ABSTRACT

The purpose of this paper is to describe knowledge, attitudes and practices of cold and flu self-care and health care utilization, and to identify the predictors of health care utilization for the cold and flu among residents of London and Windsor. Using a random digit dialing survey method, 417 residents were interviewed between November-December, 1993 and February-March, 1994.

This survey revealed good knowledge about colds and flu and understanding of appropriate physician visits. Only seven percent reported a doctor visit for their last cold. Socio-demographic, health status, attitude and knowledge level variables were subjected to a logistic regression analysis to identify which variables predicted self-reported physician visits. Only attitudes and health status showed statistically significant log odds (3.6 and 1.5, respectively). In summary, consistent with other studies, attitude and health status, not knowledge, appear to be significant predictors of physician visits for colds/flu.

ABRÉGÉ

Le but de cet article est de décrire les connaissances, l'attitude et les pratiques en matière de soins personnels du rhume et de la grippe et le recours aux services de santé, ainsi qu'identifier les prédicteurs du recours aux services de santé pour les mêmes affections chez les résidents de London et de Windsor. En recourant à une méthode d'enquête par appel téléphonique composé de façon aléatoire, on a interviewé 417 résidents entre novembre et décembre 1993, et également entre février et mars 1994. Cette enquête a révélé un bon niveau de connaissances et une bonne compréhension des consultations chez le médecin qui sont justifiées. Seulement sept pour cent des personnes ont déclaré avoir consulté un médecin lors de leur dernier rhume. On a fait une analyse de régression logistique sur les variables concernant le statut socio-démographique, l'état de santé, l'attitude et le niveau de connaissances pour identifier celles d'entre elles permettant de prédire des consultations du médecin auto-déclarées. Seules les variables correspondant à l'attitude et à l'état de santé ont montré des disparités statistiquement significatives (3,6 et 1,5 respectivement). En résumé, comme l'indiquent d'autres études, ce sont les variables relatives à l'attitude et à l'état de santé et non pas celle en rapport avec les connaissances qui semblent être des prédicteurs significatifs des consultations du médecin en cas de rhume et (ou) de grippe.

Cold/Flu Knowledge, Attitudes and Health Care Practices: Results of a Two-City Telephone Survey

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Utilization of health care services for colds and flu is considered to be a common occurrence. The Ontario Ministry of Health (MOH) reported that 12.6% of all visits to physicians in the period January 1 to March 31, 1991 were coded (Ontario Health Insurance Plan [OHIP]) as the "common cold".¹ This was of concern to the Ministry of Health and the Ontario Medical Association (OMA), as visits to physicians for the common cold and flu may be inappropriate and a misuse of health care resources.¹ In 1994 they implemented a public education program on the management of common cold and flu which has been evaluated elsewhere.²⁻⁴

Despite the suggested abuse of the health care system for "inappropriate" visits for the common cold,¹ little information is available on patterns of cold self-care and health care utilization, and on what factors predict health care utilization for colds and flu. The literature on predictors of general health care utilization has shown mixed and often contradictory findings, depending on the research design and instruments used. Generally speaking, female gender,⁵⁻⁹ depression,¹⁰⁻¹⁴ positive attitude toward consultation,⁶ and perceived poor health status^{5,6,15} have all been

associated with greater health care utilization, while marital status,^{5,16-18} education,^{5,19} employment status,^{5,16,19-21} knowledge about illness and self-care,^{20,22} and physical health^{11,18,23} have shown contradictory results. The literature on age suggests a U-shaped function between age and health care utilization with children and seniors using the health care system the most.^{20,24}

The purpose of this paper is to describe the self-reported attitudes, knowledge and practices of cold and flu self-care and health care utilization, and to identify the predictors of health care utilization for cold and flu among a two-wave sample of telephone-surveyed London and Windsor residents.^{3,4} The surveys, conducted as part of an evaluation of a MOH cold self-care public education program,²⁵ provided a rich source of data by which to describe knowledge, attitudes and practices around cold and flu self-care, and health care utilization.

Questionnaire development and execution

The survey was developed to identify residents' knowledge, attitudes and practices²⁶ concerning cold and flu self-care and their related health care utilization. The knowledge and attitude survey questions were based on the MOH cold and flu self-care public education booklet. Content validity of the survey was established using the expert panel method.^{27,28} Using the principles of questionnaire design,²⁹⁻³¹ a panel of eight researchers with nursing, family medicine, clinical immunology and allergy, epidemiology, psychology and survey design backgrounds generated and reviewed a pool of questions relating to cold/flu knowledge, attitudes, self-care practices and health care utilization. The

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study was approved by the Health Sciences Review Board for Research Involving Human Subjects.

