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Shelburne and Clark's Harbour Quit Smoking: A Community-Based Smoking Cessation Initiative Process Evaluation

Georgeann Lois MacDonald MN: DNP, ANP, RN, ACCN, NP
George Washington University

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Shelburne and Clark's Harbour Quit Smoking: A Community-Based Smoking Cessation

Initiative Process Evaluation

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Georgann Lois MacDonald MN:ANP RN ACCN NP

DNP Project Advisors

Christine Pintz PhD RN FNP-BC, FAANP

Lynn Miller DNP, NP

Date of Degree (Spring 2018)

Abstract

Background: The prevalence of Canadian smokers is 14.6%. Clark's Harbour and Shelburne's rate of smoking increased from 15.6% in 2012 to 19.4% in 2015 (Propel Centre for Population Health Impact, 2015). It was imperative that innovative ways be found to reduce the smoking prevalence.

Objectives: 1) Identify a difference in the participants' Stages of Change before and after completing the smoking cessation program. 2) Determine whether the participants quit smoking 3) Assess whether there was satisfaction with the program.

Methods: In this one group pre and post-test design, the participants completed a series of pre and post program questionnaires. The intervention consisted of six weekly meetings with a Discussions in these sessions were informed by guidelines from the Centre for Addictions and Mental Health. There was also a social media page, and email/text messaging. Post-program, participants filled out the same questionnaire, combined with a detailed evaluation.

Results: Ultimately, 10% were in the preparation stage, 60% in contemplation, and 30% of the participants were in the action stage. Fifty percent of the participants had an increase in their smoking self-efficacy score. 30% of the participants had quit smoking. The participants expressed satisfaction with the program.

Conclusions: The participants did alter their stages of change. From 70% in contemplation and 30% in preparation, they moved to 30% in action, 10% in preparation, and 60% in contemplation. 30% of participants did quit. Participants stated that they enjoyed the intervention and that it was ultimately helpful.

Clark's Harbour and Shelburne Quit Smoking: A Community-Based Smoking Cessation

Initiative Process Evaluation

Background

Approximately 5.4 million people worldwide die annually from tobacco-related

illnesses (Centres for Disease Control and Prevention, 2017). The prevalence of Canadian

smokers is 14.6% (Propel Centre for Population Health Impact, 2015). Clark's Harbour and

Shelburne are fishing villages in Nova Scotia, Canada, with a combined population of 2501

people (Statistics Canada, 2016), and they are found within the same health zone. The Western

Health Zone of Nova Scotia includes the cities of Bridgewater, Kentville, and Yarmouth in a

geographical area that encompasses the lower half of the province. The zone's rate of smoking

has increased to 19.4% from 15.6% in 2012 (Propel Centre for Population Health Impact, 2015).

The latest Western Health Zone health survey indicated that 30.7% of pregnant women smoked,

15.5% of the population reported that they suffer from respiratory illness and 3.7% of the

children are regularly exposed to second hand smoke (Community Health Survey, 2007;

Canadian Tobacco Survey, 2015). In consideration of the number of people who die annually

from tobacco-related illnesses, and the increase in the number of smokers within this health zone,

it became apparent that this area must maximize their efforts to help patients with their smoking

cessation. With this in mind, it was considered imperative to discover an innovative method of

reducing these smoking rates.

Literature Review

This literature review examines the available research regarding community-based

smoking cessation programs. There is a large body of research available on smoking cessation,

with a large subset of studies set in the community. The PubMed database was searched (years

2006 to current year), using the search terms "community-based", "smoking cessation", "community-based smoking cessation group program", "motivational texts for smoking cessation", "social media smoking cessation", "CAMH smoking cessation", and "Canadian smoking cessation AND stages of change", which resulted in 1904 articles. Of those, 669 were evidence-based practice/clinical trials. From those, 21 were selected for closer review because they involved community-based smoking cessation programs or took place in lower socioeconomic areas. The areas of efficacy, and utilization of evidence-based frameworks were examined, along with the concepts of group support, text messaging and social media support.

Group Cessation Programs

Much of the available tobacco-smoking cessation literature included the exploration of one or two treatment modalities. Sheikhattari et al. (2016) studied 965 participants in Baltimore City, utilizing both individual and group counseling, but offered no description of the specific counseling provided. Another study, that offered free nicotine replacement to 375 Chinese immigrants in New York City, described using a community-based participatory research model (Shelley, D., Nguyen, N., Peng, C., Chin, M., Chang, M., & Fahs, M., 2008), but does not go on to discuss anything else about the program. A Chicago study, utilizing a sample of 198 LGBT smokers, also discussed a community-based smoking cessation, but failed to describe the counseling portion of the program (Matthews, A. K., Li, C., Kuhns, L. M., Tasker, T. B., & Cesario, J. A., 2013).

A Canadian study compared two groups, one given the usual community care supports, and the other provided with high-dose intervention beginning prior to the patient's discharge and continuing with supportive contacts for one-month post-discharge. They found that the intensive intervention did have a better success rate. However, there was a problem with recruitment

(44% of the individuals approached declined to participate), follow-up and validation of smoking status, which contributed to the small sample size (Cossette et al., 2012).

A comparison of three different smoking cessation programs was undertaken in England, and the researchers found that group support resulted in the highest quit rates, with the structure, support, facilitator, and pharmacology all paying a role toward a successful quit (Mardle, Merrett, Wright, Percival, & Lockhart, 2012). In both this study, and another conducted among smokers of low socioeconomic status, the researchers found that allowing the patients to have choices and to have varied options such as nicotine replacement therapy (NRT), counseling and community-based resources are key to increasing quit rates (Haas et al., 2015; Mardle et al., 2012).

All of the studies involved support groups and found them to be effective in the promotion of smoking cessation. The design of the SCHQS study used these findings in building the options for the participants, particularly with the different aspects, such as group meetings, text messaging, and Facebook groups.

Community-Based Programs

A number of studies have found that community-based programs, particularly in low socioeconomic communities, have been effective in assisting community members with smoking cessation (Matthews et al., 2013; Levinson et al., 2015; Kruger et al., 2012; Evans et al., 2015). Kruger et al., in their study of perceptions of smoking cessation programs in rural Appalachia, examined twelve focus groups (five to ten people per group) and twenty-three key informants. The authors discuss a need to transition the population from a pro-tobacco culture to an advocacy for tobacco cessation culture (Kruger et al., 2012). This is certainly necessary in Clark's Harbour and Shelburne, as the incidence of smoking is increasing. This may indicate

that there is indeed a pro-tobacco culture in these communities. It has also been found that the

best predictor of smoking cessation success is whether or not the program was delivered in the

community (Sheikhattari et al., 2016). In delivering a program to LBGT participants, Matthews

and colleagues (2013) found that participants felt safer in their own community. Another study

of Chinese American immigrants also found that the participants did not attend programs that

were offered at local healthcare settings, but also preferred the community-based

program (Shelley et al., 2008). Because Clark's Harbour and Shelburne are very small, slightly

isolated communities with their own culture and traditions, it is reasonable to make a comparison

with this finding.

