Tobacco Dependence Education in Optometry: A Canadian Pilot Study Assessing Practices and Opportunities

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Abstract
Optometrists should be part of the healthcare team addressing tobacco prevention and cessation among patients. As part of a pilot Canadian study, we interviewed 18 optometry students and 11 community optometrists to identify the training they have received regarding tobacco use, dependence and cessation. Their training was limited to knowledge about tobacco-related ocular and systemic risks and some skills in asking about smoking behavior in patients older than 15 years. Their training left them lacking necessary: 1) knowledge about tobacco dependence and cessation, 2) skills in communicating tobacco advice, and 3) attitudes regarding their potential role in tobacco prevention and cessation.

Key Words: Tobacco use, tobacco cessation, optometrists

Introduction
Tobacco use is a known preventable cause of premature death and a less known preventable cause of blindness. There is increasing evidence that healthcare providers can positively affect tobacco cessation among their patients. While optometrists are primary healthcare providers, their voice has been largely silent in health policy documents that guide healthcare providers about tobacco cessation. In view of these factors, we sought to identify some of the key behaviors and attitudes among Canadian optometrists and optometry students regarding asking patients about their tobacco use and making tobacco cessation referrals. This paper reports on the findings of a preliminary Canadian study that pertain specifically to the training optometry students and optometrists receive regarding tobacco use, dependence and cessation strategies.

Major Health Impact of Tobacco Use
Tobacco use includes not only smoking cigarettes but also less common tobacco practices such as chewing tobacco, sniffing tobacco nasally (dry snuff) and inserting tobacco between the lower lip and teeth (moist snuff). The vast majority of the research causally linking tobacco use to morbidity and mortality has focused on smoking cigarettes, in part because of its much higher prevalence. While numerous diseases have been causally linked to smoking, the leading causes of premature death are coronary artery disease leading to myocardial infarctions and cerebrovascular accidents, lung cancer and chronic obstructive pulmonary disease. Public awareness of the negative consequences of smoking is generally high for these diseases. For example, studies in the United Kingdom and Singapore reported that most surveyed patients knew that smoking causes lung cancer and heart disease (>85%) as well as stroke (>70%).

While most patients understand that smoking causes premature death, the
proportion who understand smoking causes blindness is generally much lower, typically less than 10%3,5,6 with one study4 reporting 31%-37%. This limited awareness is a significant problem because smoking has been shown to cause several eye diseases through ischemic and oxidative mechanisms.7 Smoking has been causally associated with age-related macular degeneration,8-12 nuclear and posterior subcapsular cataract,13-18 thyroid-associated ophthalmopathy,19-21 optic neuropathies22-24 and uveitis.25,26

Healthcare Practitioners Addressing Tobacco Use

The role of healthcare practitioners in clinical practice addressing tobacco use is supported by an increasing recognition that tobacco use and dependence is a preventable cause of morbidity and mortality and healthcare providers can be effective facilitators of tobacco cessation among their patients.27-32 The U.S. Surgeon General’s Web site provides a detailed position paper, “Treating Tobacco Use and Dependence: 2008 Update.”33 This document was developed by stakeholders from medicine, nursing, dentistry, pharmacy, epidemiology, public health and psychology. Unfortunately, optometry is notably missing as a stakeholder informant or as an identified user of the document. Optometry has also yet to be a stakeholder in the development of Health Canada’s graphic warning labels for tobacco products. (Some of the labels under review are posted at the Tobacco Labeling Resource Centre, http://www.tobaccolabels.ca/). The exclusion of optometry has occurred despite the current review of a label addressing smoking and blindness. There are two key strategies healthcare practitioners, including optometrists, can use to effectively address tobacco use with their patients: 1) support tobacco cessation and 2) prevent patients from starting to use tobacco.

