

Access to Family Physicians in Southwestern Ontario

Accès aux médecins de famille dans le sud-ouest ontarien



by GRAHAM J. REID, PHD

Associate Professor

Department of Psychology

Department of Family Medicine, Schulich School of Medicine and Dentistry

University of Western Ontario

London, ON

THOMAS R. FREEMAN, MD

Professor and Chair/Chief

Department of Family Medicine

Schulich School of Medicine and Dentistry

University of Western Ontario

London, ON

AMARDEEP THIND, MD, PHD

Associate Professor, Canada Research Chair in Health Services Research

Department of Epidemiology and Biostatistics

Department of Family Medicine

Schulich School of Medicine and Dentistry

University of Western Ontario

London, ON

MOIRA STEWART, PHD

*Professor and Director, Centre for Studies in Family Medicine
Department of Family Medicine
Schulich School of Medicine and Dentistry
University of Western Ontario
London, ON*

JUDITH BELLE BROWN, PHD

*Professor, Department of Family Medicine
Schulich School of Medicine and Dentistry
University of Western Ontario
School of Social Work,
King's University College
London, ON*

EVELYN R. VINGILIS, PHD

*Professor
Department of Family Medicine
Schulich School of Medicine and Dentistry
University of Western Ontario
London, ON*

Abstract

Objective: Shortages of family physicians (FPs) have been reported, but accurate data on the scope of this problem are sparse. The study objective was to determine the proportion of the population in southwestern Ontario without access to a regular FP and sources of usual medical care for individuals with and without a regular FP.

Method: Random-digit dialling was used to obtain a stratified, random sample of households from 10 counties in southwestern Ontario, which resulted in 1,387 participants (60.5% cooperation rate). Adults reported on themselves, while a random selection of parents reported on their children, yielding data on individuals ranging from 0 to 95 years of age.

Results: 9.1% (95% CI = 7.8% to 10.6%) of individuals did not have a regular FP. Most individuals without a regular FP used walk-in clinics (55%) or emergency rooms (13%) as their usual source of care, while 5.9% reported not receiving medical care. Lack of physicians accepting new patients was the most common reason for not having a regular FP (27%), although some individuals chose not to have one (9.9%) or had alternative access to care (13.2%).

Conclusions: Based on the assumption that the individuals who chose not to have a FP, or who had access to alternative care, would continue not to want a FP if one were available, we estimate that 5.1% of the population of southwestern Ontario requires a FP. The health implications of not having a regular FP in Canada need to be examined.

Résumé

Objectif : La pénurie de médecins de famille est bien documentée, cependant il y a un manque de données précises portant sur l'ampleur du problème. L'objectif de cette étude était d'évaluer la proportion de la population du sud-ouest ontarien qui n'a pas accès à un médecin de famille régulier et de connaître les sources habituelles de soins médicaux pour les personnes qui ont ou n'ont pas de médecin de famille régulier.

Méthodologie : Un système d'appels aléatoire a été employé afin d'obtenir un échantillon aléatoire stratifié de ménages dans 10 comtés du sud-ouest ontarien. En tout, 1387 participants ont répondu à l'enquête (un taux de coopération de 60,5 pour cent). Les adultes ont répondu en leur nom et un échantillon aléatoire de parents ont répondu pour leurs enfants, ce qui a permis d'obtenir des données sur des personnes âgées de 0 à 95 ans.

Résultats : 9,1 pour cent (95 pour cent IC = 7,8 pour cent à 10,6 pour cent) des personnes indiquent ne pas avoir de médecin de famille régulier. La plupart des personnes qui n'ont pas de médecin de famille régulier utilisent les cliniques sans rendez-vous (55 pour cent) ou les services d'urgence (13 pour cent) comme source habituelle de services de santé, et 5,9 pour cent des répondants indiquent ne pas recevoir de services médicaux. Le manque de médecins qui acceptent des nouveaux patients est la principale raison invoquée pour expliquer l'absence de médecin de famille régulier (27 pour cent), bien que certaines personnes choisissent de ne pas en avoir (9,9 pour cent) ou utilisent d'autres types d'accès aux services de santé (13,2 pour cent).

Conclusion : Si l'on suppose que les personnes qui choisissent de ne pas avoir de médecin de famille, ou qui utilisent d'autres types de services, continueraient de ne pas vouloir de médecin même s'il y avait disponibilité, nous estimons que 5,1 pour cent de la population du sud-ouest ontarien a besoin des services d'un médecin de famille. Il est nécessaire d'étudier quelles sont les répercussions sur la santé associées au fait de ne pas avoir de médecin de famille, au Canada.