Two of the articles describe using a community-based participatory research

model (Sheikhattari et al., 2016; Shelley et al., 2008), but one of them does not go on to discuss

anything further about the program (Shelley et al., 2008).   It was noted that in many of these

studies the Fagerstrom Nicotine Dependency Test scale for nicotine addiction indicated that

higher scores predicted lower quit rates (Sheikhattari et al., 2016; Matthews et al., 2013; van Zyl-

Smit, Allwood, Symons, Lalloo, & Dheda, 2013).

One recent study in the West Harlem Community adapted accepted evidenced-based

(EB) treatment to meet the needs of smokers of low socioeconomic status (SES). Detailed

phases were explored, based on the PEN-3 Model, which is a model that examines the interplay

of cultural identity, relationships and expectations, and cultural empowerment, using the

acronyms of: "Person, Extended Family, and Neighborhood", "Perceptions, Enablers, and

Nurturers", and "Positive, Existential, and Negative" (Iwelunmor, Newsome, & Airhihenbuwa,

2014, p.21). This study also incorporated AA values and experiences into treatment approaches

and a Tobacco Dependence Treatment Manual and Toolkit. The participants reported enjoying

the program. This study was of specific interest in the development of the SCHQS study, as they

utilized a group process, a manual and toolkit, as well as an exit evaluation (Evans et al., 2015).

        A study of 313 male smokers in Korea used a trans-theoretical model of behaviour

change to explore the change process of quitting smoking (Jung, 2016), as did a study of 42

males in Taiwan (Luh et al., 2016). Multiple studies did note that in low socioeconomic status

communities, it was important to consider the stressors that everyday life might create for the

participants and to adjust counseling methods for this (Levinson et al., 2015; Jung, 2016). The

study utilized group counseling, as well as advising the individual counseling available through

the health region's quit line (811.Novascotia.ca, 2015), to encourage behavioural change in the

participants.

Family and Friend Program Involvement

        The studies reviewed discussed the community involvement in the process but failed to

personalize the involvement to family. While one of the studies does mention that the

encouragement and support of friends and family can be a powerful motivator for smoking

cessation (Kaplan et al., 2009), a systematic review of current literature found that improving

partner support might assist in the smoker's recovery, however it was inconclusive (Park,

Tudiver, & Campbell, 2012). While the literature did not support the notion that the inclusion of

family would assist in recovery, it was hoped that the added support for the SCHQS participants

would aid in their cessation attempts.

Use of Social Media and Other Technological Tools

        An Oklahoman study that spanned 8 years, utilized multiple media tools, but did not

mention any counseling techniques (Douglas, Carter, Wilson, & Chan, 2015). They did,

however, note that during the program, use of the local quitline increased by 1.4 fold (Douglas et

al., 2015).   Of interest for the purposes of the SCHQS study, Douglas and colleagues found that

personalizing an intervention, such as texting, can improve the smokers' attention to written

information and its perceived quality. Episodic prompts and reminders may boost intervention

adherence (Graham, A. L., Jacobs, M. A., Cohn, A. M., Cha, S., Abroms, L. C., Papandonatos,

G. D., & Whittaker, R.; Free et al., 2011). Indeed, in a British study, Free et al. (2011) found

that the text messaging doubled the quit rates at 6 months. A study from Lima asserted that it is

possible to use low-cost online methods to identify and recruit for smoking cessation programs in

areas where it might be otherwise difficult to reach a significant number of people (Aveyard,

Massey, Parsons, Manaseki, & Griffin, 2009). This was useful in both the recruitment and

intervention phases of the SCHQS study. Indeed, a similar study utilized Facebook to recruit

and provide an evidenced-based smoking intervention in the US and found that the "viral spread"

of an online application may be useful for health behaviour change (Cobb, Jacobs, Wileyto,

Valente, & Graham, 2016).

      Overall, the studies reviewed offered various models and frameworks for designing

community-based tobacco cessation programs. While they all offered valuable insights, there

were gaps in the descriptions of the actual programs being delivered.   It was not clear which had

the best outcomes. There was also almost no discussion of inclusion of family and friends with

the program participants. There was also no studies found that addressed small rural

community-based programs. Our study will add to these knowledge deficits.

Problem Statement

      It is alarming that while the rest of Canada has been declining in their smoking rates, this

region's rates are increasing (Statistics Canada, 2012).   Smoking can be directly linked to

cardiovascular diseases including heart attack and stroke, cancer, emphysema, chronic

bronchitis, pneumonia, asthma, and reproductive (fetal) effects (WHO Report, 2008).

An individual smoking cessation program was conducted in Shelburne at one time,

however there were no published data on the outcomes from this program. It has been

discontinued, and currently in its place, there is a phone line that people in the region may call

for help with their tobacco addiction (811.Novascotia.ca, 2015). Within the province of Nova

Scotia, there are multiple smoking cessation programs offered, but none of them are community-

wide (Nova Scotia, n.d.). It has been noted that Canadians are three times more likely to smoke if

they are from a lower socioeconomic status and that the persistence of high rates of smoking and

low quit rates indicate the failure of current smoking cessation policies (Corsi et al.,

2013).   Clearly this poses a major health risk to this zone's population and an initiative to

combat this was timely and necessary.

Purpose

The purpose of this study was to explore the feasibility of a community-based, tobacco

smoking cessation group program for Shelburne and Clark's Harbour's residents.

Specific Aims

The aims of this study were:

1. To identify whether there was a difference in the Stage of Change before and after

    completing the Shelburne / Clark's Harbour Quits Smoking (SCHQS) Program.

2. To determine whether participants were likely to quit smoking after completing the SCHQS

    Program.

3. To assess participants' satisfaction with the SCHQS Program.

Research Questions

This study sought to answer the following research questions:

1. Was there a difference in the Stage of Change before and after completing the SCHQS

    Program?

2. How likely was the participant to quit smoking after completing the SCHQS Program?

3. What was the level of participants' satisfaction with the SCHQS Program?

Program Significance

With the regional incidence of tobacco smoking on the rise, it was vital that the most

effective way of assisting community members to quit smoking be identified. This project adds

to the body of knowledge surrounding smoking addiction and cessation techniques. The SCHQS

study brought the program to the community and offered a new approach to supporting smokers

in their efforts to quit smoking, with the use of group counseling, text messaging and social

media group support.

