Using Social Networking Technologies

to Engage Young Adults

in Smoking Cessation

The Program Training and Consultation Centre conducts applied research in partnership with the Propel Centre for Population Health Impact at the University of Waterloo.
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Program Training and Consultation Centre
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• Build the capacity of Ontario’s 36 public health departments to plan and implement evidence-based tobacco control programs
• Support moving evidence into action
• Strengthen program development and applied research efforts
• Build system capacity to support the Smoke-free Ontario Strategy renewal

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INTRODUCTION

Web-based and/or mobile phone technologies that facilitate social networking provide a wealth of opportunities to engage young adults in smoking cessation. Although young adults in Canada have the highest prevalence of smoking (30% of young men ages 20 to 34, and 23% of young women),\(^1\) their use of cessation services and products is low.\(^2\) In part, this reflects young adults' belief that the best way to quit is on their own.\(^3\) However, when asked where they would look for help to quit, young adult males most commonly say family and friends.\(^2\) Research has shown that social networks are important predictors of smoking cessation for young adults.\(^4\) Smokers motivated to quit by their social network have higher cessation rates than those with other motivations.\(^5\) In addition, network analysis has shown that smokers tend to quit as a group, marginalizing those who continue to smoke.\(^6\) One advantage of the use of social networking technologies for cessation interventions is that real-time support can be provided 24/7 as part of everyday life at a minimal cost.\(^7,8\) This backgrounder examines the evidence regarding the use of social networking technologies to engage young adult smokers in smoking cessation and the extent to which it is effective.

Young adults are increasingly using technology, particularly social media, for social networking. In 2010, 97% of Canadian internet users who were 16 to 24 years of age used e-mail, 91% used social networking sites such as Facebook, 73% used instant messaging, and 33% contributed content or participated in web-based discussion groups, including blogging sites such as Twitter, message boards, and posting images on sites such as YouTube.\(^9\) Internet users who were 24 to 44 years of age were the second most active group. In general, females were more likely to use social networking sites than males.
Engagement in behavioural change such as smoking cessation using social networking technologies can be considered as occurring at various levels. Low level engagement involves acknowledging content, and/or demonstrating agreement or preference; moderate level engagement involves individuals in creating and sharing content, possibly to influence others; and high level engagement involves participation in off-line interventions. However, it can be a challenge to engage young adults, even at the lowest level.

A study published in 2007 that conducted focus groups with young adult smokers in Toronto found that the participants did not think traditional cessation interventions would work for them and wanted less conventional approaches. The participants also wanted young adults to have a role in the development of interventions targeted to their age group. At that time they showed little enthusiasm for web-based or mobile phone cessation interventions, but would consider one “if they [were] provided with individual feedback, knew it had high success rate, [it] was not boring, and was targeted specifically to young adults.” Not only do young adults need to be engaged in cessation-related discourse, it is important that they are engaged in smoking cessation interventions that are known to be effective.

Much of the research dealing with the effectiveness of social networking technologies to engage smokers in smoking cessation focuses on web-based, email, and mobile phone interventions. However, because of the great variation among interventions and their measures of engagement, the evidence from systematic reviews and meta-analyses is often insufficient for definitive conclusions on the effectiveness of different strategies but suggests noteworthy trends. In addition, although there is limited evidence of the effectiveness of smoking cessation interventions for young adults in general, web- and mobile phone-based interventions show some promise. There is little research evidence concerning the effectiveness of social media such as Facebook, Twitter and YouTube to engage smokers in smoking cessation.
WEB BASED INTERVENTION