THERE IS A SUBSTANTIAL LITERATURE PERTAINING TO THE IMPORTANCE of primary care to the health of the population and efficient functioning of the healthcare system as a whole (Starfield 1994; Shea et al. 1992; Welch et al. 1993; Gulliford 2002). With Canada's universal healthcare coverage, financial barriers

to access to physician care are removed, and it is intended that the delivery of healthcare coincide with healthcare needs (Commission on the Future of Health Care in Canada 2002). Yet, shortages of family physicians (FPs) both in rural and urban settings have been regularly reported (e.g., Bailey 2007). Accurate data on the scope of this problem are sparse. Data from the Health Services Access Survey, a supplement of the Canadian Community Health Survey, indicated that 13.7% of Canadians (aged 12 and older) reported that they did not have “a regular family physician”; in Ontario, this percentage was significantly lower at 8.8% (Sanmartin et al. 2004). Analyses of the Canadian Health Services Access Survey found that among individuals with a regular FP, 15% still reported problems in accessing routine care (i.e., annual examination, care for ongoing illness, care for minor non–life-threatening problem) (Sanmartin and Ross 2006).

Access to a FP may affect morbidity and mortality. Generally, individuals of lower socio-economic status and who have poorer health tend to use more FP and hospital services (Kephart et al. 1998; Dunlop et al. 2000; Iron et al. 2004). There is some evidence implying that access to the care provided by FPs may reduce mortality due to income disparities (Veugelers and Yip 2003). Inequities in availability and access to appropriate care may contribute to disparities in health and even make existing inequities worse. Thus, the present study examined socio-demographic factors that might be related to access to FP care, including income, educational attainment and immigration.

The present study aimed (a) to determine the proportion of the population in southwestern Ontario without access to a regular FP, (b) to examine differences in healthcare utilization between individuals with or without access to a regular FP and (c) to explore whether subpopulations (e.g., people living in rural areas, individuals from low-income families) varied in their access to a FP.

Southwestern Ontario was selected as the target population because it includes a range of both rural and urban centres. We examined sources of regular healthcare for individuals with or without a regular FP, and inquired about individuals’ efforts to obtain one. Understanding these issues and perspectives has implications for health human resources planning.

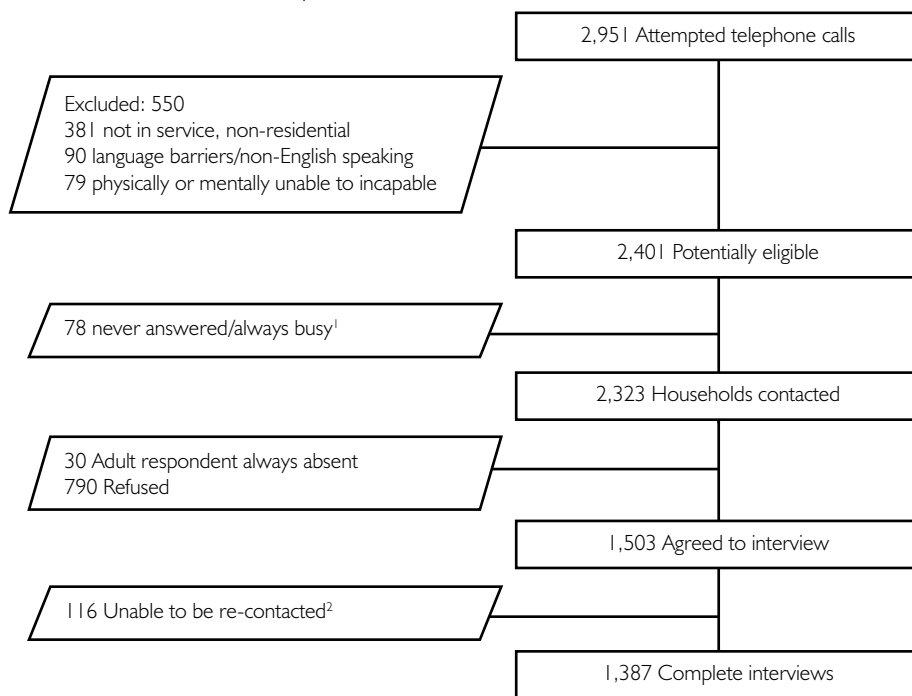
Methods

Sampling

We used random digit dialling procedures to select households; within households having more than one possible respondent, we used the most recent birthday to identify respondents (O’Rourke and Blair 1983). Respondents aged 18 or older and residing in one of the 10 counties in southwestern Ontario were eligible for the study. Excluded were residents of old age homes, jails and other institutions, and individuals without telephones. Figure 1 shows the recruitment. The total sampling frame was the 625,230 households in these 10 counties. A total of 1,387 interviews were completed