Theoretical Foundation

The Transtheoretical Model (TTM), also known as the Stages of Change Model, was first

proposed by Prochaska and Di Clemente in 1982 (Prochaska & Di Clemente, 1982). The five

stages of change were identified as precontemplation, contemplation, action, maintenance and

relapse. This model has been used for the development of various health behaviour change

studies and programs, and in particular for smoking cessation programming (Campbell,

Bohanna, Swinbourne, Cadet-James, McKeown, & McDermott, 2013; Aveyard, et al, 2009;

Thrul, Klein, & Ramo, 2015; Koyun & Eroglu, 2016). Prochaska and Di Clemente (1983) went

on to further expand on their model by developing the 10 processes of change with relation to

smoking and added to their body of research by identifying certain processes could be linked to

the various stages of change. These processes were listed as follows: "consciousness raising,

self-liberation, social liberation, self-reevaluation, environmental reevaluation, conterconditioning, stimulus control, reinforcement management, dramatic relief, and helping relationships" (Prochaska & DiClemente, 1983, p. 391). These very specific processes were utilized to develop the programming for the SCHQS project.

Identifying and Defining Variables

The demographic variables collected included the participants' age, race, self-identified gender, employment status, and level of education. The independent variable was the smoking cessation intervention and the dependent variable was the difference in the TTM stage of change as determined by the University of Rhode Island Change Assessment Scale before and after completing the SCHQS program. The dependent variable, as an example, could be the change from pre-contemplation to contemplation at program completion. The clinical variables included the participants' smoking status, the strength of nicotine dependence (as determined by the Fagerstrom scale), the participants' intent to quit, and the participants' evaluation of both the program efficacy and the individual component efficacy. The operational and theoretical definitions of these variables can be found in the variables table in Appendix A.

Methods

Design

This study used a one-group pre and post-test design. The participants were given a series of pre and post program questionnaires, to ascertain their Stage of Change, their intention to quit, and satisfaction with the program. Following recruitment, the intervention consisted of six weekly meetings, during which education and discussions took place utilizing the guidelines as set out by the Centre for Addictions and Mental Health (Centre for Addictions and Mental Health, 2006). Specific plans for each meeting may be found in Appendix B.

In addition to these meetings, there was a social media page for group support, as well as an email for private support. It was hoped that should a participant not be able to attend a meeting due to work or other commitments, this would fill the gap until the next meeting. It would also an opportunity for the group members to offer support to each other outside of the meeting environment. Text messages were sent a few times a week, to encourage the participants between meetings, utilizing quotes found on smoking cessation motivation Internet sites (HealthUnlocked, n.d.; WishesMessages.com, n.d.). The meetings were planned for Sunday evenings, to allow for most people to be off work.

Sample

The communities of Clark's Harbour and Shelburne are fishing villages at the very southern tip of Nova Scotia. Based on the percentage of smokers estimated in the area, the population targeted was approximately 408 people.

Recruitment

Recruitment was conducted utilizing the following techniques:

1. Posters and individual handouts were provided to all of the local primary care providers, for distribution to their patients. (See Appendix C for the handout)

2. The facilitator conducted brief informational discussions with the local community and church groups.

3. Ten posters were strategically placed in various locations in both towns and five hundred handbills were distributed in the parking lots of large businesses in both towns.

4. Announcements for the programs were posted and shared on social media sites.

Inclusion and Exclusion Criteria

This study included adults 18 years of age or older. While families and friends of the participants were welcomed, and encouraged to attend, only current smokers were included in the data collection. Smokers were identified as tobacco smokers, which included cigarettes, pipes, and cigars. Participants were required to speak English.

As is the ethical norm, children and pregnant women were excluded from this program. People who do not read and write English were also excluded as time constraints and intervention team size did not allow for the extra help needed. People who used E-cigarettes or vaporizers exclusively rather than tobacco were excluded, as the research on these is limited and out of the scope of this study.

Setting

Shelburne is the larger of the two towns, with a population of 1,743 (Statistics Canada, 2016). Clark's Harbour has a population of 758 (Statistics Canada, 2016). The average total income in Shelburne was $34, 083, and in Clark's Harbour it was $37,574 (Statistics Canada, 2016). The main industry in both towns was lobster fishing. The program was delivered in the Wesleyan Church classroom in Clark's Harbour, and in the Roseway Hospital's classroom in Shelburne.   These venues were chosen to allow participants to walk to the program if necessary.

Intervention

The intervention consisted of two separate six-week programs, with weekly meetings taking place over ninety minutes in the evening. The program was designed around the tenets set out in the Centre for Addiction and Mental Health's Guidelines for running a smoking cessation / reduction support group (CAMH, 2006).

As previously discussed, the participants were given a pre-questionnaire during the first class, as well as a toolkit binder of information. They brought their binder to each class and were given additional information each week. Agreeable participants were also sent texts via mobile phone a 2-3 times a week, and they were also assigned memberships in a private Facebook group. The Facebook page was open for their discussions and the facilitator placed regular postings regarding smoking cessation. The weekly class was conducted in an informal manner, with participants being encouraged to voice their perceived challenges with smoking cessation. They were also counseled with regard to the previously discussed 10 processes of change (Prochaska & DiClemente, 1983). A final questionnaire was filled out and interviews conducted at the last class.

Measurement

The pre and post program questionnaire incorporated the Staging Algorithm ("*Smoking Algorithm*," n.d.), a Smoking Self-efficacy Scale ("Se*lf-efficacy Scale*," n.d.), and the Fagerstrom Test for Nicotine Dependence (Heatherton, Kozlowski, Frecker, & Fagerstrom, 1991). These questionnaires can be found in Appendices D, E & F, along with their scoring measurements. With the exception of the Fagerstrom test for nicotine dependence, the University of Maryland, Baltimore Campus (UMBC), developed all of these tools, utilizing the Transtheoretical Model of Stages of Change (Prochaska & Di Clemente, 1982). The UMBC questionnaires were based on the University of Rhode Island Change Assessment Scale (URICA), which was shown to have a good internal consistency with Cronbach's coefficient alphas measured from 0.88 to 0.89, for the subscales of pre-contemplation, contemplation, action and maintenance (McConnaughy, Prochaska, & Velicer, 1983). The Fagerstrom test may be reproduced without permission as

available from the source reference (Heatherton et al., 1991). UMBC also granted permission for the use of the questionnaires.

The Smoking Stage of Change Measurement Tool (Appendix G) was the first tool used. It was, as stated above, written by the Habits Lab at the University of Maryland, Baltimore Campus (UMBC). The scoring interpretation is included in the appendix. This tool was used at the beginning of the program and administered again at the end of the six weeks, to assess whether the participant had moved further along the change continuum.

The second tool was the Smoking Self-efficacy Score, which was also developed by UMBC (Appendix E). It consisted of nine items with five Likert response categories including not at all confident, not very confident, moderately confident, very confident, and extremely confident. Like the previous tools, this was administered at both the beginning and the end of the program.

The third tool was the Fagerstrom Nicotine Dependence Scale, which was given at the beginning of the program (Appendix F). This tool also helped determine if the participant might want to consider usage of smoking cessation medications or nicotine replacements. It consisted of three questions with a scoring interpretation tool to assist with the analysis of the questionnaire.

The fourth tool was the Exit Interview questionnaire, which consisted of nine open-ended questions (Appendix H).

