S. ALESSI-SEVERINI

The health burden of smoking is well recognized, but quitting is a challenge for patients. Pharmacists can play an important role in helping patients reach this goal. We were interested in exploring patients' characteristics, challenges, motivations and preferences in order to inform pharmacists' approach to providing smoking cessation services.

Le fardeau du tabagisme sur la santé est largement reconnu, mais l'abandon se révèle tout un défi pour les patients. Les pharmaciens peuvent jouer un rôle important dans ce processus et aider les patients à atteindre leur objectif. Nous souhaitons explorer les caractéristiques des patients, leurs défis, leurs motivations et leurs préférences afin d'orienter l'approche des pharmaciens à l'égard des services relatifs à l'abandon du tabac.

© The Author(s) 2017

DOI:10.1177/1715163517723035

Use of smoking cessation products: A survey of patients in community pharmacies

Alan Phung, BSc(Pharm); Lauren Luo, BSc(Pharm); Noor Breik, BSc(Pharm), MSc; Silvia Alessi-Severini, BSc(Pharm), PhD

ABSTRACT

Objectives: At 17.3%, smoking rates in Manitoba continue to exceed the national average. In this province, a total health care spending of more than \$200 million per year has been attributed to smoking. This study examined the use of smoking cessation agents, including nicotine replacement products and prescription medications, in a sample of smokers in the city of Winnipeg.

Methods: A simple multiple-choice questionnaire was administered to willing individuals attending 2 community pharmacies in Winnipeg, Manitoba. Data on demographics, smoking habits, previous attempts of smoking cessation and previous and current use of over-the-counter and prescription smoking cessation products were collected anonymously.

Results: Of the 2237 individuals who were approached, 586 were smokers (26.2%) and 180 responded to the survey (30.7%); 48.9% were female. A majority of smokers (32.8%) reported smoking 16 to 25 cigarettes per day. More than 90% had smoked for more than 5 years, 27.2% had more than 5 previous quit attempts and 82.1% used smoking cessation products with the intention to quit. Self-motivation (44.4%) and family/friend advice (28.3%) were major reasons for quitting. Impact of health care practitioners' advice was low (6.4%). More than 80% of respondents reported that they had no insurance coverage for their smoking cessation products. Despite having the highest rate of use, both nicotine gum (33.3%) and patches (24.4%) were reported to have lower rates of perceived efficacy. Electronic cigarette (97.9%) and varenicline (70.6%) had the highest rates of reported effectiveness.

Conclusion: Smokers wanting to quit undergo many attempts. Pharmacists should assume a key role in reaching out to smokers. *Can Pharm J (Ott)* 2017;150:326-333.

Introduction

The World Health Organization reports that smoking remains the leading cause of non-communicable disease and preventable deaths worldwide.¹ Approximately 6 million deaths each year are attributed to smoking, with 10% of reported deaths attributed to secondhand smoke exposure.² In May 2015, the Manitoba Center of Health Policy reported that smoking was associated with more than \$200 million in total health

care spending per year in Manitoba.³ In 2012, Manitoba had the third highest smoking prevalence among all Canadian provinces at 17.4%, which was above the national average of 14.6%.⁴ Among daily smokers, Manitoba continues to have the second highest cigarette consumption rate among provinces, with an estimated average of 14.9 cigarettes per day.⁴ British Columbia and Ontario, on the other hand, have successfully maintained the lowest smoking rates within

Canada, at 11.4% and 12.6%, respectively.⁴ Numerous studies have supported the efficacy of smoking cessation therapies; however, “real world” effectiveness of each strategy is variable.⁵⁻⁷ Health care practitioners can play a large role in enacting a sense of control by prescribing patient-specific treatment options and providing education and appropriate follow-up in order to ensure that quit success is achieved; however, it is important to understand patients’ motivation, challenges and preferences to properly address their needs.⁸ This study assessed smokers’ perspective on the use and effectiveness of smoking cessation agents. Population characteristics and details on medication coverage and access were also collected.