The justification for optometrists providing cessation advice is supported by several studies. First, Gorin and Heck34 found that tobacco quit rates increase when patients receive advice from “any health care professional.” Second, Thornton et al.35 found other healthcare practitioners (e.g., pharmacists) are successfully including the link between smoking and blindness in their cessation advice. And finally, studies of patient perceptions show that quit advice is welcomed and expected.36-38 Our literature search also revealed an encouraging pattern of calls for optometry to participate in tobacco cessation strategies.39-44 A number of tobacco cessation counseling strategies exist, but perhaps two of the most known are the 5A program promoted by the United States Public Health Service45 and the ABC tool promoted by the New Zealand Smoking Cessation Guidelines Group.46 The 5A program encourages practitioners to:

1. ask about tobacco use at every visit
2. advise those using tobacco to stop
3. assess the readiness of those using tobacco to attempt quitting
4. assist those using tobacco with treatment and/or referral
5. arrange follow-up discussions at subsequent visits.

The ABC tool reminds practitioners to:

1. ask patients about their tobacco status
2. provide brief advice
3. give evidence-based cessation support to tobacco users wishing to attempt quitting.

Healthcare practitioners may also play a role in tobacco use prevention; knowing the negative consequences of tobacco may help deter some youth from starting to use it. In fact, a study4 of 260 British youth (16-18 years old) found that in comparison with lung cancer, heart disease and stroke, blindness was the least known but most feared consequence of smoking cigarettes. Such findings underscore the perceived importance of sight and point to a possible motivator in both tobacco prevention and cessation advice.

Tobacco use, prevention and cessation curricula within health professional schools and colleges are occurring in medicine,47-54 nursing,55-57 dentistry,58 dental hygiene,60, 61 and pharmacy.62,63 To date, only Hoppe48 has described in the literature a curriculum in a U.S. optometry program, calling for smoking cessation education to become “an integral part of optometric clinical education.” Hoppe described a two-hour module that followed the 5A program and included an informational handout packet as well as videotaped vignettes illustrating different ways to speak with patients about tobacco use.

Based on a review of the literature and anecdotal remarks of optometry students and optometrists encountered by members of the research team, we suspected there were notable training gaps regarding tobacco use and dependency both in the local Doctor of Optometry program and optometry continuing education courses. Our insufficient knowledge of the training optometry students and optometrists receive regarding tobacco prompted us to conduct this preliminary Canadian study and reflect on the resultant barriers and opportunities to optometrists addressing tobacco use and dependence among their patients.

Methods

Subsequent to institutional ethics clearance, focus groups were conducted with optometry students and community optometrists. The study occurred in the Waterloo Region of southwestern Ontario, Canada in the summer of 2009. The only English-speaking Doctor of Optometry program in Canada is located in this region.

Participants

At the time of the study, the potential participant pool included 51 practicing optometrists and 30 fourth-year optometry students (60 additional fourth-year students were away on external clinical placements). Recruitment goals were set at involving at least 12 optometry students and 10 optometrists. Recruitment methods involved an email, an information meeting and a letter for students. Optometrists received a phone call and information letter. Twenty interested students were scheduled into three focus groups (S1, S2 and S3) with seven, six, and seven participants, respectively. Two students dropped out of S2, leaving 18 student participants (15 women, 3 men). All students had completed a minimum of three years of university sciences before entering the four-year optometry pro-
program. Eleven interested optometrists (7 women, 4 men) were scheduled into two focus groups (O1 and O2) with six and five participants, respectively. These optometrists had been practicing for approximately 20 years, on average, with an individual range from five to more than 30 years. All but one had graduated from the local Doctor of Optometry program. Participant identities were represented by numbers. For example, the seven members of student group S1 were numbered S1-1 to S1-7, and the six members of optometrist group O1 were numbered O1-1 to O1-6.