for a cooperation rate of 60.5% (cooperation rate #4, interviews completed divided by all eligible individuals contacted) and a response rate of 56.4% (response rate #4, interviews completed divided by all eligible individuals contacted plus an estimate of cases from the number of cases of unknown eligibility) (American Association for Public Opinion Research 2006). (Calculation of the cooperation rate used formula COOP4; the response rate used formula RR4.) Respondents were asked to report on whether or not each member of their household had a FP, and then completed a detailed interview regarding their health and utilization of healthcare. To obtain information on children (aged 17 and younger), one-half of parents were randomly assigned to complete the detailed interview regarding their child with the most recent birthday. As parents could have reported on a child or themselves, the term “target person” is used to indicate the individual for whom data were obtained.

FIGURE 1. Recruitment of respondents



¹ Attempts were made during the day and the evening – during the week and on weekends – with a minimum number of 12 calls to each telephone number; of which at least 10 were made during evening and weekend hours, before a household was deemed to be a non-response.

² Attempts were made to encourage most refusers to participate in the survey by calling them at least once after they first refused.

Procedures

Interviews were completed by the telephone survey unit at York University in Toronto, Ontario between June 26 and September 11, 2006. Interviews lasted 19 minutes on

average (+4.8). Standard response options were provided for virtually all questions, with the option to record an “other” category in most cases. All text responses were coded by a research assistant and verified by one of the authors (GJR). The interview was based on a pilot study with over 800 respondents, and the final version was tested on a small sample (n=7).

Measures

ACCESS TO FAMILY PHYSICIANS

Access to a FP was determined by the question, “Do you have a regular family doctor? By that I mean one doctor who can see you?” Probes ensured that respondents were reporting on their access to regular primary medical care rather than specialist care. For other members of the household, respondents were asked, “Does [she or he] have a regular doctor?” If parents reported regularly accessing a paediatrician for their child’s care, this response was included as having a regular FP.

DEMOGRAPHICS

Standard questions were used to assess socio-demographic characteristics (e.g., family income, immigration status) (Statistics Canada 1998). Response options for education and employment were combined into smaller, conceptually relevant categories. The respondent’s employment was categorized as (a) unemployed (which also included homemaker, retired, disabled, on maternity leave), (b) self-employed or (c) student/employed. Family income and size were used to compute four categories of income adequacy ranging from low (i.e., <\$15,000 for one or two people) to high (i.e., >\$60,000 if one or two people; >\$80,000 if three or more people) (Sanmartin and Ross 2006). A healthcare rurality index was computed for each respondent based on address (i.e., postal code). Developed in 2004 by the Ontario Medical Association, the rurality index builds on previous work (Leduc 1997) and incorporates aspects of the community (e.g., population, weather, distance to referral centre) and the healthcare system (e.g., number of active FPs, ambulance availability) (Kralj 2005); scores ranged from 0 to 100 (most rural). We also assessed whether the target person had been diagnosed with any chronic medical conditions and any psychiatric disorders, and overall health status (1 = excellent, 5 = poor).

UTILIZATION OF HEALTHCARE SERVICES

If the target person had a FP, we assessed the duration of time they had had one. If the target person did not have a FP, questions related to efforts and decision-making in obtaining a physician were asked. The source of regular medical care used most

often was determined. A commonly used measure of health service utilization during the previous year was employed to inquire about use of a wide range of health professionals (e.g., physiotherapist, psychologist) (Browne et al. 1990).

Data Analysis

Complex sample analysis procedures in SPSS Version 15 (2006) were used to estimate the proportion of the population with a FP. A two-stage sample approach was used, with stratification by region and clusters of households in stage 1. At stage 2, we treated data on individuals within each household as being sampled with certainty, as respondents reported on each member of the household. All other analyses were conducted without applying the complex sampling adjustments.