The fifth tool was a simple questionnaire that collected the demographic data for each participant (Appendix I).

In addition to the measurement tools described above, the participants were asked to participate in an exit group discussion.

Data Collection and Analysis

Quantitative Measurement

The participants completed the study measures on the first day of the class and on the last day of class. The data from the SCHQS Program was entered into an Excel spreadsheet by the facilitator. The Fagerstrom Test was scored for each participant on a scale of 1-10 as set out in the Fagerstrom Test for Nicotine Dependence Scoring Instructions (Appendix F). The stage of change was determined utilizing the Staging Algorithm for Smoking and the Smoking Stage of Change Questionnaire (Appendix B & G), and each stage was numerically coded as follows: 1. Pre-contemplation 2. Contemplation 3. Preparation 4. Action 5. Maintenance. The Smoking Self-Efficacy questions (Appendix E) were scored on a Likert scale of 1-5, and then divided by 9 to give an overall nominal score.

Qualitative Measurement

The qualitative written and verbal recordings were transcribed and reviewed by the researcher to identify themes in the participant's experiences and to determine if the participants found that the program did or did not help create a climate useful for changing tobacco smoking behaviours. In addition to the main question, individual parts of the project were analyzed and participants were asked to identify which were the most helpful or, alternatively, not efficacious.

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Ethical Considerations

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Participation in this community-based program was entirely voluntary. The participants were instructed that they could quit the program at any time, and there was no fee for participation. These instructions were written and given to each participant along with a consent form to sign outlining the voluntary and private nature of their participation (Appendix J).

The participants were assigned a unique identifier number. These numbers were linked to the participants' demographic data and kept by the facilitator. All participant identifiers were removed from all data before the analysis of the data. The George Washington University Institutional Review Board approved the study proposal prior to its initiation. The facilitator alone collected the data and ensured that it was stored on a computer protected with multiple passwords. Paper copies of the measures were destroyed once the data was verified and saved.

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Results

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Participant Characteristics

There were six participants in the first program group in Clark's Harbour, and an additional six initially in the Shelburne program. Two participants did not continue after the first group, creating a study sample of 10 participants. Participant characteristics are listed in Table 1.

Table 1

Individual Demographic Characteristics Shown as Numbers and Percentage of the sample.

Characteristic	Male n=5		Female n=5	
Race				
Caucasian	(4)	(40%)	(5)	(50%)
Other	(1)	(10%)		
Education				
Middle School	(1)	(10%)	(1)	(10%)
High School	(2)	(20%)	(2)	(20%)
College	(1)	(10%)	(1)	(10%)
University	(1)	(10%)	(1)	(10%)

Quantitative Results

Stages of change.

The following pre and post class questionnaire data can be found in Appendix K. At the beginning of the program, 30 % of the participants were found to be in the preparation stage, 70% were in the contemplation stage, and 0% were in the action stage of behaviour change. At the end of the program, 10% were in the preparation stage, 60% in contemplation, and 30% of the participants were in the action stage. Of note, two of the participants were initially found to be in the preparation stage, having reported one or more quit attempts in the past year, but then reported no quit attempts on their post-program questionnaires. A paired t-test was conducted to

compare pre and post-program stages of change scores. There was no significant statistical

difference in the scores for pre-program (M=2.3, SD=0.46) and post-program (M=2.7, SD=0.9);

p=0.10. These results suggest that the SCHQS program made no difference to the participants'

stage of change. In comparing the pre and post stage of change data, with a 95% confidence

interval, M difference = 0.4 (-0.1, 0.9).

Self-efficacy.

Fifty percent of the participants had an increase in their smoking self-efficacy

score following the program's end, with 10% scoring the same and 40% having a decrease. The

pre-program mean self-efficacy score was 2.3, and the mean post self-efficacy score was 2.5. As

seen in Figure 1, participants with a middle school level of education had no change in their self-

efficacy scores, those with high school had a decrease in their scores, and those with college and

university had increases in their self-efficacy. A paired t-test was conducted to compare pre and

post-program self-efficacy scores. There was not a significant statistical difference in the scores

for pre-program (M=2.3, SD=0.95) and post-program (M=2.48, SD=0.80); p=0.62. These

results suggest that the SCHQS program made no difference to the participants' sense of self-

efficacy. In comparing the pre and post self-efficacy scores, with a 95% confidence interval, M

difference = 0.18 (-0.6, 0.95).

As seen in figure 1, the sense of self-efficacy appeared to have a correlation with the

amount of education the participant reported. Those participants with higher scores of self-

efficacy post-program had higher levels of education. After applying the Microsoft Correlation

application, however, the correlation was found to be 0.34, which shows that there is no

statistically significant correlation.

Figure 1

Comparison of self-efficacy scores with levels of education
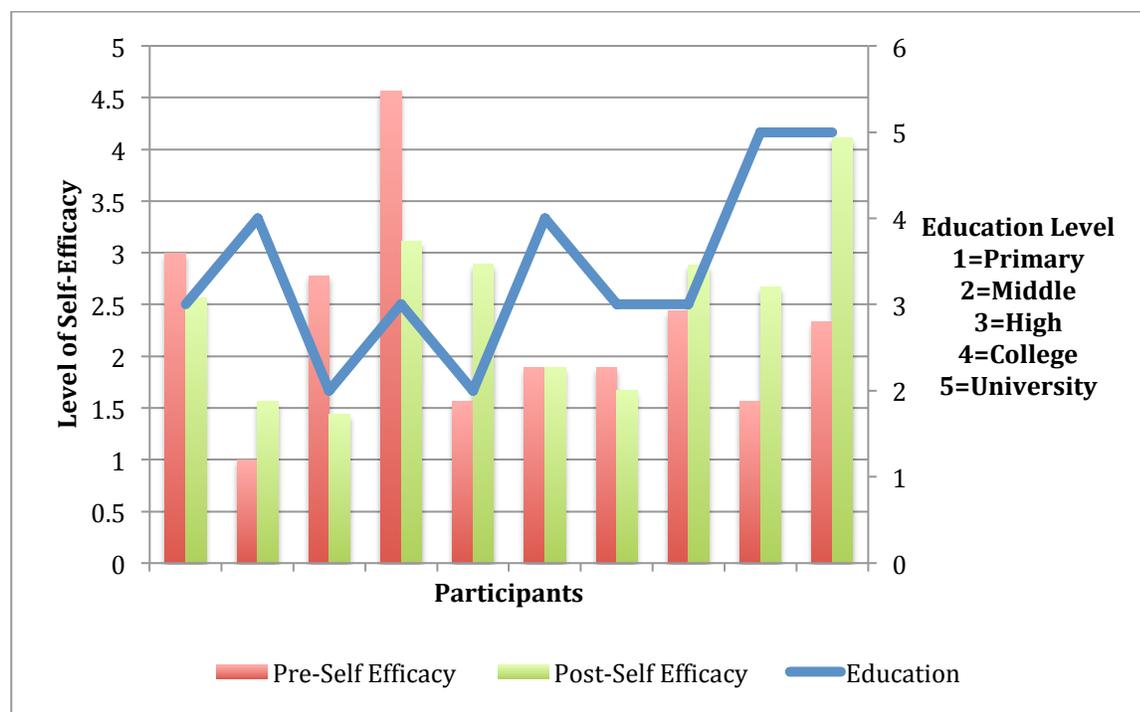
Smoking Cessation.

