

FROM PATIENT TO RESOURCE: THE ROLE OF SELF-CARE IN PATIENT-CENTERED CARE OF MINOR AILMENTS

KRISTIN R WILLEMCEN*, GERRY HARRINGTON†

*Manager of Scientific and Regulatory Affairs, Consumer Health Products Canada

†Director of Public Affairs, Consumer Health Products Canada

ABSTRACT

BACKGROUND: Patient-centered care begins with self-care, which is a resource estimated to save healthcare systems in the UK and the US billions of dollars.

OBJECTIVE: This study estimates the effect that self-care could have on Canadian healthcare utilization and investigates the attitudes that influence this practice.

METHODS: A telephone survey was conducted of 1,212 Canadians to determine the incidence of three common minor ailments across Canada: headaches/migraines, colds/flu, and indigestion/heartburn. An on-line survey followed of 1,509 Canadians, who recently suffered one of these ailments, regarding their treatment behaviors and attitudes. The cost of doctor's visits for the three minor ailments was calculated and hypothetical cost-savings were calculated for the proportion that saw a doctor despite reporting mild symptoms.

RESULTS: One quarter of Canadian adults experience colds/flu each month, which costs the Canadian healthcare system \$625 million annually in doctor's visits alone. If the 16% of people who saw a doctor for their mild cold/flu symptoms practiced self-care instead it would save \$98 million annually or allow almost half a million Canadians to have access to a family doctor. One perception that may drive Canadians to their doctors is the inability to find a consumer health product that works for their minor ailments.

CONCLUSIONS: While doctors and pharmacists play a critical role in encouraging self-care, the consumer health products industry has a responsibility to provide new, effective self-care options.

Key words: economics, self-care, minor ailments, Canada, healthcare, doctor.

INTRODUCTION

Self-care, often overlooked as a public health resource, is the foundation of patient-centered care; it includes the decisions and actions people take to maintain and improve their health, treat minor ailments and manage chronic conditions¹. Although most people treat minor ailments without consulting a doctor, shifting the balance even slightly towards more self-care (instead of professional care) for minor ailments creates significant healthcare savings. For example, £2 billion was spent in 2007 on doctor's visits in the UK for minor ailments and 88% of those costs could have been saved with self-care². In the US, if doctor visits for minor ailments were reduced by 5%, it could have saved \$5.2 billion in 2008³. The balance between self-care and professional care works both ways; if over-the-counter (OTC) medications were not available in the US, the increased demand on healthcare resources could be \$102 billion per year⁴.

Canadian economists have called for an "adult conversation" about healthcare spending⁵. Although the majority of Canadians (90%) recognize the importance of self-care to the sustainability of the health care system⁶, current evidence-based estimates of this effect are lacking. In 1989, 13.2% of family doctor visits in Ontario were for the treatment of colds/flu, which cost almost \$200 million⁷. In 1996, pharmacists' counseling services saved \$265.6-\$168.8 million in avoided doctor visits, prescribed drugs and dispensing fees⁸. Expanding self-care options by switching prescription medicines to 'over-the-counter' (OTC) status reduced these healthcare costs for the relevant ailments in Ontario significantly^{9,10}.

Behaviors and attitudes need to be understood in order to influence self-care behavior. About 30% of people globally and 24% of Canadians take medications as soon as they feel unwell¹¹. Canadians also share the global perspective that safety and efficacy are the most important factors for choosing an OTC medicine, but are more likely to engage pharmacists for advice on minor ailments (39% compared with 27% globally)¹¹. Canadians frequently used OTC medicines to treat minor ailments and were twice as likely to consult a pharmacist (38% vs. 20%) and half as likely to consult a doctor about OTCs (21% vs. 44%) relative to Americans in a 2002 study^{12,13}. Not much is known about what influences Canadians to practice self-care instead for minor ailments but in the UK confidence and convenience were factors behind the most common reasons why people practice self-care¹⁴.

The objectives of this study were (1) to estimate the potential impact of self-care of minor ailments on healthcare utilization and (2) to identify the attitudes that may influence Canadians to practice self-care.

MATERIALS AND METHODS

The study comprised two survey components that are described in detail in the supplementary materials¹⁵.

Telephone Survey

A random-probability telephone survey of 1,212 Canadian adults was conducted in the first two weeks of April 2011 to identify the monthly incidence of three minor ailments; headaches/migraines, colds/flu, and indigestion. This data was used to approximate the number of ailments experienced by Canadians per year¹⁵. The response rate was 11.3%.