Prior to the multivariate analyses, missing data were imputed as follows. Respondents who either refused to report on their country of birth, or did not know or refused to answer when they immigrated, were coded as having not immigrated ($n=6$). The mode was used when respondents did not report their employment status ($n=2$), education ($n=15$) or duration residing in current location ($n=1$). Similarly, the mode was used when information on the target person's psychological or emotional problems ($n=1$), chronic medical conditions ($n=18$) or health status ($n=4$) were not reported. When the target person's age was missing ($n=30$), the average age of either the adults or children in the sample was used. For respondents who declined to report their postal code ($n=60$), the average rurality index for their county was used. When a rurality index was not available, the average index for the participant's forward sortation area ($n=27$) or county ($n=13$) was used. When the respondent refused to report ($n=242$) or did not know ($n=81$) the family income, the SPSS expectation maximization procedure (2006) was used to impute missing data based on the respondent's employment status, age, marital status, educational attainment, years since immigration and years residing in current location. Because of small cell sizes ($<5\%$), the categorical variable for years residing in current location was regrouped.

Source of regular medical care was compared for individuals (i.e., target person) with and without a regular FP using chi-square. Given the low frequency of utilization of some locations, visits to a clinic, hospital or community health centre were combined. Healthcare utilization during the previous year was compared for individuals with and without a regular FP using the Mann–Whitney U test. Given the low frequency of utilization of some providers, visits to the following providers were combined: (a) other allied health providers (audiologist, nutritionist, occupational therapist, speech pathologist) and (b) other health providers (chiropractor, naturopath and any other providers). The false discovery rate method, which controls the error rate at $\alpha = 0.05$, was used to adjust for multiple comparisons (Benjamini and Hochberg 1995); this method has been shown to balance type 1 and type 2 errors (Benjamini

and Hochberg 2000). These analyses were conducted with SPSS Version 15 (2006).

Logistic regression was used to examine correlates of whether or not the target person had a FP. Analyses were conducted with STATA Version 10 (2006). Predictor variables, selected a priori (Babyak 2004), included respondent's employment status, educational attainment, years since immigration, years residing in current location, rurality index for respondent's home, and marital status, and the target person's age and gender. To inform these analyses we conducted post hoc power calculations.

Results

The 1,387 respondents reported on whether or not each member of their household had a FP (N=3,360; data were missing for 22 individuals). Detailed information was obtained on 1,163 adult respondents and 224 children.

Table 1 summarizes the demographic characteristics. Close to one half had been diagnosed with a chronic medical condition, and 6.4% had been diagnosed with a psychological or emotional problem, during the previous year. Most individuals reported they were in excellent (29.3%) or very good (33.2%) health.

TABLE 1. Demographic characteristics

	n (or M)	% (or $\pm$ SD [mode])
Respondent		
Marital Status		
Single	549	39.6
Married/Living with partner/Common-law	838	60.4
Educational Attainment		
Less than high school	229	16.5
Completed high school	426	30.7
At least some community college/technical school	377	27.2
University education (bachelor's)	279	20.1
University education (graduate and professional)	76	5.5
Employment		
Unemployed, Retired, Homemaker, Disability, Maternity or Other	519	37.4
Self-employed	100	7.2
Any employment or student	768	55.4
Income Index		
Low	118	8.5
Lower-middle	192	13.8

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TABLE 1. Continued

Upper-middle	567	40.9
High	510	36.8
Immigrants	212	15.3%
Years since immigration	5.1	± 14.3 [0.0]
Rurality Index	27.7	± 19.8 [7.22]
Duration of Residence		
Less than 6 months to less than 2 years	75	5.4
2 years to less than 5 years	147	10.6
5 years to less than 10 years	172	12.4
10 years or more	993	71.6
Gender of Target Person		
Female	825	59.5
Age of Target Person		
0 to 12	149	10.7
13 to 17	68	4.9
18 to 25	147	10.6
26 to 40	182	13.1
41 to 55	336	24.3
56 to 70	305	22.0
71 or older	158	11.4
86 to 99	11	0.8
Missing	29	2.1
Chronic Medical Condition		
No conditions	800	57.7
Only one condition	441	31.8
Two or more conditions	146	10.5
Diagnosed with Psychological or Emotional Problem in Past Year		
Yes	89	6.4
Health Status		
Excellent	406	29.3
Very good	461	33.2
Good	317	22.9
Fair	140	10.1
Poor	63	4.5

Note: Results incorporate imputation of missing values as specified in the data analyses section, with the exception of age.