At the end of the program, 30% of the participants had quit smoking, with 50% reporting that they intended to quit within the next 30 days, and 20% reporting an intention to quit within the next 6 months. Thirty percent of the participants moved along the change continuum. Sixty-seven percent of the participants who began the program in the preparation stage of change quit smoking, as compared to the 14% who quit after starting the program in the contemplation stage.

Level of nicotine addiction.

Twenty percent of the sample were strongly addicted to nicotine, 70% were moderately addicted, and 10% were minimally addicted.

Attendance.
Sixty percent of the participants attended all of the groups, with 20% attending three groups, 10 % attending four groups, and 10% attending five. All participants with the exception of the two people who withdrew from the program responded to their exit interviews and participated in a final group verbal discussion.

Family and friends.

No family and friends attended with their smokers, however, it is interesting to note that there were three sets of relatives among the participants.

Qualitative Results

The qualitative data was gathered from recorded transcripts of final interviews and written evaluations, and disseminated into the following categories: quit intention, cessation aids used, positive and negative attributes, text messaging and social media.

Intent to quit.

Of the seven participants who had not quit, four stated that their intention to quit had changed. The remaining three stated that their intent to quit had not change, with two of them stating, "I still want to quit".

Smoking cessation aids.

No participants used any prescriptive smoking cessation medications. Fifty percent of the participants used nicotine replacement products, including patches, gum, and spray. One of the participants found nicotine replacement was not helpful, with the rest stating that it was.

Positive program attributes.

Participants were satisfied with the following program elements: fellowship, support, motivational texts, "it helped me quit smoking", motivation, informative information, "the common sense and relaxed way of getting info", topics covered, routine with Sundays, social support, informal and informative. One participant stated "Good to have a group of people with same situation and struggles to relate to - the difference was to think about smoking, more as a disease then a habit. Encouragement from teacher was great, and that she could relate." Participants agreed that it was very important to them that the facilitator was an ex-smoker. Many of them also stated that the non-judgmental attitude, combined with humorous elements, allowed them to enjoy the program, and that they looked forward to coming every week. All participants stated they would recommend this program to friends and family. All of the participants stated that they would be interested in participating in a long-term weekly smoking cessation support group.

Negative program attributes.

Ninety percent of the participants stated that they did not have anything that they disliked about the program, with one participant expressing his frustration at still smoking at the end of the program. Eighty percent stated that they would not change anything about the program, with one participant stating he would change the day from Sunday, as some church goers would not be able to attend, and three participants stated they would have added a longer period of time for the groups, and one stated they would have liked to have had quit smoking aids offered, with the rest saying they would not add anything. All of the participants stated that they wished that the program were of a longer duration.

Text messaging and social media.

Thirty percent of the participants did not have cell phones and did not participate in the text-messaging portion of the program. The participants who did all stated they enjoyed the motivational texts. Twenty percent of the participants did not use social media, but those who did enjoyed the addition of the Facebook posts. None of the participants posted with the Facebook groups or shared comments with each other.

Discussion

Pre and Post-Program Stage of Change Progression

By registering to participate in the smoking cessation program, the participants may have been indicating that they were at least in the contemplation stage of behaviour change. This may not have allowed for the assessment of people who were in the pre-contemplation stage. While the stages of change did not change for some of the participants, the majority stated in their interviews that their resolve to quit had grown after taking the program. There was a correlation between the pre-program stage of change and movement into the action stage (quitting smoking). More participants quit if they were in the preparation stage than those who were in contemplation. It follows, therefore, that assisting the participants to move along the change continuum will encourage them to quit smoking. While the *t*-test did not indicate validity in the pre and post-program stages of change scores, the qualitative discussions with the participants indicated that they felt that they had experienced change and were preparing to quit smoking within the next 30 days. A longer-term study would be necessary to see the long-term results of this study.

As seen in the results, the participants with the higher levels of education increased their levels of self-efficacy by the end of the program. Given their experience with learning, and then

applying that learning in a real-world context, it seems reasonable to deduce that this experience has carried over into the smoking cessation program. Again, the t-test did not indicate validity in the pre and post-program self-efficacy scores and future studies are advised to examine the necessary techniques to assist smokers with their sense of self-efficacy. It is likely that the t-tests were not statistically valid due to the small sample (Faber & Fonseca, 2014). More study, with larger sample sizes, is necessary.

Likelihood of Successful Smoking Cessation

The finding of a 30% quit rate was higher than other cessation programs in the literature, with rates that range from 11% to 27% (Etter, 2008; Zanis et al., 2011). It is difficult, however, to state that this quit rate is clinically reproducible, given the small sample size. Ninety percent of the participants who did not quit smoking stated that they intended to quit within the next 30 days.

Program Participant Satisfaction

The participants all stated that they enjoyed the program, that it was helpful, and that they would recommend it to their friends and family. They also overwhelmingly indicated that they wanted the program to go longer. The participants repeatedly stated that although the facilitator was a health care provider, it was more important to them that she was an ex-smoker. They stated that this made them feel as if this was a non-judgemental program and gave them a sense of everyone being in the struggle together. This is encouraging, as the participants are likely to continue in their program if they are enjoying the process. The smoking cessation rate, combined with the positive comments from the participants with regards to the group format, indicate that the group support was effective which was indicated in a number of previous studies (Mardle et al., 2012; Matthews et al., 2013; Levinson et al., 2015; Kruger et al., 2012; Evans et al., 2015).

There were no studies found that discussed using ex-smokers as counselors or facilitators, however one can speculate that the empathetic view is always more palatable for patients, and therefore should be encouraged. Further study of this is indicated.

Study Limitations

The limitations of this study included the time limitations. It is possible that the participants self-identify as having quit smoking tobacco, only to resume smoking a short time after the end of the study. In an attempt to mitigate this possibility, email and community Facebook access will be continued for twelve weeks following the end of the study. Self-reporting of smoking cessation is not considered as valid as biochemical assessments, as there is a risk of bias in self-reporting (Bryant, Bonevski, Paul, & Lecathelinais, 2011). The participants may have failed to disclose their real smoking status due to fears of disappointing the reviewer or perhaps due to fear of being judged. While there was an attempt made to avoid this type of emotional bias by reassurances given to the participants regarding confidentiality and non-judgmental declaratives, the risk of the bias was still a possibility. There may, also, have been some reluctance to attend the meetings due to the small community, and the resultant lack of privacy. The very small sample is another limitation. While the findings are provocative, the size prevents any reliable conclusions.