On-line Survey

A series of on-line surveys¹⁵ (for headaches/migraines, cold/flu, and indigestion/heartburn) was conducted in the first week of May 2011 from a panel who had opted-in to on-line research and reported suffering from one of the three minor ailments in the past month. The outgoing sample was balanced by gender, age and region. Respondents in each ailment group (target 500 individuals each) were asked about their ailment severity, what health professionals they had consulted in the past for the ailment and what they had recommended, what their response was to their most recent ailment, and their opinions about self-care and healthcare practitioners. Results were weighted to match the regional profile of the country as determined from the random telephone survey¹⁵. The response rate was 60%.

The number of minor ailment sufferers who made an appointment with a doctor for their last ailment was used to conservatively estimate the healthcare costs associated with minor ailments¹⁵. The percentage of those who made an appointment with their doctor and reported mild symptoms ranking 1-4 on a scale of 1 to 10 (where 1 means no symptoms at all and 10 means completely unable to function) were used to create an estimate for the potential cost savings¹⁵. The hypothetical number of full time family doctors consulting on mild minor ailments was calculated and multiplied by the number of patients in the average family practice to estimate how many Canadians could gain access to a family doctor if those with mild minor ailments practiced self-care instead¹⁵.

The on-line survey also asked respondents to report their attitudes towards self-care and healthcare professionals using a 5-point Likert-type scale. The percentage of all ailment sufferers that agreed with the attitudinal statements were presented in two behavior groups: the first reported they had never consulted a doctor, nurse or pharmacist about their minor ailment and the second group reported consulting a doctor about their minor ailment at some point in the past. Data was weighted based on the minor ailment incidence determined in the telephone survey¹⁵.

RESULTS

Telephone Survey

The telephone survey was conducted with numbers randomly selected from all published phone numbers in Canada and was assumed to represent the demographic profile of the country. The regional profile of respondents from the telephone survey was described in Table 1.

Table 1: Proportion of respondents to the telephone survey by region

Region	Proportion of Respondents from the Telephone Survey
Atlantic	7%
Quebec	24%
Ontario	38%
Manitoba/Saskatchewan	7%
Alberta	10%
British Columbia/Territories	13%
Total	100%
Base: Telephone Survey (n=1,212)	

The 95% confidence interval for the telephone survey results was calculated as $\pm 2.8\%$.¹⁵ About one-quarter experienced headaches/migraines or colds/flu, while 14% experienced indigestion/heartburn (Table 2). Therefore, adults suffer from approximately 82.2 million headaches/migraines, 85.5 million colds/flu episodes, and 46 million episodes of indigestion/heartburn per year.

Table 2: Impact of three minor ailments on the healthcare resources

Estimates		Headaches/ Migraine	Cold/flu	Indigestion/ Heartburn
Minor ailment incidence*		25%	28%	14%
Median number of episodes per year**		10	9	10
Ailment sufferers in April 2011		6.8 million	7.1 million	3.8 million
Annual number of ailment sufferers		82.2 million	85.4 million	46 million
Proportion of ailment sufferers who saw a doctor**		4%	12%	6%
Annual cost of doctor's visits		\$200.4 million	\$625.1 million	\$168 million
Proportion who saw a doctor despite reporting low symptom severity**		15.4%	15.8%	15.8%
Impact on healthcare resources if those with low symptom severity practiced self-care instead	Number of saved doctor's visits per year	505,630	1,619,081	435,906
	Annual cost savings from avoided doctor's visits	\$30.8 million	\$98.7 million	\$26.6 million
	Number of Canadians that could have been provided access to a family doctor	154,680	495,302	133,350
*Base: Telephone Survey (n=1,212) **Base: Online Survey (n=1,509)				

On-line Survey

The demographic profile of the telephone survey respondents was used as a bias to assess the sample of minor ailment sufferers included in the on-line survey, compared in Table 3. Although the gender balance for headache and migraine sufferers in the on-line survey is somewhat out of alignment with the telephone survey, the on-line sample does not contain any serious demographic bias (Table 3). However, the on-line survey required a minor rebalancing of regions to match the regional profile in Table 1.