Focus Group Data Collection

The multidisciplinary research team, which drew from optometry, nursing and psychology, developed a set of interview questions and prompts for each participant group based on a consideration of relevant literature as well as clinical and/or research experience. The questions addressed attitudes, practices and training regarding smoking behavior and smoking cessation referrals in optometric practice. Focus group facilitators were experienced in tobacco control research. The student focus groups were facilitated by the study’s principle investigator (RDK), and the optometrist focus groups were facilitated by a senior staff member in the University’s Health Psychology Lab (KM). An additional research assistant (VZ) made field notes during the focus group discussions, which were audio-recorded and later transcribed verbatim.

Data Analysis

We followed an inductive qualitative framework approach as where data analysis informs theory (as opposed to more quantitative deductive approaches where data are applied to existing theory). Consistent with a framework approach, reading the focus group transcripts allowed the members of the research team to familiarize themselves with the data. Next, the team identified key issues, themes and concepts by which the data could be further examined. The team identified four broad themes to examine: current practices, rationalizations, barriers and opportunities. Data excerpts that fit with the identified themes were indexed in the

transcripts and then rearranged into thematic charts. Finally, the thematic charts were examined with the goal of finding associations and explanations for the findings, a process referred to by Bryman and Burgess as “mapping and interpretation.” This paper examined the four themes as they pertained to training optometrists to facilitate tobacco cessation referrals.

Results and Discussion

Asking Patients about Tobacco Use

There was widespread agreement among the 18 optometry students that they were trained to ask adult patients about their smoking habits during a complete eye examination. As one student (S1-2) noted, “It’s part of the standard [patient record] form … it should be asked pretty much every time they come in.” Typical follow-up questions to patients, who reported smoking, were directed at determining how much they smoked daily and how long they had smoked. Several students asked patients if they had ever smoked. For example, one student (S3-1) pointed out, “Even if they say they don’t smoke, I ask them if they ever smoked, like, did they quit? Cause they often answer ‘No, I don’t smoke’ but … they quit like two years ago.”

Further focus group discussions revealed limitations to asking patients about their smoking behavior. These limitations pertained to the clinic attended and patient age.

To date, the clinical training of these optometry students had been limited largely to rotating through a large on-site teaching facility with nine individual clinics. Full and partial eye examinations occurred in the largest (Primary Care) clinic, while most of the other clinics were referral-based, addressing specific areas of eye and vision care (e.g., contact lens, binocular vision, pediatrics, low vision, visual electrodiagnostics). The patient record used in each clinic was formatted to the perceived specific needs of the clinic. In the Primary Care (PC) Clinic, the interview section of the complete patient record included a series of yes and no options for smoking.

Further focus group discussions revealed some debate among the student informants regarding the patient age at which they should routinely start asking about tobacco use. The PC Clinic patients were at least 8-years-old because younger patients were seen in the on-site pediatrics clinic. Of the few students who were willing to specify an age, they had or thought they would routinely start asking patients who were 15- or 16-years-old. One student’s (S2-2) comment was typical of other informants:

“Yeah, I would feel uncomfortable asking like a 12-year-old … maybe 16.”

The Canadian Lung Association reports that, on average, Canadian youth smoke their first cigarette before they are 13 years old, while Reid & Hammond state that almost one in five Canadian youth, between 10 and 14 years, have smoked a cigarette. Thus, waiting to ask about smoking behavior until youth are at least 15 years old may miss identifying an important cohort of patients who smoke. In fact, the American Medical Association has recommended that primary healthcare providers ask patients as young as 10 years old about their tobacco use to encourage both prevention and cessation. The optometry students agreed that asking youth about their tobacco use would only occur if their parents were not in the room; they assumed smoking questions could prompt tension or a lie if parents were present.

Two general approaches were taken by the 11 optometrists in the focus groups. At least half of the practitioners asked their patients about tobacco use only if they could tell their patients smoked (e.g., by smell) or if their patients...
showed signs of eye disease that have been associated with smoking cigarettes. The remaining informants routinely asked first-time patients about their tobacco use, although this information might not be regularly revisited at subsequent appointments. For example, one optometrist (O2-1) noted, “I would say pretty much any patient usually over the age of 18, you’ll bring it up. … If they’re an existing patient then usually you just backtrack to the first [visit’s record], just to see. You might ask if they’ve changed their habits. I’m not sure if it’s a routine thing, like if we do it routinely or not.”