Methods

A simple multiple-choice questionnaire was administered to active smokers at 2 community pharmacies in Winnipeg, Manitoba, in June and July 2015. These pharmacies typically saw an average of 400 patients per day. All participants were adult (≥ 18 years) active smokers who agreed to participate in the study. Data on demographics, smoking habits, previous attempts at smoking cessation and previous and current use of over-the-counter (OTC) and prescription smoking cessation products were all collected anonymously. The study was approved by the Health Research Ethics Board of the University of Manitoba.

Descriptive statistics were used to describe participants’ characteristics and to rate products as effective/most preferred.

This study received ethics approval from the Health Research Ethics Board of the University of Manitoba. It was conducted in compliance with the Personal Health Information Act of Manitoba.

Results

Population

Of the 2237 individuals who were approached, 586 were smokers (26.2%) and 180 smokers participated in the study (response rate 30.7%). More men (51.1%) than women (48.9%) were smokers, and approximately 63% of smokers belonged to the 26- to 55-year age bracket. Approximately equal proportions of respondents reported having high school education, trade, technical or college diploma or a bachelor’s degree. Nearly 50%

KNOWLEDGE INTO PRACTICE

- In May 2015, the Manitoba Center of Health Policy reported that smoking was associated with more than \$200 million in total health care spending per year in Manitoba.
- Numerous studies have supported the efficacy of smoking cessation therapies; however, “real world” effectiveness of each strategy is variable. Meanwhile, some studies support the larger role health care practitioners have in ensuring quit success.
- Smokers who frequent community pharmacies in Winnipeg experience a higher cigarette consumption rate than the Canadian average; a majority of these smokers do not have coverage for smoking cessation medications and report a genuine interest in smoking cessation despite reporting the impact of health care advice as low.
- Pharmacies appear to be an ideal site in targeting smoking cessation programs; pharmacists should assume a key role in educating patients and developing smoking cessation strategies.

of respondents reported an income of \$30,000 to \$89,999, with about 12% of respondents preferring not to answer. Only 7.2% of respondents had a family income less than \$30,000, while just more than 30% of respondents reported a family income greater than \$90,000. More than 80% of respondents reported that they had no means of insurance coverage for their smoking cessation medication, with 15% reporting having private insurance coverage and 3.9% provincial/federal coverage. More than 90% of smokers had smoked for more than 5 years, 57% had been smoking for more than 15 years and less than 10% reported to have recently started smoking within the past 5 years. A majority of smokers (32.8%) reported smoking approximately 16 to 25 cigarettes per day. More details are given in Figure 1.

Smoking cessation habits, motivation and products

Twenty-seven percent (27.2%) of respondents had had more than 5 attempts at smoking cessation. Approximately 60% reported a quit attempt within the year, and 40% reported their last quit attempt beyond 1 year, with approximately half (19%) reporting their last attempt beyond 3 years ago.

Self-motivation was the most important factor to smoking cessation attempts in 45.5% of participants; 27.5% were motivated by family and friends’ advice, 20.6% by medical conditions

MISE EN PRATIQUE DES CONNAISSANCES

- En mai 2015, le Manitoba Center of Health Policy a signalé que le tabagisme était associé à des dépenses de soins de santé de plus de 200 millions de dollars par année au Manitoba.
- De nombreuses études soutiennent l'efficacité des traitements d'abandon du tabac; toutefois, l'efficacité « en situation réelle » de chaque stratégie varie grandement. D'un autre côté, certaines études confirment le rôle important des professionnels de la santé dans la réussite du processus d'abandon.
- Les fumeurs qui visitent les pharmacies communautaires de Winnipeg consomment un nombre de cigarettes plus élevé que la moyenne canadienne; la majorité de ces fumeurs ne sont pas couverts pour les médicaments d'abandon du tabac et déclarent qu'ils aimeraient véritablement renoncer au tabac bien que les conseils liés à la santé n'aient qu'une faible incidence sur cette décision.
- Les pharmacies constitueraient l'endroit idéal pour instaurer des programmes d'abandon du tabac, et les pharmaciens devraient jouer un rôle clé dans l'éducation des patients et dans l'élaboration de stratégies de renoncement au tabac.

and only 6.4% by advice from a health care professional. While 82.1% of participants reported using smoking cessation medications with the intention to quit, 12.4% admitted using smoking cessation products for smoking reduction and for coping when smoking was prohibited (Figure 1).