Key demographic data were compared to the 2006 Census for the same 10 counties from which the sample was drawn (Statistics Canada 2008). Compared to the population, our sample under-represented single respondents, had slightly (i.e., 2–4%) more adults who were not in the labour force, had more families with incomes less than \$40,000 and fewer families with incomes of \$100,000 or more; we had slightly fewer 25–64 year olds who did not graduate from high school and slightly more university graduates (see appendix, Table a1). There were no differences in terms of the proportion of individuals who moved within the previous year or previous five years, or the proportion of immigrants; however, our sample had a higher proportion of immigrants who had been in Canada for more than 45 years. In terms of the comparison with the target person, our sample had few men/boys (41% vs. 49%). The age distribution was also significantly different from the population. Although the proportions in most age categories were very similar, our sample had slightly (1%–3%) fewer children and younger adolescents (<15 years) and young adults (20 to 24 years), and slightly more (1%–4%) adults in the age ranges of 55 to 74 years old.

Access to a regular family physician

Overall, 9.1% (95% CI = 7.8% to 10.6%) of individuals within the households surveyed did not have a regular FP, which translates into an estimated 139,307 (95% CI = 117,786 to 160,828) individuals in southwestern Ontario.

Detailed information was obtained for the 1,387 target individuals. Of the 1,235 individuals who had a regular FP, they had been with this physician for 12.6 years (+10.1) on average. Among the 152 individuals who did not have a FP, 17 (1.2%) had never had a FP (this information was not reported for eight individuals). On average, individuals had been without a regular FP for 6.9 years (+7.3; median = 5, range 0–39 years).

The main reasons for not having a FP were related to lack of access (27.0%, no FPs, FPs not taking new patients; 30.3%, doctor moved/retired/deceased/changed practice) or the individual had not tried to get a FP (e.g., moved, 13.8%). However, some individuals choose not to have a FP (9.9%) or had access to alternative care (13.2%). (The remaining 5.9% had no response to this question.) About half the individuals without a FP were not actively looking for one (47.7%). When these 62 individuals were asked why they were not looking, 27.4% reported they had given up looking, one individual (1.6%) was on a waiting list, 38.7% were not interested or felt they were healthy and did not need one, 17.7% preferred walk-in clinics, or they were students who used the healthcare services at their university or college (8.1%) or had access to a physician or other healthcare provider elsewhere (6.4%).

We combined individuals' reasons for not having and not looking for a FP into three categories: (a) did not have a regular FP and chose not to have one (25.0% of indi-

viduals without a FP), (b) had access to alternative care (19.1%) and (c) did not have a regular FP mainly because of lack of access or other reasons (55.9%). These percentages were used to provide alternative estimates for the number of individuals needing a FP.

Sources of regular medical care and healthcare utilization

Sources of usual care were significantly different between those with versus those without a regular FP (chi-square [5] = 759, $p < 0.001$). Most individuals without a regular FP used walk-in clinics (55%) and emergency rooms (13%), or one of a number of alternative locations (20%; see Table 2). Among individuals with a FP, 13% used other locations or providers as their usual source of care. Compared to individuals with a FP, those without had more visits to walk-in clinics and fewer visits to dentists or pharmacists and fewer total visits (see Table 3).

TABLE 2. Sources of usual medical care by whether or not the target person has a regular family physician

	Person has a regular family physician		Overall
	No	Yes	
	(Col %)	(Col %)	(Col %)
Walk-in clinic	55.3%	3.6%	9.2%
Other hospital, clinic, provider, etc.	19.7%	7.5%	8.9%
Emergency room	13.2%	1.1%	2.4%
Do not receive medical care	5.9%	0.1%	0.7%
Did not answer, don't know	5.9%	0.1%	0.7%
Family physician	0.0%	87.7%	78.1%
Column N	152	1,235	1,387

Col % = Percentages are by column

Correlates of having a regular family physician

Results of the logistic regression are presented in Table 4. The overall model was significant (likelihood ratio [LR] chi-square [20] = 77.79, $p < 0.001$). The longer respondents' families had been residing in their current location, the more likely they were to have a FP. When the target person was married, or living with two parents in the case of children, they were more likely to have a FP (OR = 2.17). Women/girls were also more likely to have a FP than men/boys (OR = 1.91). None of the other factors were significantly related to whether or not individuals had a FP.