Implications/Recommendations for Practice, Policy, and Research

It is recommended that a follow up study using the same intervention with a larger sample size to determine whether this is an effective method of helping smokers quit. Recruitment in an area with a larger population or perhaps having more study sites within the study would permit a more statistically significant result. The results from this preliminary study are encouraging and more study is advised.

Sixty-seven percent of the participants who were in the preparation stage of change quit smoking versus 14% of those in the contemplation stage. It would stand to reason, therefore, that it is important to add techniques to assist future participants with movement into the preparation stage. It would also be prudent to adapt the study to include more content to boost self-efficacy, as it was noted to have dropped in some of the participants with lower levels of education.

This study confirms the utility of support groups for addictions, as has long been established (Gamble & O'Lawrence, 2016; The Lung Association of Ontario, n.d.; HealthLinkBC, 2017; Christakis & Fowler, 2008; Mardle et al, 2012). While the use of the 5 A's (ask, advise, arrange, assist, arrange) in clinical practice is also strongly encouraged by Canadian medical guidelines (Centre for Addictions and Mental Health, n.d.), the statistics in this region of Canada indicate that this is not enough. It is recommended that the health authority consider adding these groups throughout the region. Supporting and documenting the results of these groups would give us a better idea of their efficacy.

Conclusions

The participants did alter their stages of change at the end of the SCHQS program. From 70% in contemplation, 30% in preparation, and 0% in action, they moved to 30% in action, 10% in preparation, and 60% in contemplation. The participants who stayed in contemplation, however, also verbally identified that they felt that they were closer to quitting smoking than when they had started the program. Indeed, 30% of participants did quit. All of the participants stated that they enjoyed the program, they would recommend it to friends and family, and that it was ultimately helpful. More study is necessary, however, given the very small sample size.

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Appendix A

Clark's Harbour Quits Smoking Program Variables

Variables	Variable Form	Theoretical Definition	Operational Definition
Demographic Variables			
Sex	Binary	Gender Determination	1. Male 2. Female
Age	Continuous	Number of years since birth	Collect as actual age
Race	Categorical	Group of people with shared physical or genetic traits ("Race,"n.d) (May select more than one)	1. Asian 2. North American Aboriginal 3. Canadian African 4. Caucasian 5. Other
Clinical Variables			
Smoking Status	Binary	Does the participant smoke?	1. Yes 2. No
Strength of Nicotine Dependence	Categorical	Measurement of how strongly addicted the participant is to tobacco (Fagerstrom, 1978)	1. 1-2 (low) 2. 3-4 (low to moderate) 3. 5-7 (moderate) 4. 8+ (high)
Intent to quit	Categorical	Measurement of when the patient intends to quit smoking.	1. 1 day – 1 month 2. 1 month-6 months 3. 6 months to 1 year 4. no intent
Program Efficacy	Categorical	Did the participant find the program effective in either helping them to quit smoking or increasing the intent to quit?	1. 1-2 (low) 2. 3 (moderate) 3. 4-5 (high)
Individual Component Efficacy	Categorical	Did the participant find one or more of the components more helpful than others? (May choose more than one)	1. Education sessions 2. Group discussions 3. Nicotine replacement 4. Social media 5. Emailing NP 6. Quit Line Support 7. All were equally helpful

			8. None were helpful

Appendix B

Weekly Plan

Week 1 – Participants will fill out the questionnaires, as found in the appendices and discussed in the methods section. They will also fill out demographic information forms, and sign letters of permission, allowing for their participation and for the facilitator to contact them for further information, and to interview them at the end of the program. They will be given information about the protection of their personal information and with regard to the confidential nature of this program. They will be given contact information for the Facebook page, and the email address for the facilitator. They will be encouraged to contact the interventionist with any questions or concerns they might have throughout the program. Family and friends will be encouraged to attend if they wish as partner support may be helpful in assisting patients to quit smoking (Park et al., 2012). There will be an opportunity for the interventionist to discuss her journey with respect to quitting smoking, and for the group to share their journeys if they desire.

Week 2 – There will be a brief discussion of the processes of change, and how this will be applied to their weekly meetings. The participants will be provided with the 811 Quitline information as well as their toolkit binders that have been prepared for them to use and fill with further information throughout the program. The use of the multiple frameworks found in various available smoking cessation literature may be useful in assisting participants in either quitting or reducing their tobacco habit (Evans et al., 2015). The participants will be encouraged to engage in dialogue surrounding their possible motivators to quit smoking. The week's topic will be "Exercise – Its Use in Smoking Cessation".

Week 3 This week's session will address dealing with cravings and withdrawal symptoms.

Week 4 — Building on the previous week's session, the participants will receive more information for their toolkits. They will be encouraged to explore their reasons for continuing to smoke, versus their reasons for quitting (pros and cons). A group discussion surrounding weight gain fears, as well as dealing with smoking friends and family, will be facilitated.

Week 5 - This week's session will incorporate strategies for dealing with negative emotions. Encouragement will be offered to participants to learn to deal with these emotions without turning to tobacco. We will also discuss positive rewards for accomplishments rather than using cigarettes.

W**eek 6** – The group will fill out their post-questionnaires, and will be reminded of the intent to contact them for a final interview, to be conducted by the facilitator. They will be offered a chance to consider their choice of how they would like to be interviewed. They will be reminded that their confidentiality will be strictly protected. They will have another opportunity to discuss their personal situations with each other, and explore some problem-solving techniques.

APPENDIX C

Recruitment Flier

SHELBURNE QUITS SMOKING PROGRAM

Want to stop smoking? Participate in a research study.

No Cost to Participants

Quitting Smoking Program (Research Study)

Facilitator: Georg MacDonald NP

Begins January 7th with meetings once a week for 6 weeks.

Family and friends of smokers are welcome to attend with or without smokers.

Limited to 32 smokers for the program.