A large proportion (42.3%) of respondents reported they were not currently using any means of smoking cessation. The product most commonly used by current smokers was nicotine gum (16.3%). Use of electronic cigarettes was reported by 14.7% of users, nicotine patches by 10.8% and varenicline by 7.6%; none of the participants reported use of bupropion or nicotine inhalers. Responders had previously used a variety of products, with more than 25% reporting use of more than 3 different products (Figure 2).

While 25.6% of all responders felt that none of the smoking cessation methods were effective, electronic cigarettes were rated as the preferred method (97.2%) by those who had tried them. Varenicline was second at 70.6% and nicotine gum third at 30.5%.

Discussion

In our sample, more men than women were active smokers, more than 85% were over the age of 25, with the largest proportion of smokers (45.6%) belonging to the 26 to 45 age group, and 95.5% were daily smokers, with most smokers

(90.6%) having smoked for more than 5 years. All 180 respondents reported having 1 or more quit attempts on separate occasions, which suggests that community pharmacy smoking populations in Winnipeg may in fact be representative of adult smokers who intend to quit rather than precontemplators.⁴ In terms of cigarette consumption rates, the results of our study showed that the largest proportion of smokers (32.8%) consumed an average of 16 to 25 cigarettes per day, with just more than 50% of smokers self-identifying as moderate smokers. Furthermore, our study showed that the products more commonly used were nicotine gums. Varenicline and bupropion showed low use; however, varenicline was rated high in terms of effectiveness and preference. E-cigarettes were considered the most effective smoking cessation product. A large majority (81.1%) of the respondents did not have any means of coverage for smoking cessation products, which can represent a significant barrier to access.⁹⁻¹¹ In assessing motivators of smoking cessation, the results of our study showed that a majority of respondents (73%) rated self-motivation and family/friends' advice as their key incentives for smoking cessation; health care practitioners' advice was rated lower as a key incentive for smoking cessation.

The demographics of our sample were generally consistent with the data of the report titled "Tobacco Use in Canada,"⁴ which, however, indicated that smokers of age 25 to 44 represented less than 20% of the smoking population in all of Manitoba.⁴ The differences in age groups may suggest that smokers in Winnipeg might be older in comparison to the rest of Manitoba or that there is a higher likelihood that samples at community pharmacies may represent a generally older population. Furthermore, our sample showed a higher prevalence of smokers in a community pharmacy setting (26.2%) compared with the general population in Manitoba (17.4%). In addition, "Tobacco Use in Canada" reported that Manitoba's average cigarette consumption rate was of 14.9 cigarettes per day, while our results suggest that smokers in community pharmacies may have a larger cigarette consumption rate than the average Manitoba population.

Community pharmacies provide access to both OTC nicotine replacement therapy (NRT) as well as prescription medications for smoking cessation and are the natural site for providing

FIGURE 1 Characteristics of smokers in community pharmacies in Winnipeg

*Does not include participants who failed to respond.

†Includes multiple responses from single respondents.

FIGURE 2 Percentages for use and perceived efficacy of various smoking cessation products

*Each percentage of a previously used smoking cessation product represents the proportion of use among all previously used products ($n = 393$).

†Each percentage of a currently used smoking cessation product represents the proportion of all currently used products ($n = 183$), where some participants reported contaminant use of nicotine gum with the patch or in combination with e-cigarettes.

‡Each percentage of an effective smoking cessation product represents the proportion of respondents who rated a product most effective in smoking cessation ($n = 180$).