TABLE 3. Healthcare utilization (number of visits) during the previous year by whether or not the target person has a regular family physician

	Person has a regular family physician				Mann-Whitney U	p
	No		Yes			
	M	SD	M	SD		
Medical Services						
Walk-in clinic	1.85	3.98	0.68	1.71	70,864	0.000 *
Emergency room	0.53	1.52	0.53	1.27	90,565	0.367
Nurse	0.57	3.10	0.53	2.98	93,419	0.858
Paediatrician	0.07	0.26	0.57	1.59	1,365	0.211
Other physician specialists	0.84	2.34	0.94	3.59	93,223	0.852
Allied Health Professions						
Pharmacist	3.18	9.03	3.83	6.75	76,258	0.000 *
Physiotherapist	0.61	4.36	1.03	5.16	91,493	0.328
Other allied health	0.20	1.03	0.43	2.58	91,532	0.338
Mental Healthcare						
Social worker	0.14	1.63	0.16	1.34	92,962	0.501
Counsellor	0.01	0.08	0.07	0.71	92,798	0.303
Psychiatrist	0.31	2.21	0.23	2.42	92,358	0.288
Psychologist	0.12	1.46	0.10	1.54	93,118	0.429
Other Health Providers						
Dentist	0.98	1.27	1.62	1.90	70,788	0.000 *
Other health provider	1.46	4.21	2.26	6.38	91,231	0.474
Total of All Visits	10.79	16.54	12.41	16.32	81,169	0.006 *

* Significant after false discovery rate adjustment.

Power for select variables in the logistic regression was calculated. For sex, which was statistically significant, the power was, as would be expected, adequate: power = 0.76. Two variables that were not significant had low power. For psychological problems in the past year, power = 0.04, and for the contrast between high versus low family income, power = 0.59.

To help understand the effects of marital status and sex, we explored the reasons why individuals in these groups did not have a FP. The most common reasons for not having a FP for all groups were related to lack of access (e.g., FPs not taking new patients). The next most common reason for men who were single was that they chose not to have a FP; other individuals rarely had this reason. There were, however, no significant differences in the reasons for not having a FP in terms of marital status or sex; thus, these findings only suggest potential underlying differences.

TABLE 4. Logistic regression predicting having a family physician

Predictor variables		OR	(95% CI)	p
Respondent/Family Demographics¹				
Employment ²	Self-employed	0.534	(0.265–1.077)	0.080
	Any employed or student	0.767	(0.475–1.239)	0.279
Educational attainment ³	Completed high school	0.838	(0.489–1.434)	0.518
	At least some community college	1.260	(0.686–2.313)	0.456
	At least some university	0.802	(0.430–1.497)	0.489
	University or professional graduate	1.172	(0.469–2.926)	0.734
Income group ⁴	Lower-middle	1.480	(0.771–2.841)	0.238
	Upper-middle	1.850	(1.024–3.342)	0.042
	High	1.741	(0.893–3.393)	0.104
Years since immigrating to Canada		1.006	(0.991–1.020)	0.448
Years residing in current location ⁵	2 to less than 5 years	1.986	(0.989–3.989)	0.054
	5 years to less than 10 years	3.123	(1.512–6.450)	0.002
	10 years or more	4.209	(2.337–7.581)	0.000
Rurality index		1.003	(0.994–1.012)	0.523
Marital status ⁶	Married/Living with partner	2.171	(1.475–3.197)	0.000
Target Person Characteristics				
Gender ⁷	Female	1.909	(1.320–2.762)	0.001
Age	Year	0.998	(0.988–1.009)	0.723
Number of chronic physical health problems ⁸		1.149	(0.837–1.576)	0.390
Psychological problems past year ⁹		1.239	(0.591–2.593)	0.570
Health status ¹⁰		0.876	(0.725–1.057)	0.167

OR = odds ratio; 95% CI = 95% confidence interval

¹ When the target individual was a child, parent demographics are reported.

Reference categories: ² unemployed, ³ less than high school, ⁴ low, ⁵ less than 2 years, ⁶ single, ⁷ male, ⁸ 0, 1 or 2 conditions, ⁹ no psychological problems, ¹⁰ excellent.

Discussion

Almost one in 10 residents of southwestern Ontario (9.1%) did not have a regular FP. This figure is higher than previously found for all residents of Ontario (Sanmartin et al. 2004). The difference may be due to geographic variation within Ontario or to the timing of the survey.