Utilization questions to identify general practices towards cold/flu and specific utilization were: What do you normally do when you have a cold? When should you see a doctor? How many times a year do you get a cold? How many of those times would you see a doctor? How did you treat your last cold? Criteria used to develop the open-ended questions included focus, brevity, clarity, readability/vocabulary, completeness and adequacy of response options for coding.^{3,4} In addition, a number of socio-demographic, lifestyle and health questions, related to general health care utilization, were incorporated into the questionnaire, including age, sex, marital status, education, occupational history, smoking behaviour, respiratory and chronic health problems and health status. Questions for most of these measurements were drawn from the Ontario Health Survey.⁹ The questionnaire was both pre-tested and pilot-tested with 20 respondents (10% of the wave 1 sample size) and the results were incorporated into the final questionnaire.

METHOD

A random digit dialing telephone survey was conducted in London and Windsor in November-December 1993 and February-March 1994 by the Telephone Survey Unit of the Department of Epidemiology and Biostatistics, The University of Western Ontario, with two of this paper's authors participating. Telephone numbers were randomly generated for the municipalities of London and Windsor and surveys were conducted 9AM-9PM (Sunday 12PM-9PM) 7 days a week. A total of 2,960 random digit dialing phone numbers were generated and called. Of those, 2,340 consisted of "not in service", number changed, business, FAX line, answering machine, language or other problems. A maximum of six attempts were made to reach residents of home numbers. A total of 620 (London = 307, Windsor = 313) calls were completed. Of those, 95 refused in London and 108 refused in Windsor, for a total response rate of 67.2%. The city by wave data were subjected to log linear

Characteristics		n	%
Sex	Male	149	35.7
	Female	268	64.3
Age (years)	18-25	83	19.9
	26-35	108	25.9
	36-45	78	18.7
	46-55	48	11.5
	56-65	33	7.9
	65+	67	16.1
Marital Status	Married	207	49.6
	Single	125	30.0
	Separated	20	4.8
	Divorced	26	6.2
	Widowed	39	9.4
Education	Completed University	84	20.1
	Some University	50	12.0
	Community College	88	21.1
	Completed High School	127	30.5
	Some High School	53	12.7
	Elementary	14	3.4
	No Schooling	1	0.2
Employment Status	Managerial/Professional	53	12.7
	Skilled	77	18.5
	Unskilled	46	11.0
	Not working	241	57.8

Indicators		n	%
Number of Colds per Year	Less than 1	87	20.9
	1 to 3	265	63.5
	More than 3	42	10.1
	Can't remember	4	1.0
	Don't get colds	1	0.2
In General, Is Your Health	Excellent	118	28.3
	Very good	165	39.6
	Good	102	24.5
	Fair	24	5.8
	Poor	8	1.9
Chronic Health Condition?	Yes	91	21.8
	No	326	78.2
Smoke?	Yes	134	32.1
	No	283	67.9
Chronic Respiratory Problems?	Yes	68	16.3
	No	349	83.7
How Would You Generally Describe Yourself?	Very happy	97	23.3
	Happy	254	60.9
	Neither	57	13.7
	Unhappy	7	1.7
	Very unhappy	2	0.5

* Some percentages do not total 100 because of missing data.

and X^2 analyses to identify significant differences between cities and time frames. The results showed only one socio-demographic difference (significantly fewer 56-65 year olds, compared to 65+ respondents were surveyed in London, compared to Windsor, $Z=2.02$, $p<0.05$) between cities. The results of the evaluation of the impact of the cold/flu education campaign showed no evidence, beyond chance, of change in knowledge, attitude and practices over time between and within London and Windsor.^{3,4} Therefore, the

data were collapsed across cities and waves, and analyzed as a single sample.

RESULTS

Table I presents the socio-demographic characteristics of the respondents. The majority of respondents were under 45 years of age, female, not working and about half had completed some post-secondary schooling. Of those who were working, the majority were in skilled or managerial/professional vocations.