§Each percentage of the most effective product represents the proportion of users who had rated a smoking cessation product most effective over the proportion of users who had previously tried the product. A most effective percentage could not be determined for none, since it was not measured as a method of smoking cessation for a measure for preference and use.

smoking cessation services to the public. In fact, a recent meta-analysis on the effectiveness of smoking cessation in community pharmacies found that pharmacist-led interventions had a quantifiable and statistically significant impact on quitting success.⁸ Furthermore, a study that compared and contrasted the recruitment process of adult smokers in a community pharmacy setting with a general practitioner's office determined that recruitment of participants in a community pharmacy setting yielded a higher proportion of smokers who were precontemplators of smoking cessation and less inclined to quit.¹² This conclusion led the author to suggest that community pharmacies were good sites for targeting a persistent smoking population with less interest in smoking cessation and who were less likely to succeed at smoking cessation.¹²

Coverage for smoking cessation products has been shown to increase utilization, which resulted in a decrease in smoking prevalence in various Canadian provinces.⁹⁻¹¹ However, as the coverage provided by government-sponsored drug plans varies across the country, it is equally important to identify which models of coverage are successful in lowering rates of smoking across Canada. As the front-runner of a comprehensive drug plan for smoking cessation, Quebec's provincial plan covered approximately 300,000 residents for all regulated smoking cessation medications between 2000 and 2004, spending a total of \$55 million. All Quebec residents with a valid Health Insurance Card who were eligible for the Public Prescription Drug Insurance Plan received complete coverage for 12 consecutive weeks in a 12-month period on all regulated smoking cessation medications.¹¹ This resulted in a decline in the prevalence of smokers by nearly half since 1999.^{4,9} In British Columbia (BC), all residents with an active medical service plan could receive complete coverage for 12 continuous weeks per year on all NRT products and coverage for varenicline and bupropion after reaching their Pharmacare deductible (or through Plan C coverage).¹¹ As a consequence, BC has shown a substantial decline in smoking rates over the past decade and now has the lowest smoking prevalence in all of Canada.^{4,11} In Ontario, a drastic decline in smoking prevalence in recent years has been observed, and currently, Ontario enjoys the second-lowest smoking prevalence in all of Canada. Ontario provides coverage for prescription medications

for smoking cessation only to residents older than 64 years of age and those eligible for the Trillium Drug Program.¹¹ Access and support of smoking cessation medications have also been provided through other registered and government-funded public health programs. Free or subsidized NRT, together with supportive smoking cessation counseling, have been provided by the government-funded Pharmacy Smoking Cessation Program.^{11,13,14} The adoption of these government-funded initiatives seems to have contributed to the substantial declines in smoking prevalence observed in recent years.^{4,11,13,14} In contrast, areas such as Quebec that did not have government-funded initiatives illustrated that pharmacists felt they were unable to provide the care necessary in support of health initiatives such as smoking cessation because of lack of time, coordination with other health care professionals and resources available.¹⁵

As the only product covered by Manitoba's Pharmacare is varenicline (bupropion has been covered for the use of depression only, but some off-label use is warranted), access to a wider variety of smoking cessation products is limited. Manitoba residents who are eligible for the Pharmacare Drug Benefits Program receive coverage for varenicline after the individual yearly income-based deductible is reached.¹¹ It is unclear whether Manitoba's current reimbursement model is an effective approach in tackling smoking rates.

Several studies have shown that one-third of the population of smokers were not using medications for smoking cessation but rather for the purpose of smoking reduction or temporary abstinence.^{16,17} In contrast, the results of our study showed that a majority of smokers (82.1%) were in fact interested in using smoking cessation products with the intentions of quitting. Among the 180 respondents, 63% of respondents reported having had a quit attempt within the year, which is consistent with the national average of 64% of smokers intending to quit within the year.⁴ Electronic cigarettes have also become a recent phenomenon in tackling smoking cessation; it has been estimated that approximately 23% of smokers in Canada have used e-cigarettes as a cessation aid in the past 2 years, despite their lack of regulation in Canada.⁴ As research regarding electronic cigarettes begins to develop, their safety and efficacy will require further study before being considered a valid

smoking cessation instrument. In fact, because of lack of regulations, the use of electronic cigarettes is cautioned.¹⁸ In Canada, e-cigarettes containing any level of nicotine have not been approved for sale; however, unauthorized nicotine containing e-liquids can be obtained on the Internet. Concerns have been raised about young people using e-cigarettes and transitioning to tobacco use. Jurisdictions have taken various approaches to e-cigarette by-laws, from banning their use in public places to forbidding their sales to minors.¹⁹ While evidence of improvement in respiratory function in smokers who switched to e-cigarettes has been provided,²⁰ the long-term safety of these products has not been fully investigated.²¹ E-cigarette uptake among current smokers and especially among never-smokers may be problematic because of the exposure to unforeseen health risks associated with e-cigarette use, which may undermine the current efforts of smoking cessation initiatives.¹⁸