Table 3: Demographic profile of respondents from the telephone and on-line survey

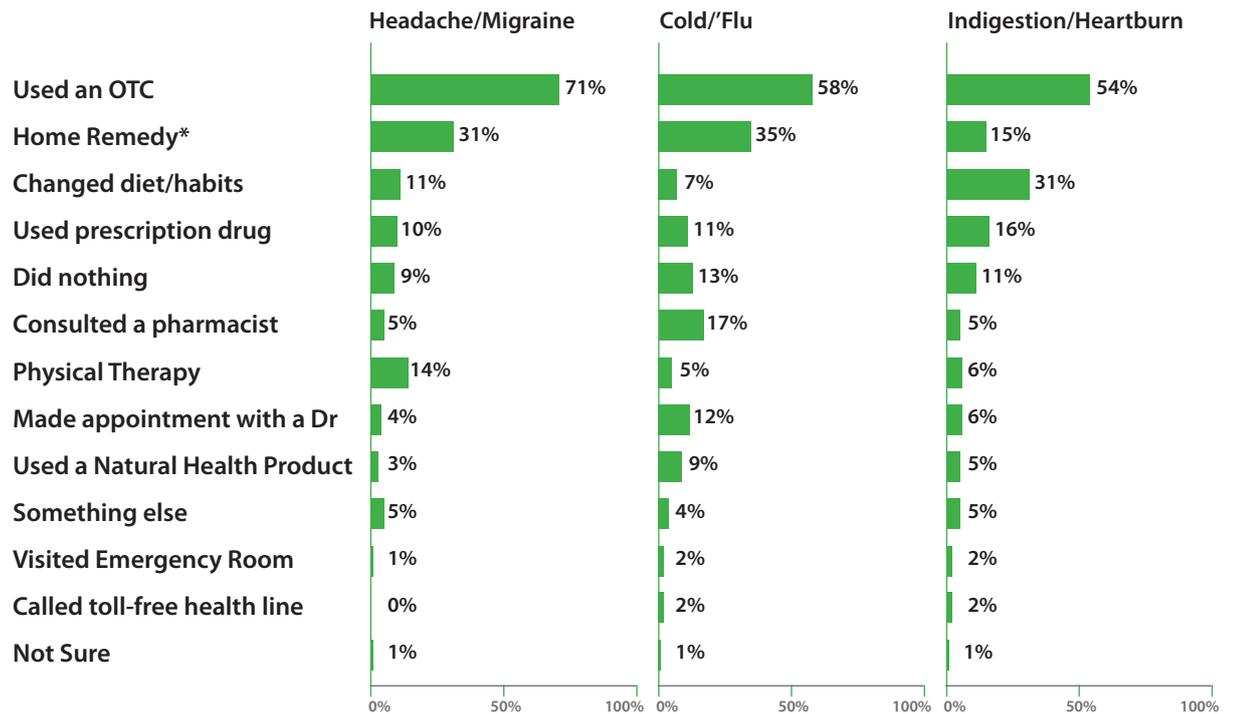
N Confidence p=(.05)	Cold and 'Flu Sufferers*		Headache and Migraine Sufferers*		Heartburn** and Indigestion Sufferers*	
	Telephone survey 255 ± 6.1%	On-line survey 504 ± 4.3%	Telephone survey 250 ± 6.1%	On-line survey 508 ± 4.3%	Telephone survey 137 ± 8.3%	On-line survey 505 ± 4.3%
18 to 24	11%	10%	14%	11%	14%	8%
25 to 34	26%	29%	20%	23%	17%	27%
35 to 44	20%	23%	22%	25%	20%	22%
45 to 54	23%	16%	26%	22%	21%	19%
55 to 64	9%	16%	12%	14%	15%	18%
85 and over	10%	6%	6%	4%	14%	6%
Total	100%	100%	100%	100%	100%	100%
Male	51%	52%	32%	45%	47%	51%
Female	49%	48%	67%	54%	53%	48%
Total	100%	100%	100%	100%	100%	100%
Atlantic	4%	7%	6%	7%	6%	7%
Quebec	25%	23%	21%	23%	12%	24%
Ontario	37%	39%	39%	39%	40%	39%
Prairies	7%	7%	9%	7%	11%	7%
Alberta	13%	11%	11%	11%	11%	11%
BC/Territories	14%	13%	13%	13%	11%	13%
Total	100%	100%	100%	100%	100%	100%
*In the previous month **The pilot study question used the description 'indigestion' only. Note: Both the telephone and on-line samples have been weighted by region only.						