SEEKING SMOKERS WHO WANT TO EXPLORE HOW TO QUIT SMOKING IN NONJUDGEMENTAL GROUP SESSIONS OVER 6 WEEKS

First Meeting:
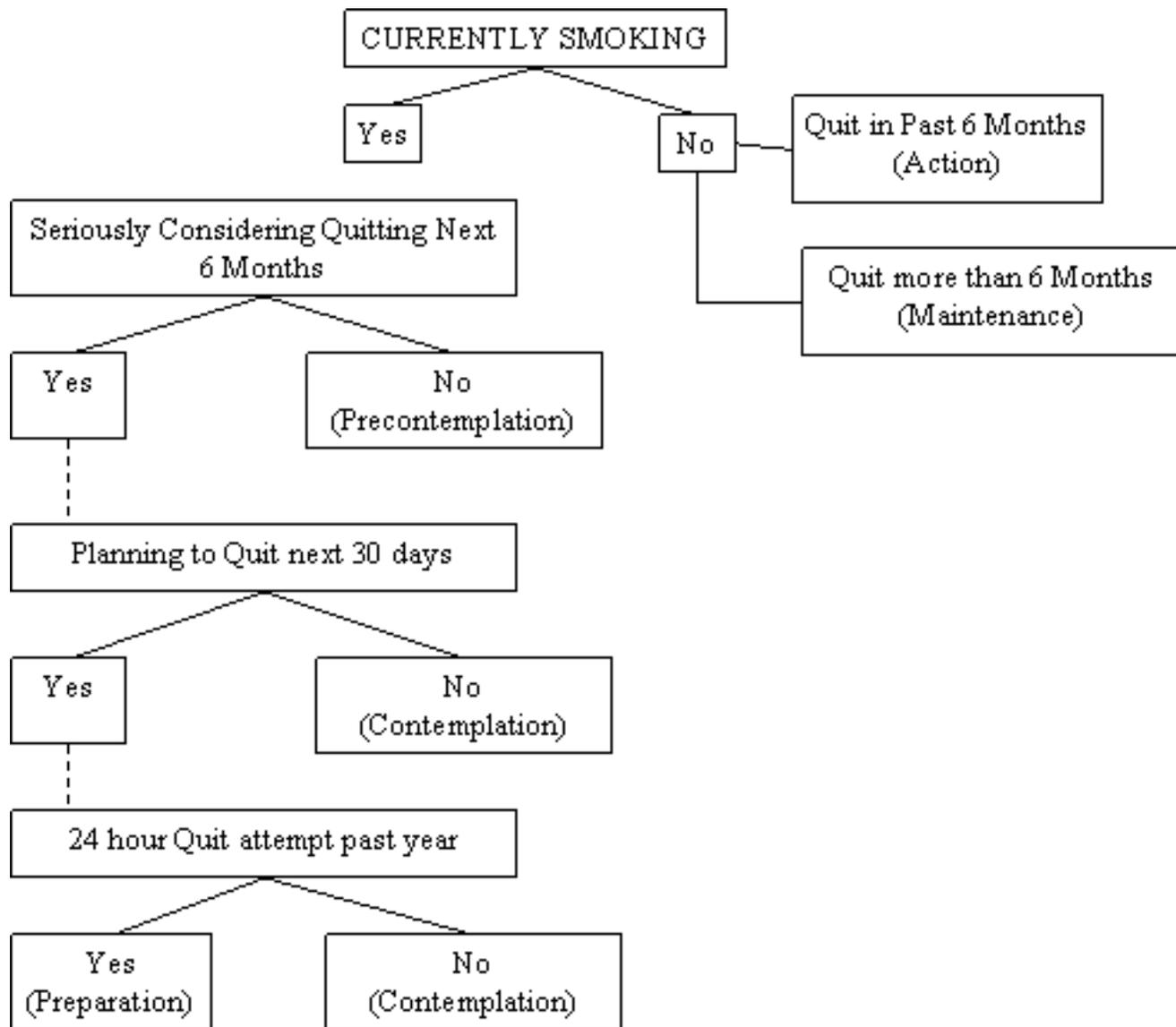Roseway Hospital Classroom
1606 Lake Road
Shelburne, NS
Sunday, January 7th at 7 PM
To Register, contact:
shelburnequitssmoking@gmail.com

Appendix D

Smoking Algorithms

CLASSIFICATION OF THE STAGES OF CHANGE FOR SMOKING CESSATION

Appendix E

Smoking Self-efficacy Scale – Section C Questionnaire

Client ID#

Short Form Date: ____ /____/_____

 Assessment Point:

Listed below are a number of situations that lead some people to smoke. I would like to

know how confident you are that you would not smoke in each situation.

Circle the number that best describes your feelings of confidence to not smoke in each

situation during the past week according to the following scale:

 1 = Not at all confident

 2 = Not very confident

 3 = Moderately confident

 4 = Very confident

 5 = Extremely confident

Situation Confident not to smoke

 Not at all Slightly Moderately Very Extremely

1. With friends at a party. 1 2 3 4 5

2. When I first get up in the morning. 1 2 3 4 5

3. When I am very anxious and stressed. 1 2 3 4 5

4. Over coffee while talking and relaxing. 1 2 3 4 5

5. When I feel I need a lift. 1 2 3 4 5

6. When I am very angry about something or someone. 1 2 3 4 5

7. With my spouse or close friend who is smoking. 1 2 3 4 5

8. When I realize I haven't smoked for a while. 1 2 3 4 5

9. When things are not going my way and I am frustrated. 1 2 3 4 5

Appendix F

Fagerstrom Test for Nicotine Dependence

	0	**1**	**2**	**3**
1. How soon after you wake up do you smoke your first cigarette?	After 60 minutes	31-60 minutes	6-30 minutes	Within 5 minutes
2. Do you find it difficult to refrain from smoking in places where it is forbidden, e.g., in church, at the library, cinema, etc?	No	Yes		
3. Which cigarette would you hate most to give up?	All others	The first one in the morning		
4. How many cigarettes /day do you smoke?	10 or less	11-20	21-30	31 or more
5. Do you smoke more frequently during the first hours of waking than during the rest of the day?	No	Yes		
6. Do you smoke if you are so ill that you are in bed most of the day?	No	Yes		

Scoring the Fagerstrom Test for Nicotine Dependence

In scoring the Fagerstrom Test for Nicotine Dependence, the three yes/no items are scored 0 (no) and 1 (yes). The three multiple-choice items are scored from 0-3. The items are summed to yield a total score of 0-10.

Classification of dependence:
0-2   Very low
3-4   Low
  5   Moderate
6-7   High
8-10 Very high

Appendix G

Smoking Stage of Change Questionnaire

1. Are you currently a smoker?

    - A) Yes, I currently smoke.
    - B) No, I quit within the last 6 months.
    - C) No, I quit more than 6 months ago.
    - D) No, I have never smoked.

Smokers only:

2. In the last year, how many times have you quit smoking for at least 24 hours? _____

3. Are you seriously thinking of quitting smoking?

    - A) Yes, within the next 30 days
    - B) Yes, within the next 6 months
    - C) No, not thinking of quitting

Smoking Stage of Change – Scoring Sheet

1. Are you currently a smoker?

    - A) Yes, I currently smoke.
    - B) No, I quit within the last 6 months. (ACTION STAGE)
    - C) No, I quit more than 6 months ago. (MAINTENANCE STAGE)
    - D) No, I have never smoked.   (NONSMOKER)

Smokers only:

2. In the last year, how many times have you quit smoking for at least 24 hours? _____

3. Are you seriously thinking of quitting smoking?

    - A) Yes, within the next 30 days (PREPARATION STAGE if they have one 24-hour quit attempt in the past year; if there was no quit attempt in the past year, then CONTEMPLATION STAGE)
    - B) Yes, within the next 6 months (CONTEMPLATION)
    - C) No, not thinking of quitting (PRECONTEMPLATION)