Our study did not explore whether patients had received counseling or what factors interfered with adherence to recommended regimens, nor did it measure quit success, as the target population was comprised of current smokers; however, it provided a snapshot of patients' perceptions and preferences regarding smoking cessation products. Our results are not devoid of potential bias, as the sample of responders was not randomly selected, and individuals willing to respond to surveys generally tend to be more educated and motivated. The surveys were administered to individuals attending urban pharmacies in Manitoba, and it is uncertain if the results would be generalizable to the entire Canadian population. Despite these limitations, our questionnaire, while not a validated instrument, collected important information on the characteristics of smokers in Manitoba. Furthermore, our findings support the importance of understanding perceived efficacy in relation to utilization and provide justification for Manitoba's coverage of varenicline for smoking cessation despite its underutilization. Nevertheless, a high percentage of responders

(26%) reported that none of the available products were truly effective, indicating a need for additional support and services. In conclusion, the results of our study suggest that smokers in Winnipeg are experiencing higher cigarette consumption compared with the Canadian average. The smoking population is composed of a higher proportion of chronic smokers; however, a majority of smokers reported a genuine interest in quitting smoking. We also found that the impact of health care practitioners' advice is low, a majority of smokers do not have coverage for smoking cessation medications and that despite having the highest rate of use, nicotine gum and patches were reported to have the lower rate of perceived efficacy. Also, although the perceived efficacy of electronic cigarettes and varenicline is high, there are many issues in terms of regulation and uptake, respectively.

Our study provides insight into the characteristics of smokers, highlights some of the challenges encountered by individuals who want to quit smoking and their preferences in terms of smoking cessation aids. It was somewhat disappointing to observe that health care professionals do not appear to play a significant role in motivating patients to quit smoking, especially because specific training programs in smoking cessation counseling, which include the 5As (Ask, Advise, Assess, Assist and Arrange) algorithm and motivational interviewing, are widely available for pharmacists in Canada.

As rates of smoking in Manitoba remain above the national average, it was important to examine the barriers smokers in Manitoba may face toward smoking cessation, as well as their perception of the effectiveness of smoking cessation products.⁴ Pharmacists should be aware that a sizeable number of smokers might walk through their pharmacies and purchase smoking cessation products without seeking their advice. In light of the expanding scope of practice, pharmacists should assume a key role in reaching out to smokers and in educating them on the resources available, especially on the effective use of smoking cessation strategies. ■

From the College of Pharmacy (Phung, Luo, Breik, Alessi-Severini), Rady Faculty of Health Sciences and the Manitoba Centre for Health Policy (Alessi-Severini), University of Manitoba, Winnipeg, Manitoba. Contact Silvia.Alessi-Severini@umanitoba.ca.

Author Contributions: A. Phung conducted the final analyses and contributed to the drafting of the manuscript. L. Luo collected data and conducted preliminary analyses and contributed to the drafting

of the manuscript. N. Breik facilitated data collection and contributed to the drafting of the manuscript. S. Alessi-Severini designed the study, supervised data collection, analyses, interpretation of the results and contributed to the drafting and revisions of the manuscript. All authors approved the final version of this article.

Declaration of Conflicting Interests: The author(s) declared no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

Funding: The financial support of the College of Pharmacy to A. Phung and L. Luo is gratefully acknowledged. The authors received no additional financial support for the research, authorship and/or publication of this article.