A systematic review of the literature from 2003 to 2008 conducted by Crutzen and colleagues\textsuperscript{13} researching web-based behavioural change interventions for young adults and adolescents (predominantly smoking cessation) suggested that greater levels of exposure to an intervention (accessing the website, staying to use the site, and revisiting) is associated with tailoring communications to individual characteristics, the use of reminders to revisit the site (email, texting or phone), incentives, and the presence of interactive content. Other studies of web-based interventions reinforce the importance of tailoring the content and timing of the intervention to individuals,\textsuperscript{14-16} additional and frequent contact through phone or email,\textsuperscript{14,15} and interactive content.\textsuperscript{15} Also of importance is support from peers and counselors,\textsuperscript{14} and updating the content of the website.\textsuperscript{14}

Comprehensive web-based interventions employing many of these features have been found to be acceptable, and user satisfaction can be high.\textsuperscript{16-18} There is also some evidence that many participants would recommend the site to a friend.\textsuperscript{16,18} However, in one web-based cessation intervention trial, attrition was partly attributed to the intrusiveness of the intervention,\textsuperscript{17} suggesting that the correct amount of contact can be a delicate balance. Moreover, web-based cessation interventions may not appeal to all smokers equally. For example, there is evidence that some groups of smokers such as young people and women may be more attracted to web-based smoking interventions than other groups such as smokers reporting depression.\textsuperscript{15} More research is needed to determine if web-based cessation interventions have differential appeal to sub-populations within the young adult smoking population.
With regard to the effectiveness of web-based interventions for smoking cessation, there is evidence that interventions that are tailored to the individual and involve frequent interaction can assist smoking cessation. Interventions can be tailored to the individual through personalization of communications, adaptation of information to individual characteristics and needs, and providing feedback. Tailoring of interventions, particularly the depth of the tailoring, has been associated with higher quit rates. However tailored web-based health interventions are diverse in terms of features and formats, and empirically-based guidelines have yet to be developed to help optimize tailoring.

Associated with the level of engagement, the amount of website exposure in terms of the number of logins, sections viewed and time spent on the site, can also be associated with higher quit rates. In general, an interactive user interface has been found to boost web-based intervention effectiveness; however the form this should take is not clear.

There is also a trend in the evidence suggesting that one-on-one messaging with other members of the online community may be associated with a higher quit rate, and that access to an advisor and personal contact either online or through email/texting can increase the effectiveness of behavioural change interventions such as tobacco cessation.

Although most of the web-based interventions for young adults target daily smokers, there is recent evidence that web-based cessation interventions may also be effective in engaging young adults who are occasional smokers. This pilot study that specifically targeted young adults who were non-daily smokers found some evidence that a web-based intervention could also reduce tobacco use in this group.
Mobile phones and particularly their text messaging features are often one component of comprehensive web-based cessation interventions. They have been used to deliver tailored components of the intervention, reminders, and provide opportunities to request and receive peer and counselor support. As such, many of the factors that encourage engagement in web-based interventions also apply to mobile phone and texting interventions.

Occasionally, these interventions are the main mechanism for the delivery of cessation interventions. A recent pilot study of a texting-based intervention (Text2Quit), found that engagement in terms of satisfaction with the intervention and text readership was high. The readership for the supplementary email and web-portal components was lower. The majority of the participants used the interactive features. Contrary to the findings for web-based interventions, men were more likely to be high responders to text messaging. However, in this study, almost half of the participants stopped responding after the quit date, suggesting that it may be difficult to sustain engagement if the quitting process is not moving forward as predicted.

Mobile phone text messaging cessation interventions have been found to be effective in the short-term, and when combined with Internet and mobile phone components, they can be effective in the long term. For example, the txt2stop intervention, a personalized texting intervention employing motivational messaging and behavioural change techniques and providing participants with the opportunity to contact other participants for support, was found to have higher quit rates at six months than the control group who only received text messages unrelated to quitting.

