8	19.9	2.2	
Communications with Colleagues		27.0	40.6	29.2	3.2	
School Vision Screening		9.9	10.0	23.2	56.9	
Industrial Vision Services		4.3	13.5	53.0	29.2	
Sports Vision		1.6	2.7	62.2	33.5	
Research		1.7	2.9	13.1	82.3	

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References

1. Krueger PD, Trevino RC: The Canadian Optometry Survey: Report on the Utilization of Diagnostic Pharmaceutical Agents by Canadian Optometrists. *Optometry and Vision Science*. (In press)
2. Friedman GH: *Primer of Epidemiology*. 2nd ed. New York: McGraw-Hill Book Company, 1980:90.
3. Canadian Association of Optometrists: *Optometrist's Desk Reference 1988*. Supplement to *The Canadian Journal of Optometry*, 1987; 49:73-112.
4. Berdie R et al: *Questionnaires: Design and Use*. London: The Scarecrow Press Inc., 1986.
5. Dillman DA: *Mail and Telephone Surveys: The Total Design Method*. New York: John Wiley and Sons, 1978.

6. Labaw PJ: *Advanced Questionnaire Design*. Cambridge: Abt Books, 1980.
7. Warwick DP et al: *The Sample Survey: Theory and Practice*. New York: McGraw-Hill Book Company, 1975.
8. Woodward CA et al: *Guide to Questionnaire Construction and Question Writing*. Ottawa: The Canadian Public Health Association, 1983.
9. Gough HG et al: A comparison of physicians who did or did not respond to a postal questionnaire. *Journal of Applied Psychology* 1977; 6:777-780.
10. Last, JM: *Maxcy-Rosenau Public Health and Preventive Medicine*. 11th ed. New York: Appleton-Century-Crofts, 1980:63-64.
11. Woodward CA et al: *Guide to Improved Data Collection in Health Care Surveys*. Ottawa: The Canadian Public Health Association, 1982.

Editor's Note:

In November 1952, Edward B Higgins completed and submitted to then CAO President Dr John J Mulrooney A National Survey of Optometry in Canada. Its purpose was to make an objective study of Optometry across Canada in order to provide a factual, statistical base from which future direction could be determined.

Although never published, the 100-page Higgins report is a part of the Canadian Association of Optometrist's archives. It is especially fitting that this issue of the CJO•RCO, which notes the recent passing of Ed Higgins, also carries the first published national survey of the demographics and practice profiles of Canadian optometrists.

An Appreciation: Edward B. Higgins

It was with deep sorrow that the profession of Optometry learned of the passing, after a lengthy illness, of Edward B Higgins, the first full-time Executive Director of the Canadian Association of Optometrists. Optometry has lost not only a staunch friend and worker, but one of its architects as well.

26 years have passed since Ed stepped down from his post as Executive Director. In those intervening years, Optometry has made giant strides in education, in internal cohesion, professional organization, political savoir faire and acceptance by government, sister disciplines and the public.

Optometry can hold its head high and point proudly to its progress over the past two decades. An analysis of these many accomplishments would show that each advance relates directly or indirectly to the recommendations Ed Higgins made in his 100-page 1952 report, "A Survey of Canadian Optometry". His vision of the future was as unique as it was prophetic.

If Optometry is held in high esteem today, a good part of the credit must be attributed to Ed Higgins, for he showed the way and actually guided the profession through some of its most troubled times. We are indebted to Ed individually, and collectively; we owe him honour and gratitude.

For those of us who knew him, and witnessed his work, our memories will bear testimony to his devotion to the profession. For those who were not privileged to know him, your professional status today is the testimony to his vision.

In January, 1964, the CJO•RCO had this to say about Ed Higgins' retirement:

And so a chapter ends, but the book is neither closed nor ended for in the years to come, optometrists will come back to read and reread this chapter of their history, a chapter which is the link between the past and the bright future that Ed Higgins helped open up for Optometry.



The passing of time has not at all tarnished the lustre of Ed's contributions to the development and progress of the profession. On the contrary, it has only served to enhance the value of his work and his prophetic vision.

Thank you, Ed, for a job well done!

Dr GM Bélanger