References

1. World Health Organization. *WHO report on the global tobacco epidemic, 2015: raising taxes on tobacco*. Geneva (Switzerland): World Health Organization. Available: www.who.int/tobacco/global_report/2015/report/en/ (accessed Jul. 6, 2017).
2. World Health Organization Media Center. *Tobacco fact sheet*. Available: www.who.int/mediacentre/factsheets/fs339/en/ (accessed Jul. 8, 2016).
3. Martens P, Nickel N, Forget E, et al. *The cost of smoking: a Manitoba study*. Winnipeg (MB): Manitoba Centre for Health Policy; 2015.
4. Reid JL, Hammond D, Rynard VL, Burkhalter R. *Tobacco use in Canada: patterns and trends*. Waterloo (ON): Propel Centre for Population Health Impact, University of Waterloo; 2015.
5. Wu P, Wilson K, Dimoulas P, Mills EJ. Effectiveness of smoking cessation therapies: a systematic review and meta-analysis. *BMC Public Health* 2006;6:300.
6. Hung WT, Dunlop SM, Perez D, Cotter T. Use and perceived helpfulness of smoking cessation methods: results from a population survey of recent quitters. *BMC Public Health* 2011;11:592.
7. Etter JE, Schneider NG. An Internet survey of use, opinions and preferences for smoking cessation medications: nicotine, varenicline, and bupropion. *Nicotine Tob Res* 2013;15(1):59-68.
8. Saba M, Diep J, Saini B, Dhippayom T. Meta-analysis of the effectiveness of smoking cessation interventions in community pharmacy. *J Clin Pharm Ther* 2014;39(3):240-7.
9. Tremblay M, Payette Y, Montreuil A. Use and reimbursement costs of smoking cessation medication under the Quebec public drug insurance plan. *Can J Public Health* 2009;100:417-20.
10. Selby P, Brosky G, Oh P, et al. A pragmatic, randomized, controlled study evaluating the impact of access to smoking cessation pharmacotherapy coverage on the proportion of successful quitters in a Canadian population of smokers motivated to quit (ACCESSATION). *BMC Public Health* 2014;14:433.
11. White CM, Rynard VL, Reid JL, et al. Stop-smoking medication use, subsidization policies, and cessation in Canada. *Am J Prev Med* 2015;49(2):188-98.
12. Hoving C, Mudde AN, de Vries H. Effect of recruitment method and setting on the composition of samples consisting of adult smokers. *Patient Educ Couns* 2007;65(1):79-86.
13. Bondy SJ, Diemert LM, Victor JC, et al. Assessing the reach of nicotine replacement therapy as a preventive public health measure. *Chronic Dis Inj Can* 2012;33(1):19-28.
14. Ontario Ministry of Health and Long Term Care. *Pharmacy cessation program—health care professionals*. August 2014. Available: www.health.gov.on.ca/en/pro/programs/drugs/smoking/ (accessed Jul. 8, 2016).
15. Laliberté MC, Perreault S, Damestoy N, Lalonde L. Ideal and actual involvement of community pharmacists in health promotion and prevention: a cross-sectional study in Quebec, Canada. *BMC Public Health* 2012;12:192.
16. Hammond D, Reid JL, Driezen P, et al. Smokers' use of nicotine replacement therapy for reasons other than stopping smoking: findings from the ITC Four Country Survey. *Addiction* 2008;103(10):1696-703.
17. Shiffman S, Hughes JR, Ferguson SG, et al. Smokers' interest in using nicotine replacement to aid smoking reduction. *Nicotine Tob Res* 2007;9(11):1177-82.
18. Volesky KD, Maki A, Scherf C, et al. Characteristics of e-cigarette users and their perceptions of the benefits, harms and risks of e-cigarette use: survey results from a convenience sample in Ottawa, Canada. *Health Promot Chronic Dis Prev Can* 2016;36(7):130-8.
19. Government of Canada. *Retail behavior with respect to youth access to electronic cigarettes and promotion*. May 20, 2016. Available: www.healthycanadians.gc.ca/.../retailer-youth-electronic-cigarette.../index-eng.php (accessed Feb. 17, 2017).
20. Cibella F, Campagna D, Caponnetto P, et al. Lung function and respiratory symptoms in a randomized smoking cessation trial of electronic cigarettes. *Clin Sci* 2016;130:1929-37.
21. Malas M, van der Tempel J, Schwartz R, et al. Electronic cigarettes for smoking cessation: a systematic review. *Nicotine Tob Res* 2016;18(10):1926-36.