Researchers are just beginning to look at mobile phone interventions that combine video messaging with text messaging. One randomized control trial piloting a combined video and text messaging cessation intervention was not able to demonstrate an effect on quit rates beyond that provided by a general health video message.
Research on the use of social media such as YouTube, Twitter and smartphone apps to aid smoking cessation is relatively recent and much of the published material is exploratory describing the current cessation-related activity, the extent to which interventions are evidence-based, and adherence to the evidence-based clinical practice guidelines for smoking cessation developed by Fiore and colleagues. There is little evidence concerning the effectiveness of smoking cessation interventions using social media.

With regard to engagement in smoking cessation, there is some evidence that high message sensation value (structure and content that are known to elicit sensory, affective and arousal responses) in YouTube postings is positively associated with reach (number of viewers) and engagement (number of comments; viewer rating). However, most of the antismoking videos on YouTube had relatively low message sensation values. Most commonly the videos used threat appeals focused on the fatal dangers of smoking, and these were more likely to capture viewer attention than videos that used social appeals (e.g. increasing popularity by not smoking). Humour appeals were found to be negatively associated with reach and engagement, and it was suggested that they be used with caution. However, one of the study’s limitations was that it was not possible to determine the age of the viewers. The authors suggested that a controlled experiment may be needed to further investigate the effect among younger audiences who usually are targeted with social appeals and short-term health consequences. Content analyses of YouTube postings of smoking cessation videos differ in the evaluation of the extent to which evidence-based practices to quit are used. However, researchers agree that the majority of the videos did not appear to contain evidence-based practices and little is known about the effect of these videos on cessation.

One study found Twitter tweet content to be inconsistent with clinical guidelines, few Twitter accounts were able to create active and sustainable tools for smoking cessation, and the effectiveness of such interventions is yet to be determined.
Similarly, a content analysis of iPhone smoking cessation apps found little adherence to established guidelines for evidence-based practice.\textsuperscript{32}

**SUMMARY AND IMPLICATIONS**

In summary, there is evidence that some social networking technologies, particularly web-based and mobile phone interventions, can effectively engage young adults in smoking cessation. The evidence suggests that this is best accomplished if the intervention and communications are tailored to the individual and have interactive content. Using incentives and reminders, providing support from peers and counselors and updating the content to keep it active and current are additional strategies that can be used to increase engagement. Intervention trials have found that participant satisfaction can be high, as indicated by their willingness to recommend the program to a friend.

Resources are available to help guide the development of effective interventions, particularly web-based and text messaging interventions, such as descriptions of the development process,\textsuperscript{35} theory-based persuasive design features that can be employed to support this type of behavioural change,\textsuperscript{36} and the effectiveness of different types of tailoring for young adults.\textsuperscript{19}

However, implementing social networking interventions that engage young adults in smoking cessation within local public health agencies can be challenging. Although the costs of creating a social networking site can be modest, interacting in real time and daily monitoring are the largest challenges.\textsuperscript{37}

Interacting in real time can be a major challenge if a local public health agency has an approval process for messaging. Examining the activity in a large online social support network moderated by trained health educators, Selby and his associates found that first posts tended to be from smokers who were struggling and seeking help, and peer response was rapid – 25\% of first posts received responses within 12 minutes and 50\% within 29 minutes.\textsuperscript{8} Also, help was available regardless of the time of day or day of the week. Today's young adults have come to expect this type of rapid real-time response. If every message has to go through an approval process, this could slow down response considerably. However, some careful thought in advance about rules for appropriate postings and how to handle inappropriate, disruptive or inaccurate postings can facilitate the approval process,\textsuperscript{38} and the subsequent development of a bank of pre-
approved messages can facilitate timely responses.\textsuperscript{37} In addition, if the social networking intervention is framed and developed as a counselling and support service rather than social marketing or health promotion, the approval process may differ.

Regardless, maintaining an active and responsive social networking cessation intervention requires daily monitoring and the resources need to be in place to achieve this.\textsuperscript{37} Personnel training and the ongoing costs of maintaining and moderating a social media intervention need to be considered before deciding to mount the intervention, if it is to be effective.\textsuperscript{38}
REFERENCES