Issues related to access were reported as the main reasons individuals did not have a regular FP. Interestingly, 23% of individuals (4.8% of the total sample) reported the

reason they were without a FP was that they choose not to have one or had access to alternative care. Walk-in clinics and employers providing in-house clinics for their staff appear to provide alternative sources of care for these individuals without a regular FP. However, we found that 13% of individuals with a regular FP reported that their usual source of healthcare was not their FP. Unlike the health maintenance organizations in the United States, the Canadian system does not impose barriers to patients accessing services other than their FP. Ontario has recently introduced family health networks and teams, which provide incentives for physicians to provide comprehensive care to their enrolled patients. It is unknown whether these changes in the organization of primary healthcare will result in changes in patients' patterns of accessing care.

There were surprisingly few correlates of not having a FP. The lack of differences in terms of socio-economic factors (e.g., employment, educational attainment, income) or immigrant status suggests that overt bias in having a regular FP is not present. This finding is consistent with those of other studies showing that income does not influence access to primary care (Blendon et al. 2002; Finkelstein 2001). Our study did not have the power to detect the observed effects of variables such as income that might be viewed as highly relevant for policy; future studies with a larger sample size could be conducted to test the stability of our findings. Individuals who had been residing in their current location for less than two years were the least likely to have a regular FP. Lack of physicians taking new patients would account for why individuals who were new to the area would not have a regular FP. This finding is consistent with the average duration for being without a regular FP of 6.9 years.

The finding that individuals who were married (or children in two-parent families) and women/girls were more likely to have a FP might indicate preferences for type of care. There was some indication that this might have been true, as exploratory analyses suggested some single men reported choosing not to have a FP while virtually no other groups of individuals reported this reason. However, the most common reason across all groups for not having a regular FP was lack of access. Our sample had fewer men/boys than the population of southwestern Ontario. As such, our results may slightly underestimate the overall proportion of residents without a FP.

Limitations

A sizeable percentage of respondents did not report their family income. Thus, lack of significant results for this variable should be interpreted with some caution. Only individuals residing in one region of Ontario were sampled. Future studies should examine other areas of the province and country. Only English-speaking individuals participated. This study does not inform us about the important and potentially vulnerable population of individuals who are not English-speaking. Similarly, we excluded individuals who were in old age homes, jails and other institutions, and individuals

without telephones. As such, our results cannot be generalized to these groups. A sizeable percentage of individuals who were contacted declined to participate. It is unclear how this factor may have affected the findings.

Conclusions and Implications

Using data from all individuals within the households surveyed, 9.1%, or an estimated 139,307 individuals in southwestern Ontario, are without a FP. If we use the detailed information on reasons why individuals did not have a FP and their reasons for not looking, and assume that individuals who reported they chose not to have a FP or had access to alternative care would not change their decision if more FPs were available, we would estimate that 77,902 individuals (5.1% of the population) require a FP. Alternatively, if those who reported regularly using walk-in clinics or alternative care would prefer a FP, we would estimate that 104,480 individuals (6.8%) require a FP. These are gross estimates, and the number of FPs needed to care for this population should be tested under various conditional assumptions, such as the distribution of FPs within specific regions and varying workloads by FPs' age and sex.

Thirteen per cent of individuals without a FP used an emergency room (ER) for their usual source of medical care. Problems with overcrowded ERs and concerns about "abuse" of the ER have existed for a number of years in Canada and elsewhere (Afilalo et al. 2004; Palmer et al. 2005). Lack of access to regular FPs may be viewed as one factor contributing to this problem (Starfield 1994). However, given the relatively low percentage of the population without a regular FP who use the ER as their source of usual care and the fact that the average number of ER visits did not differ between individuals with and without a FP, it is unlikely that lack of access to a FP is a substantive factor influencing ER use. However, others have found that lack of a regular physician among those with chronic medical conditions does result in more ER visits and hospitalization (Glazier et al. 2008).

Perhaps more disturbing was the percentage of individuals without a FP who did not receive medical care (5.9%) or who were unable, or unwilling, to report where they received regular medical care (5.9%). There are implications of not having a regular FP. For individuals with chronic illness and especially those with co-morbidities, the lack of comprehensiveness and continuity of care provided by a FP may result in poorer health outcomes. Similarly, individuals who do not have a regular FP may not receive preventive medicine practices and screening procedures (e.g., pap smears, colorectal cancer screening) regularly. These issues need further examination.

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Correspondence may be directed to: Graham J. Reid, the University of Western Ontario, Westminster College, Room 319E, London ON N6A 3K7; tel.: 519-661-2111, ext. 84677; fax: 519-661-3340; e-mail: greid@uwo.ca.