TABLE III
Knowledge Questions (%)

Cause of Cold?	Virus	46.8
	Bacteria/Don't know	53.2
Are Colds Contagious?	Yes	90.2
	No/Don't know	9.8
Does Chicken Soup 'Cure' Colds?	No	76.7
	Yes/Don't know	23.3
Does Garlic 'Cure' Colds?	No	68.3
	Yes/Don't know	31.7
Do Antibiotics 'Cure' Colds?	No	65.0
	Yes/Don't know	35.0
Cause of Flu?	Virus	55.6
	Bacteria/Don't know	44.4
Are Cold and Flu the Same Thing?	No	87.3
	Yes/Don't know	12.7
Do Antibiotics 'Cure' Flu?	No	55.6
	Yes/Don't know	44.4

TABLE IV
Logistic Regression Model for the Log Odds of Visiting Doctor for Cold/Flu Symptoms (N =341 after missing values deleted)

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
Age	-0.0738	0.0910	0.6579	1	0.4173	0.0000	0.9288
Attitude	1.2885	0.3345	14.8375	1	0.0001	0.1949	3.6273
Education	-0.0147	0.0918	0.0256	1	0.8729	0.0000	0.9854
Employment	0.4956	0.3194	2.4073	1	0.1208	0.0347	1.6415
Gender	0.3638	0.3229	1.2693	1	0.2599	0.0000	1.4387
Happiness	0.2199	0.2358	0.8693	1	0.3512	0.0000	0.8026
Health	-0.4102	0.1748	5.5085	1	0.0189	0.1019	1.5071
Knowledge	0.0649	0.0854	0.5769	1	0.4475	0.0000	1.0670
Marital status	0.4179	0.3046	1.8827	1	0.1700	0.0000	1.5188
Constant	-2.7088	0.4627	34.2784	1	0.0000		
Model χ^2	37.714***						
df	9						

*** p < 0.0005

The health indicators are presented in Table II. The majority reported 1-3 colds a year, with about 20% reporting no colds or less than 1 cold per year. About four fifths of the respondents reported themselves to be happy/very happy, in good/excellent health, having no chronic health or respiratory problems. About one third smoked and one quarter of those smoked more than 25 cigarettes per day.

The attitude/knowledge questions indicated understanding of appropriate physician visits and good knowledge about colds and flu. Over 80% felt that people should not go to the doctor when they have a cold. When asked when they should see a doctor, the respondents' most common responses were for persistence of symptoms (33.2%), high fever (14.4%), and increasing severity of symptoms (13.4%), (8.3% said never). Persistence of symptoms was defined by the majority (60.3%) as 7 or more days. The knowledge questions consisted of 8 questions on causes of colds and flu, usual length of symptoms, contagion

and cold and flu cures. Almost 70% correctly answered at least 5 questions. Table III presents the responses to these questions.

Finally, self-reported practices in response to cold and flu symptoms were detailed. The respondents were queried on how they treated their last cold. The most common responses included over-the-counter (OTC) medications (51.5%), doing nothing (16.5%), bed rest (7.8%), doctor visit (6.9%), and prescription (6.5%). When asked specifically about the number of times the respondents who reported 1-3 colds per year saw a doctor with their colds in the last year, 79.5% reported no visits while 20.5% reported at least one visit.

The respondents were specifically queried about their use of medications. Over three quarters of the respondents who stated that they get colds reported usually taking medications for their colds. Only 7.2% of these medications were reported to be prescription medications:

over 90% were OTC medications. When further asked about the source of advice to take particular medications: 45.1% said self, 32.3% said doctor or pharmacist, 18.4% said family/friends, 4.1% said the media, and the remainder had other responses.

The variables described above were subjected to a logistic regression analysis in order to identify which variables predicted self-reported doctor visits. The predictors chosen, based on previous research on predictors of general health care utilization, were age, gender (dummy coded with male = 0 and female = 1), marital status (married = 0, not married = 1), education, employment (working = 0, not working = 1), knowledge (sum of correct responses to the 8 knowledge questions), self-rated health (ranging from poor = 0 to excellent = 4), self-rated happiness (ranging from 0 = very unhappy to 4 = very happy), and attitude on whether or not they feel that people should go to the doctor with a cold (no = 0, yes = 1).

Table IV presents the summary of the regression. Of the nine variables, only attitude and health status showed statistically significant log odds. Respondents who feel that people should go to the doctor with colds, and respondents with poorer self-rated health had significantly higher log odds of reporting doctor visits for colds.

DISCUSSION

It is important to point out that this survey is somewhat biased towards respondents who are younger, more educated, and female when compared to census data, a problem common with telephone surveys.⁴ Thus, these results cannot be generalized to all of London and Windsor. Still, a number of interesting observations emerge. First, the responses to the knowledge, attitudes, self-care and health care utilization practices do not suggest "inappropriate" health care utilization for the cold and flu. Consistent with other studies,³²⁻³⁴ these results indicate that self-care is the treatment of choice for colds. The most common response to the question of how respondents treated their last cold, was OTC medications (51.5%), while less than 7% reported visiting the

doctor. In response to the question of whether or not they use medications for their colds, over three quarters of respondents reported using medications. Importantly, less than one third consulted physicians or pharmacists for advice on medication choice. Furthermore, only 7% of the respondents who reported using medications indicated using prescription medications, again suggesting limited physician contact and supporting the association between physician visits and fair to poor health.