**Supporting Tobacco Cessation among Patients in Optometric Practice**

None of the 29 informants had ever: 1) assessed the interest of their patients in changing their tobacco use, 2) made a referral to a tobacco cessation service, or 3) felt they knew how to make such referrals. As one student (S2-3) admitted, “I wouldn’t even know what I would do if someone asked me.” Most informants routinely provided risk advice for patients who smoked if they demonstrated eye diseases that were known to be causally linked to smoking; this was particularly true of age-related macular degeneration. A few of the students were hesitant to speak about smoking to their patients. There was a concern of going "too far" in discussing tobacco use with patients. Typical of other student informants, one optometry student (S1-6) stated, "I don’t get into a big discussion with them but just as a ‘just to let you know’.”

The optometrists were more comfortable discussing the eye risks of tobacco use with patients but these discussions were triggered typically only by evidence of smoking-associated eye disease being present, and they did not proceed to advising patients to change their smoking behavior. As one practitioner (O1-5) explained, “The topic will come up if the eye health evaluation warrants talking about risk factors. Typically, if there is some macular change and I ask ‘Are you a smoker?’ they’ll say ‘yes’. Then they become very quiet and it becomes a topic they don’t want to engage in. And I don’t take it any further than that … I have no educational materials in my office [about] cessation-related programs because my best guess is that their physician has already been sitting on them on that topic.”

This optometrist’s approach and rationale were echoed by other practitioners in the focus groups; there was an assumption that tobacco cessation support and referral was a role best-suited to family physicians. The optometry students also wondered whether cessation support was within their scope of practice but they did appreciate that their responsibilities transcended the visual system. Reflective of this professional identity struggle was this student’s (S1-6) comment about cessation referrals: “This sort of does seem to fall in the realm of family physicians and that sort of aspect of their healthcare rather than ours, which might be an issue … so the barrier of taking care of the whole person not simply their eyes.”

**Specific Optometric Training**

Overall, the 29 focus group participants felt their training to date had provided useful knowledge about the risks of smoking but no knowledge of tobacco prevention, dependence and cessation strategies and no skill in communicating cessation or prevention advice.

The optometry students summarized where in their four-year Doctor of Optometry program they had gained knowledge or skills relevant to tobacco use. Systemic diseases linked to smoking were presented in a systemic disease course, while eye diseases linked to smoking were addressed in more than one eye disease course. Thus, the presentation of various health effects related to tobacco use was fragmented, potentially affecting student recall of material and shaping risk prevention messages delivered to their patients.

Most students specifically recalled learning about the association of smoking to age-related macular degeneration. Some recalled learning about the risk of cataract and the complications associated with diabetes, and no student cited learning any other eye diseases linked to tobacco use. The students also recalled learning prevalence and incidence disease data related to smoking in a public health course but doubted the utility of providing this information to patients. While the students indicated they had learned how to deliver bad news to patients in their communication course, they had not received training on risk communication related to tobacco use. They also discussed their lack of training concerning tobacco dependence, cessation, referral options and cessation communication. For example, they were unsure how they would assess interest to quit smoking among their patients. The following two comments reflected some of their perceived gaps. (S2-4): “So even having conversations [in class] so that you could understand where those patients … are coming from … because I have … no concept of what that’s like. So to tell someone just to quit, it’s not that easy just to throw away your pack of smokes … So somehow gaining personal experience so that you could understand would be helpful.” (S3-4): “We don’t really know much about what’s available in the community here or in the communities where we will be practicing and that’s not something we’ve really learned about at all and we probably should.”