The 95% confidence interval of the results of the on-line survey was calculated as $\pm 4.5\%$. Ailment sufferers experience headaches and indigestion about 10 times per year and colds/'flu episodes three times per year. During their most recent ailment episode, most people responded by using an OTC medicine, a home remedy and/or a change in diet or eating habits (Figure

1). Among those with headaches or indigestion, relatively few made an appointment with a doctor or took a prescription drug. Even fewer visited an emergency room or contacted a toll free government information line.

Figure 1: Actions taken in response to most recent symptoms

Thinking about the most recent time in the past 4 weeks that you experienced these symptoms, which one of the following actions, if any, did you take in response to your symptoms?



*"such as cold compress, resting and drinking more fluids, salt-water gargling, etc."

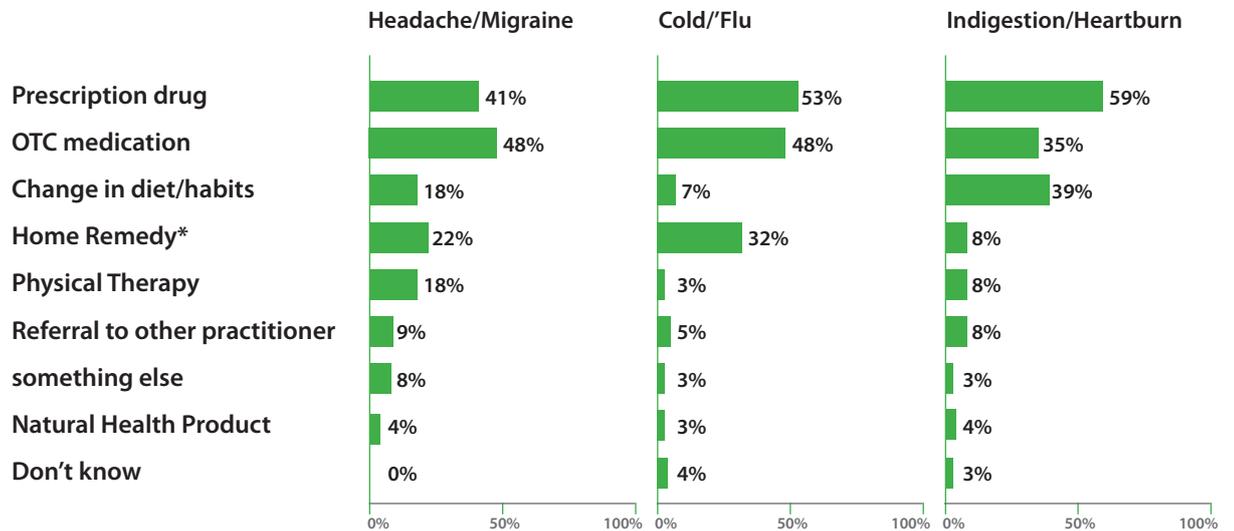
Base: Q11 Online survey: thinking about the most recent time within the last 4 weeks that you experienced these symptoms, which of the following actions, if any, did you take in response to your symptoms (multiple responses)?

Headache/Migraine (n=508); Cold/Flu (n=504); Indigestion/Heartburn (n=505)

In their last experience of a cold/flu episode, 12% of suffers consulted a doctor about their symptoms, which was higher than for those who experienced indigestion/heartburn or headaches/migraines (6% and 4% respectively). The estimated annual costs associated with doctor consultations for headaches/migraines, cold/flu and indigestion/heartburn were \$200 million, \$625 million, and \$168 million respectively (Table 2). Canadians who saw a doctor about their minor ailment often received a recommendation to take a prescription drug or OTC (Figure 2). The third most common doctor recommendation was for a home remedy or changes in diet/eating habits. Other outcomes, such as a recommendation for a natural health product (NHP) or a referral to a specialist were rare. A past doctor's recommendation could have been dependent on the severity of symptoms presented at that time, which was not measured in this survey. Overall, Canadian doctors frequently recommend self-care for the treatment of minor ailments.

Figure 2: Result of last doctor’s consultation

When you last consulted a doctor about this illness, what did he/she recommend?