Appendix H

Exit Interview Questions

1. Have you completely quit smoking since starting this program?

2. If you have not stopped, has your intent to quit smoking changed since beginning this program?

3. What did you like about the program?

4. What did you dislike about the program?

5. What, if anything, would you change about the program?

6. Is there anything you would add to the program?

7. Would you recommend this program to a friend or relative if it were offered again?

8. If you used a smoking cessation medication, which one, and did you find it helped?

9. If you used a nicotine replacement, which one, and did you find it helped?

10. How many meetings did you attend?

Appendix I

Demographic Information

Name _____

Age: _____

Address:_____

Are you pregnant?   Yes_____   No_____

Ethnicity: Circle One

1. Asian
2. North American Aboriginal
3. Canadian African
4. Caucasian
5. Other

Sex: Male_____   Female_____

Highest Level of Education: Circle One

1. Grade school

2. Middle School

3. High School

4. College

5. University Undergraduate Degree

6. Graduate Degree

Appendix J

THE GEORGE WASHINGTON UNIVERSITY

WASHINGTON, DC

Informed Consent for Participation in a Research Study

Title of Research Study: *Clark's Harbour and Shelburne Quit Smoking*

Investigator: Christine Pintz PhD, RN, FNP-BC, FAANP

Investigator Contact Information:
Christine Pintz PhD, RN, FNP-BC, FAANP
Associate Professor
GW School of Nursing
1919 Pennsylvania Ave, NW, #500
Washington, D.C. 20006
202-994-7805

Why am I being invited to take part in a research study?
We invite you to take part in a research study because you have self-identified as being a smoker, and we are interested in whether you will find this 6 week program helps you to either quit smoking or even begin thinking about quitting smoking.

What should I know about a research study?
- Someone will explain this research study to you. You may ask all the questions you want before you decide whether to participate.
- Participation is voluntary; whether or not you take part is up to you.
- You can agree to take part and later change your mind.
- Your decision not to take part or to stop your participation will not be held against you.
- You may take this document home to read or to discuss with your family members or doctor before deciding to take part in this research study.

Who can I talk to if I have questions?
If you have questions, concerns, or complaints, or think the research has hurt you, talk to the research team at ***Shelburnequitssmoking@gmail.com***

This research is being overseen by an Institutional Review Board ("IRB"). You may talk to them at 202-994-2715 or via email at ohrirb@gwu.edu if:

- You have questions, concerns, or complaints that are not being answered by the research team or if you wish to talk to someone independent of the research team.
- You have questions about your rights as a research subject.

Why is this research being done?
The local health region has had an increase in the number of smokers. The majority of health regions in Canada have had a decrease in their numbers. This is concerning as it means that

our population will not be as healthy as the rest of Canada. It also shows us that we need to try harder to help people quit smoking. We want to know if having a community-based weekly education and support session will help the participants to quit smoking or at least begin thinking about quitting smoking.

How long will I be in the study?
We expect that you will be in this research study for 6 weeks.

How many people will take part in this research study?
We expect about 32 people will take part in the entire study.

What happens if I agree to be in this research?
There will be weekly 1 1/2 hour group meetings, a Facebook group, an email for private support, and educational handouts. We will ask you to fill out a series of questionnaires at the beginning of the program, and then again at the end of the program. You may be contacted by email in the event of a missed meeting. We will also ask you to either be interviewed at the end of the program, or to fill out an emailed evaluation.

The groups will take place at the Roseway Hospital Classroom, on Sunday evenings, and are starting January 7th, 2018 at 7 PM. At the first group, you will be given the questionnaires to fill out. All personal data such as your name, date of birth, and age will be kept completely confidential. The final group will take place on February 11th and you will be asked to fill out the same questionnaires at that group. You will also be offered the choice of being interviewed by email or telephone. Every effort will be made to keep your information confidential, however, this cannot be guaranteed. *The information will then be analyzed and reported in our study.*

What happens if I agree to be in research, but later change my mind?
You may refuse to participate or you may discontinue your participation at any time without penalty or loss of benefits to which you would otherwise be entitled.
If you decide to leave the research, please contact the research team so that they can remove your information from the study. You can email them to do this at
Shelburnequitssmoking@gmail.com

Is there any way being in this study could be bad for me?
Although we will ask the participants to keep anything heard or seen at the meetings confidential, it is possible that another participant might break your confidentiality.

The risks and discomforts associated with participation in this study are not expected to be greater than those ordinarily encountered in daily life or during the performance or routine physical or psychological examinations or tests.

What happens if I believe I am injured because I took part in this study?

You should promptly notify the research team in the event of any injury as a result of being in the study.

If you believe that you have been injured from taking part in this study, you should seek medical treatment from through your physician or treatment center of choice. Care for such injuries will be billed in the ordinary manner.

You will not receive any financial payments from GWU, GWU Hospital and/or the GWU MFA for any injuries or illnesses. You do not waive any liability rights for personal injury by signing this form.

Will being in this study help me in any way?
We cannot promise any benefits to you or others from your taking part in this research. However, possible benefits include quitting smoking or becoming ready to explore the idea of quitting smoking.

Can I be removed from the research without my permission?
The person in charge of the research study or the sponsor can remove you from the research study without your approval. Possible reasons for removal include ***being rude or disrespectful to other participants or the program facilitator.***

What happens to my information collected for the research?
To the extent allowed by law, we limit your personal information to people who have to review it. We cannot promise complete secrecy. The IRB and other representatives of this organization may inspect and copy your information.

The privilege of confidentiality does not extend to information about sexual or physical abuse of a child. If any member of the research team has or is given such information, he or she is required to report it to the appropriate authority or agency, such as child protective services, a law enforcement agency, or your province's toll-free child abuse reporting hotline. The obligation to report includes past and current alleged or reasonably suspected abuse as well as past or current known abuse. Examples of such abuse include physically harming your child or having inappropriate sexual contact with your child.

Are there any costs for participating in this research?
There are no costs for participating in this research.

Signature Block for Adult

By signing below, you agree that the above information has been explained to you and you have had the opportunity to ask questions. You understand that you may ask questions about any aspect of this research during the course of the study and in the future. Your signature documents your permission to take part in this research.

_____

Printed name of subject

_____   _____

Signature of subject   Date

Appendix K

Collected Pre and Post-Program Data

Participant	Age	Ethnicity	Sex	Education	Pre-Self Efficacy	Post-Self Efficacy	Fagerstrom Test Score	Pre-Stage of Change	Post-Stage of Change
1	52	4	1	3	3	2.56	9	3	4
2	47	4	2	4	1	1.56	5	2	2
3	53	4	2	2	2.78	1.44	7	2	2
4	27	4	1	3	4.56	3.11	5	3	4
5	85	4	1	2	1.56	2.89	5	2	2
6	39	5	1	4	1.89	1.89	5	3	3
7	55	4	2	3	1.89	1.67	6	2	2
8	57	4	2	3	2.44	2.88	6	2	2
9	71	4	1	5	1.56	2.67	6	2	2
10	72	4	2	5	2.33	4.11	4	2	4