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Appendix

Supplementary table

TABLE A1. Demographic characteristics compared to 2006 Census

	Access to family physicians		2006 census southwestern ontario		
	n	%	n	%	Chi-square
Respondent					
Marital Status					39.4***
Single	549	39.6	594,165	47.4	
Married/Living with partner/ Common-law	838	60.4	658,645	52.6	
Educational Attainment (25- to 64-year-olds)					25.1***
Less than high school	97	12.9	131,135	16.2	
Completed high school	208	27.7	229,345	28.3	
Some or Completed community college or technical school	242	32.3	282,010	34.8	
Some university or Completed BA	145	19.3	110,025	13.6	
MA, PhD or professional degree	58	7.7	57,410	7.1	
Educational Attainment (65+ years old)					64.7***
Less than high school	104	34.6	92,405	43.1	
Completed high school	106	35.2	46,225	21.5	
Some or Completed community college or technical school	35	11.6	51,205	23.9	
Some university or Completed BA	40	13.3	16,085	7.5	
MA, PhD or professional degree	16	5.3	8,620	4.0	
Employment ¹					11.89**
Not in labour force	485	35.1	414,425	32.6	
Employee	723	52.4	711,075	56.0	
Self-employed	124	9.0	92,895	7.3	
Unemployed	49	3.5	51,185	4.0	
Income Categories					108.9***
Less than \$20,000	106	10.0	25,795	6.0	
\$20,000–\$29,999	120	11.3	30,190	7.0	
\$30,000–\$39,999	128	12.0	39,720	9.2	
\$40,000–\$49,999	119	11.2	42,560	9.8	

Access to Family Physicians in Southwestern Ontario

TABLE A1. Continued

\$50,000–\$59,999	112	10.5	41,575	9.6	
\$60,000–\$69,999	84	7.9	40,175	9.3	
\$70,000–\$79,999	84	7.9	36,930	8.5	
\$80,000–\$89,999	65	6.1	32,845	7.6	
\$90,000–\$99,999	60	5.6	27,625	6.4	
\$100,000 or more	186	17.5	115,240	26.6	
Immigration					0.8
Immigrants	212	15.3	243,100	16.2	
Non-immigrants	1,175	84.7	1,258,995	83.8	
Years since immigration					26.3***
46+	75	35.4	55,365	22.8	
36 to 45	36	17.0	37,430	15.4	
26 to 35	25	11.8	32,865	13.5	
16 to 25	27	12.7	34,465	14.2	
11 to 15	10	4.7	23,495	9.7	
6 to 10	12	5.7	25,725	10.6	
0 to 5	27	12.7	33,745	13.9	
Mobility²					
Residing in same city/town/area					
< 1 year	31	2.2	73,725	4.9	0.826
1 year or more	1,355	97.8	1,424,000	95.1	
Residing in same city/town/area					
< 5 years	222	16.0	227,050	15.9	0.022
5 years or more	1,164	84.0	1,203,340	84.1	
Sex of Target Person					39.4***
Male	562	40.5	749,965	48.95	
Female	825	59.5	782,100	51.05	
Age of Target Person					164.7***
0 to 4	49	3.6	83,535	5.5	
5 to 9	50	3.7	90,810	5.9	
10 to 14	64	4.7	104,930	6.8	
15 to 19	88	6.5	108,820	7.1	
20 to 24	55	4.1	102,165	6.7	
25 to 29	59	4.3	88,425	5.8	
30 to 34	62	4.6	90,935	5.9	

TABLE A1. Continued

35 to 39	75	5.5	99,650	6.5	
40 to 44	94	6.9	121,155	7.9	
45 to 49	111	8.2	122,120	8.0	
50 to 54	108	8.0	111,300	7.3	
55 to 59	117	8.6	101,230	6.6	
60 to 64	124	9.1	78,660	5.1	
65 to 69	82	6.0	63,055	4.1	
70 to 74	83	6.1	54,250	3.5	
75 to 79	62	4.6	47,340	3.1	
80 to 84	49	3.6	35,605	2.3	
85 to 99	25	1.8	28,115	1.8	

Note: Participants who had missing data or refused to answer specific questions were excluded from these comparisons.

¹ Employment. Census data include individuals aged 15 years and older. Data from the current study include individuals 18 years and older; data were coded as follows: Employed – employed full-time or part-time, including individuals who were students or retired but also reported working; Not in labour force – student, retired, family/homemaker, and individuals who were disabled or on maternity leave.

² Mobility. Residing in same city/town/area was taken from the Census categories that included individuals living at the same address and non-migrant movers (i.e., living within the same Census subdivision).