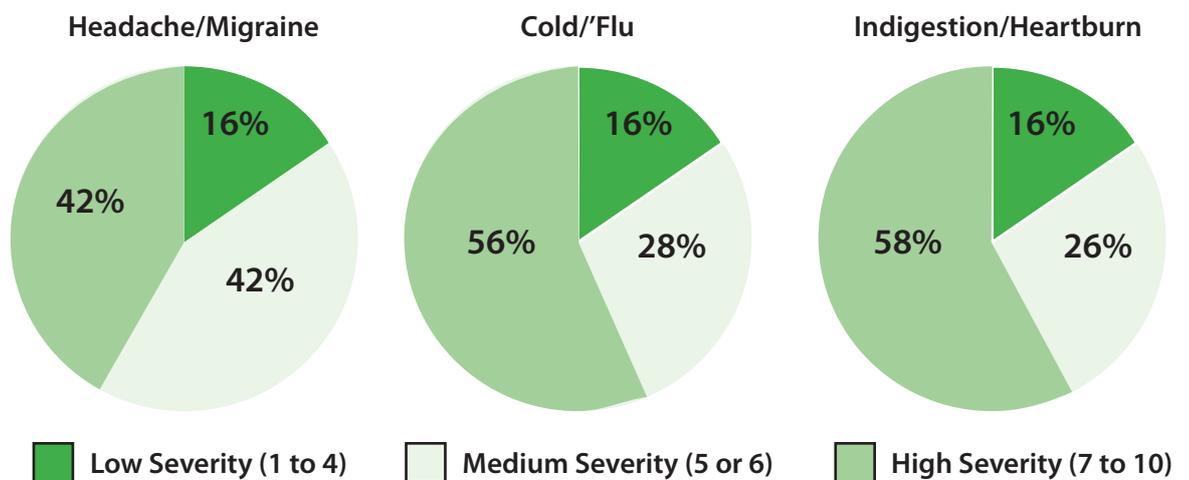
*"such as cold compress, resting and drinking more fluids, salt-water gargling, etc."

Q6 Online survey: When you last consulted a doctor about this illness, what did he/she recommend (multiple responses)?

Headache/Migraine (n=246); Cold/Flu (n=289); Indigestion/Heartburn (n=275)

For their most recent ailment, those with higher symptom severity were twice as likely to see a doctor as those with mild symptoms (Figure 3). Approximately 16% of the respondents to the survey made an appointment with a doctor even though they reported low symptom severity (Table 2). The frequency of symptoms was not strongly associated with making an appointment with a doctor but frequency was positively correlated with taking a prescription drug, meaning frequent sufferers may have consulted a doctor in the past¹⁵.

Figure 3: Symptom severity and those who made an appointment with a doctor



Q8 Online survey: On a scale of 1 to 10 where 1 means “no symptoms” and 10 means “completely unable to function”, how would you rate your most recent experience with the ailment symptoms?

Headache/Migraine (n=26); Cold/Flu (n=76); Indigestion/Heartburn (n=19)

Three-quarters of all respondents said they felt confident treating minor ailments themselves while one quarter worried about the choices they made when managing minor ailments (Figure 4). Those that had practiced self-care were slightly more confident than those who had consulted a health professional.

Figure 4: Attitudes about minor ailments and self-care behavior

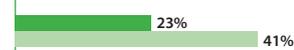
Thinking about the products available to treat minor ailments, do you agree or disagree with each of the following statements?

TOTALLY AGREE (SOMEWHAT AND STRONGLY)

■ Practiced self-care

■ Made appointment with doctor

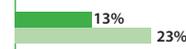
I actively seek out new OTC medications to get relief from minor ailments myself



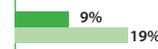
I am confident managing and treating minor ailments myself



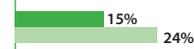
I am not aware of any OTC medication or NHP that could effectively give me relief of my minor ailment symptoms



OTC medications aren't effective at giving me relief from my minor ailments



I worry about some of the choices I make about how to treat minor ailments



I actively seek out new NHPs to get relief from minor ailments myself



NHPs are often just as effective as prescription drugs for treating minor ailments



OTC medications are often just as effective as prescription drugs for treating minor ailments



I don't know enough about NHPs to use them



NHPs are often just as effective as OTC medications for treating certain ailments



NHPs aren't effective at giving me relief from my minor ailments



I prefer to stick to natural and traditional remedies for minor ailments



Q19 Online Survey: Thinking about the products available to treat minor ailments, do you agree or disagree with each of the following statements (using a 5 point likert-type scale)

Base Q4 Online Survey: All ailment sufferers that have ever sought advice from their doctors (n=810) and all ailment sufferers who have never sought the advice of a doctor, pharmacist or nurse about their symptoms (n=510)

Interestingly, people who had consulted health professionals were significantly more likely to seek out new OTC medicines, and to a lesser extent NHPs, compared with those who practiced self-care. Conversely, those who practiced self-care were more likely to be aware of consumer health products that work for them and agree that OTC medicines are effective.