While the optometry students wanted to receive further training during their program in these areas, they also pointed to continuing education courses as a useful vehicle for training optometrists. For example, one student (S3-2) suggested, “A few hours on smoking and the effects on the eye, and counseling your patient, and information to provide your patients, and programs out there for your patients, I think that would be useful for all optometrists.”

The optometrists recalled their training experiences relevant to tobacco use and cessation strategies being limited to school or continuing education lectures about smoking risks to the eye. No training about tobacco dependence, cessation options or related communication strategies had occurred. Typical of this stance was one optometrist’s (O2-4) comment, “There hasn’t been any. I haven’t attended any lecture where somebody says ‘Okay, you have a smoker, this is the action plan, this is what you should give.’ It’s just information that you could give the patient and saying it’s a risk factor but as far as any strategies, nothing.”

Optometrists in this region were required to complete a minimum of 70 hours of continuing education each three-year period, typically through approved lectures, workshops or electronic courses. While there was a clear emphasis...
on disease management in existing continuing education programs for optometrists, no attention had been placed on a focused approach to incorporating the requisite knowledge, skills and attitudes needed to address tobacco dependence, cessation and prevention in optometric practice.

While all the focus group participants felt they lacked relevant knowledge and skills relevant to tobacco cessation support for their patients, there was a clear interest in addressing this gap.

Implications

This preliminary study provides an indication of the training and perceived competencies of Canadian optometry students and optometrists when addressing tobacco use and dependence among their patients. Overall, the 29 focus group participants felt their training to date had provided useful knowledge about smoking risks but no knowledge of the behaviors associated with tobacco use, dependence, cessation or prevention strategies and no skills in communicating advice relevant to tobacco use and dependence.

We found that training related to tobacco use was not addressed comprehensively. Future optometry students would benefit from learning about all the sequelae of tobacco use in a lecture or lecture series rather than in the current fragmented presentation across several compartmentalized courses. While the optometry students were generally more comfortable than the established optometrists regarding asking patients about their smoking behavior in routine eye examinations, their training could be further enhanced. For example, optometry students may benefit from learning to broaden their tobacco use history questions to patients who are: 1) using smokeless tobacco (e.g., chew or snuff), 2) attending partial or targeted appointments, 3) younger than 15 years, and 4) accompanied by parents. Organizational changes to the on-site teaching clinic would be needed to support these educational initiatives.

Our findings identify the need for additional notable curriculum development in the Doctor of Optometry program we studied. Curriculum revisions could enable optometry students to: 1) gain knowledge about tobacco prevention, dependence and cessation strategies, 2) develop skills in communicating advice regarding tobacco use and dependence, and 3) acquire attitudes that perceive optometrists as one of the healthcare practitioners that can help their patients attempt cessation strategies. Only one other tobacco-related curriculum in an optometry program has been described in the literature⁴⁰; it focused on providing tobacco advice strategies in optometric practice. The limited attention in the optometric education literature on tobacco dependence and cessation curriculum suggests the potential need for further curricular development and sharing among optometry programs. The limited optometric training found in this study regarding tobacco use and dependence raises the question of whether other addictive drugs and dependence are being addressed. While this was not the purview of this study, greater attention in optometric curricula to this broader issue may also be warranted.

The optometrists in this study also lacked similar tobacco dependence knowledge, skills and attitudes noted among the optometry student participants. Strong support existed among all the informants to develop professional continuing education courses in this area. This study may present the impetus for continuing education providers to develop suitable curricula for practicing optometrists.

Our findings are part of a broader preliminary study⁴⁰ examining the practice patterns, rationalizations, barriers and opportunities to optometrists making tobacco cessation referrals. These collective findings will be helpful in designing a national study of tobacco use and cessation practices in Canadian optometry. While this preliminary study points to areas where training needs to improve, we were encouraged by the interest of the optometrists and optometry students in finding ways to increase their role in tobacco cessation support for their patients.

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