The knowledge/attitude questions were consistent with the reported practices. The majority of respondents had good knowledge levels about causes, contagion, length of and lack of cures for colds and flu, and appropriate physician visits for these conditions. Over four fifths felt that people should not go to the doctor with colds. Furthermore, the respondents' most frequent responses, when asked when people should go to the doctor with their colds, were for persistence of symptoms, high fever and increasing severity of symptoms. "Persistence" for the majority of respondents meant 7 or more days, a finding consistent with a concurrent, prospective family practice study. Keast et al.,³⁵ conducting a cross-sectional survey of 1,421 consecutive patient encounters in 15 family practices, examined the frequency of presentation of colds, reasons for presentation and duration of symptoms before presentation. They found that the average length of time that patients waited with cold symptoms before visiting a doctor was 9.9 days.

Finally, the logistic regression found only two significant predictors of doctor visits for colds and flu: attitude and self-rated health. The odds of reported doctor visits were 3.6 times greater for those respondents who agreed with doctors' visits for colds compared to those who disagreed.

Congruent with other studies, self-rated health was inversely related to doctor visits. Each unit increase in self-reported health status reduced the odds of a doctor visit by 50%. These findings would suggest that educational campaigns to change health care utilization patterns for the common cold may be of limited use, as health status and attitude were found to be the only two

significant predictors of utilization. Indeed, the public already seemed to be well informed about colds/flu. Moreover, good knowledge about colds and flu was not a significant predictor of self-reported health care utilization, a finding consistent with other studies which have examined the relationships among knowledge, attitude and practices.^{26,36,37} Nor did the majority of respondents hold a cavalier attitude toward going to doctors with colds. Interestingly, none of the other socio-demographic variables, in particular sex, which some studies have shown to be related to health care utilization, showed significant effects on doctor visits. Although females tend to be over-represented as general health care utilizers in population surveys,^{5,7} Raymond,³⁴ describing the *Health in Detroit* survey, found during a 6-week study period that less than 4% sought medical care for respiratory and musculoskeletal complaints and women averaged about 18 days of reported symptoms and men about 13 days. The lack of sex effect may be due to the fact that cold/flu health care utilization was studied, rather than general health care utilization.

The results of this survey suggest that factors other than cold/flu knowledge are related to doctor visits for colds. Health status, which has consistently been found to be the best predictor of health care utilization,^{5,6,15} and positive attitude toward health care consultations for colds and flu, which has also been found to be predictive of health care utilization,⁶ will be the challenges to address in any effort to direct appropriate utilization for cold and flu.

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other factors (e.g., perception of how clean the restaurant is) to choose a restaurant. It is not clear why respondents (7%) would choose a restaurant that does not post the certificate. Perhaps some patrons misinterpreted the wording on the certificate, thinking that the restaurant is regularly inspected because it has problems. The wording will be revised to address this.

Also, there is an economic incentive for ICP operators who have positive reports to make them available to patrons. Most respondents (74%) stated that if they read a report that showed good results, they would go there more often.

CONCLUSION

In summary, the results showed support for the full implementation of the ICP but identified some issues to address. There was mixed support for the acceptability of the ICP among operators. The ICP encouraged patrons to take that important step to self-empowerment, namely, requesting reports. The findings support the acceptability of the ICP among patrons.

The results should be interpreted cautiously considering some limitations of the evaluation. First, only 65% of operators contacted were willing to participate. There was selection bias in that operators who had fewer deficiencies at their restaurants were more likely to volunteer to par-

ticipate. A challenge will be to get operators of restaurants with poor inspection records to voluntarily participate. There was further selection bias in that a few operators that have no deficiencies generated most of the forms completed after requesting reports or completed comment cards. Therefore, the results address the acceptability of the program among operators and patrons of restaurants that have good inspection records and cannot be generalized to all operators and patrons.

There is the possibility of an interviewer bias. PHIs did face-to-face interviews with operators during inspection visits to yield a higher response rate and quicker results. However, some operators could have given socially desirable responses. In the future, another method such as a self-administered survey could be used.

This study was a utilization-focused evaluation that was developed and implemented to foster its eventual use.⁷ Management and staff participated in the evaluation process such as writing evaluation objectives, developing the evaluation design and measures, and collecting, analyzing, and interpreting data. This provided them with the opportunity to increase their understanding and appreciation of evaluation, to increase their ownership of the evaluation, and to later utilize the results. They have already made changes to the program based on the results.

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