Most shared similar views about efficacy, 60% believed that OTCs are often just as effective as prescription drugs. As in a previous study, NHPs were viewed as being less effective¹⁶; about half of respondents admitted that they did not know enough about NHPs to use them, though 35% prefer NHPs. Only one third of respondents agreed that NHPs are just as effective as OTCs or prescription drugs. However, Canadians that practice self-care were twice as likely to agree that NHPs aren't effective (19%) compared to OTCs (9%). Less than one third of those that practiced self-care thought it was important to talk to their doctor or pharmacist before using a consumer health product for the first time compared to more than one half (53%) of those that have visited a doctor for their minor ailment (Figure 5).

Figure 5: Attitudes about health professionals and self-care behavior

Thinking about the products available to treat minor ailments, do you agree or disagree with each of the following statements?

TOTALLY AGREE (SOMEWHAT AND STRONGLY)

■ Practiced self-care ■ Made appointment with doctor

It is important to talk to a doctor, pharmacist or other health care professional before using an OTC medication for the first time

It is important to get information from my doctor about how to manage or treat minor ailments myself

It is important for me to talk to a doctor, pharmacist or other health care professional before using an NHP for the first time

I feel very comfortable talking to my doctor about how I manage and treat my minor ailments

It is important to get information from my pharmacist about how to manage or treat minor ailments myself

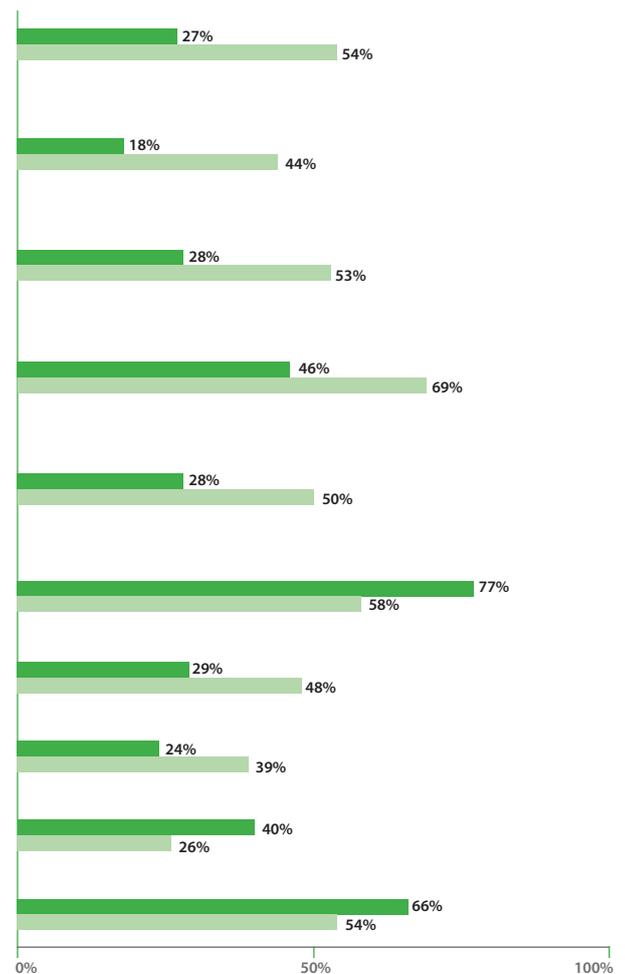
Going to the doctor for minor ailments is a waste of my time

My doctor supports and encourages me to treat minor ailments myself

My pharmacist supports and encourages me to treat minor ailments myself

I don't like to bother my pharmacist with questions about minor ailments

I don't like to bother my doctor with questions about minor ailments



Q22 Online Survey: Thinking about the role of professionals in treating minor ailments, do you agree or disagree with each of the following statements (using a 5 point likert-type scale)

Base Q4 Online Survey: All ailment sufferers that have ever sought advice from their doctors (n=810) and all ailment sufferers who have never sought the advice of a doctor, pharmacist or nurse about their symptoms (n=510)

Those that practiced self-care were also less likely to agree on the importance of getting information about self-care from their doctor (18%) or pharmacist (28%) compared to those who have consulted their doctor (44%). Fewer people that practiced self-care felt they had support from their doctors (29%) and pharmacists (24%) compared to those that have consulted a doctor (48% and 39% respectively). Interestingly, most agreed that going to the doctor is a waste of time and admitted that they do not like to bother their doctor about minor ailments. However, those that practiced self-care were more likely to agree with such statements compared with those that have consulted health professionals.

Attitudes differed about the role of the doctor and pharmacist. Almost half of Canadians do not want to bother their doctors with minor ailments, but only one quarter feel that way about pharmacists. The majority of those who have consulted a doctor (69%) feel comfortable talking to their doctor about minor ailments, compared to less than half of those have not consulted a doctor.

DISCUSSION

This study provides an up-to-date estimate of the healthcare resources consumed in the care of three minor ailments. While no definition of a minor ailment exists², minor ailments were considered to be self-limiting¹⁷, common, and those where effective self-care options were available¹⁴. The minor ailments examined in this study were selected because they were among the most common ailments previously identified in Canada¹⁸. The minor ailments in the study were not defined for the survey respondents and thus their answers may reflect episodes that range in severity (ie. from tension headache to migraine), which was taken into account by measuring self-reported symptom severity. One of the key limitations to this study is that the telephone survey asked about “indigestion” and the on-line survey was modified to include sufferers of “indigestion and heartburn” to align with previously studied categories of minor ailments^{18,19} and to provide more clarity on the range of symptoms associated with this ailment. However, the Canadian incidence of “indigestion and heartburn” last measured in 1998¹⁹ was within the range of error for the $14\% \pm 8.3\%$ incidence of “indigestion” measured in the telephone survey (Table 3) and thus this value was considered a conservative estimate of the incidence of “indigestion/heartburn” for the purpose of this study. The low response rate for the telephone survey was typical of telephone-based research in Canada; it was not anticipated to impact the results of this study as it resulted in the expected demographic profile for the country. The minor rebalancing of regions for the on-line survey results was also not expected to have a significant impact as the gender and age demographics remained representative and within the statistical confidence intervals relative to the telephone survey results.

Self-care can be done independently or in collaboration with health professionals; the latter imposes a significant demand on resources. Doctor consultations for the three common minor ailments in this study are estimated to cost the healthcare system almost a billion dollars annually. It should be noted that these costs are conservative estimates and do not take into account children (who are more likely to be seen by a doctor for colds²⁰ and experience more

colds/flu than adults²¹) or the costs of emergency room visits, prescriptions or laboratory analysis. Seeing a doctor about a minor ailment may not be inappropriate as a doctor's recommendation for self-care of a minor ailment could have a lasting impact on behavior¹⁴. Those with higher symptom severity were more likely to consult a doctor but even a small shift in the number of Canadians practicing self-care could have significant cost impacts. If just the doctor consultations associated with mild colds/flu could be avoided, it would save the healthcare system over \$98 million, or could free up family doctor access for ten percent of Canadians who currently don't have access. Although improving access to family doctors is a complicated proposition, the point illustrates that if self-care was encouraged amongst a targeted minority of individuals, it could have a significant impact on availability of healthcare resources. A follow-up study with a larger sample size would be required to further investigate the impact of symptom severity and frequency on healthcare choices and characterize the attitudes and behaviors of this small subpopulation who sought a doctor's advice despite having mild symptoms.

Overall, the majority of Canadians were confident treating minor ailments themselves and practiced self-care in response to their most recent ailment. Relative to the UK, Canadians were more inclined to use OTCs to treat minor ailments (from 54% to 71% in Canada and 41% in the UK) and were less inclined to visit a doctor (from 4-12% in Canada and 17% in the UK)¹⁴. Canadians that practiced self-care were more confident than those in the UK (83% vs. 69%) and Canadians that went to the doctor were more likely to believe that OTCs can be just as effective as prescription drugs for minor ailments (59% vs. 40%)¹⁴. Since Canada has a strong self-care culture, increasing access to safe and effective products could be critical to encouraging self-care. Canadians had similar attitudes about self-care and professional care except for indications that those who went to the doctor may have been unable to find a product that worked for them, even after actively seeking out new products to fill their need.

Although healthcare practitioners have a unique opportunity to impact how Canadians practice self-care, the consumer health products industry also has a responsibility to provide new, safe and effective consumer health products to increase available self-care options. More work could be done to quantify the value of consumer health products to healthcare in Canada. Also, it would be interesting to compare the attitudes of consumers with those of health practitioners to identify if disparities exist that hinder self-care.

When patients become recognized resources in patient-centered care, it can create significant savings to support healthcare reform and improve access. These data describe consumer attitudes that could be used to examine the impact of future minor ailment schemes in Canada. Self-care is an important part of the "adult conversation" about the Canadian healthcare system⁵.

Statement of Interests: CHP Canada is the national association of manufacturers and marketers of OTCs and NHPs. This paper presents some of the findings from a study that CHP Canada commissioned to Redfern Research to conduct in May 2011 about self-care behavior for minor ailments.

Acknowledgements: CHP Canada would like to thank Martin Redfern for his guidance and expertise on this project.

Correspondence to: Gerry Harrington, Director of Public Affairs, Consumer Health Products Canada, 1111 Prince of Wales Drive, Suite 406, Ottawa, ON K2C 3T2. Telephone: 613-723-0777 X227. Email: Gerry.harrington@chpcanada.ca.

REFERENCES

1. Chambers R, Wakley G, Blenkinsopp A. Supporting self care in primary care, Radcliffe Publishing, Abington, United Kingdom: 2006.
2. Pillay N, Tisman A, Kent T *et. al.* The Economic Burden of Minor Ailments on the National Health Service in the UK. *SelfCare* 2010;1(3):105-116.
3. London PA and Shostak D. Cost-Savings Study: Analysis of Health Management Options. CHPA. Available at: www.yourhealthathand.org. Accessed June 17, 2011.
4. Booz &Co. The Value of OTC medication to the United States. CHPA. Available at: www.yourhealthathand.org. Accessed March 6, 2011.
5. Dodge DA, Dion R. Chronic Healthcare Spending Disease: A Macro Diagnosis and Prognosis. CD Howe Institute Commentary. *The Health Papers* 2011; (327) April 2011. Available at: http://www.cdhowe.org/pdf/Commentary_327.pdf. Accessed July 20, 2011.
6. Ipsos-Reid. Public Views on Self-care. NDMAC. 2004.
7. Weinkauff DJ, Rowland GC. Patient Conditions at the Primary Care level: A Commentary on Resource Allocation. *Ontario Medical Review* 1992; (61):11-15.
8. Loh EA, Waruszynski BMA *et. al.* Cost Savings Associated with Community Pharmacist Interventions in Canada. *Canadian Pharmacists Journal*. 1996;129(1):43-55.
9. Manga P, Shariatmadar A *et. al.* The Economics of Switching Rx to OTC Drugs: The case of H2RAs and Vaginal Antifungals. 1999.
10. Anderson M and Morgan S. The Economics of self-medication. Queen's Health Policy, Queen's University, Kingston Ontario. 1995.
11. AC Nielsen. The Changing Landscape- A Multi-country Study Undertaken with AESGP. 2009. Available at: <http://www.pagb.co.uk/publications/pdfs/AESGPREsearchJuly08.pdf>. Accessed March 6, 2011.
12. Harris Interactive. Attitudes and Beliefs about the use of over-the-counter medication: A Dose of Reality. NCPIE, 2002. Available at: http://www.bemedwise.org/survey/final_survey.pdf. Accessed March 6, 2011.
13. BeMedWise. Survey on Canadian's use of OTC medications- BeMedWise Survey. Drug Information and Research Center, Ottawa, Ontario. 2004.
14. Banks I. Self care of minor ailments: A survey of consumer and healthcare professional beliefs and behavior. *SelfCare* 2010;1(1):1-13.
15. The following supplementary information is available for this paper:
 - Supplementary Materials and Methods
 - The full on-line questionnaire instrument and raw data
 - Supplementary Table

This information is available on request from editor@selfcarejournal.com and will be archived on the SelfCare website

16. Ipsos-Reid. Natural Health Product Tracking Survey. Health Canada, Ottawa, 2010
17. Taylor J. The Factors that Influence the Public's Ability to Self-medicate. *SelfCare* 2011;2(1):1-9
18. AC Nielsen, Pangaea Consultants. Health Vision 2002: Bringing Strategic Insight into Working-Level knowledge. NDMAC. 2002.
19. AC Nielsen. Health Vision '98: Bringing Strategic Insight to Working-level Knowledge. NDMAC. 1998.
20. CMPI. Cough Medicine Consumer Insights National Survey. CMPI, CHPA, 2012. Available at: <http://www.cmpi.org/reports-newsletters/reports/cough-medicine-consumer-insights-national-survey>. Accessed March 6, 2011.
21. Monto AS and Sullivan KM. Acute Respiratory Illness in the Community. *Epidemiology Infection*. 1993; 110:145-160.