Assessing Motivational Interviewing through Co-Active Life Coaching Tools as a Smoking Cessation Intervention: A Demonstration Study

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Abstract

The objective of this study was to explore smoking triggers and obstacles to cessation, and intervention experiences among nine 19-28 year old smokers who participated in a 3-month coaching-administered Motivational Interviewing (MI) intervention. In addition to qualitative methods, quantitative trends regarding self-efficacy, self-esteem, cigarette dependency, and average daily cigarettes use were assessed via a repeated measures design. Participants engaged in 9 sessions with a certified coach over 3-months. In-depth interviews and previously validated quantitative assessments were conducted at baseline, 1, 3, and 6-months. Qualitatively, stress and social situations were primary smoking triggers. Cessation obstacles were a sense of personal identify as a smoker and feeling controlled by cigarettes. Through the intervention participants reportedly gained: personal insights related and unrelated to smoking; helpful ways to cope with smoking challenges; and heightened awareness about other choices. Quantitatively, all constructs' trends supported qualitative findings. The application of motivational interviewing using coaching tools is valuable for reducing smoking, and for providing smokers' with insights about their behaviours, their triggers, and what they need to be and stay smoke-free. Additional research with a larger sample over a longer time is warranted.

Keywords: Co-Active Life Coaching, smoking cessation, cigarette dependency, self-esteem, self-efficacy

Introduction

Smoking is a leading cause of preventable death in the world: half of the world's smokers, approximately 650 million people, will be killed eventually by tobacco-related diseases (Fagerstrom, 2002). Nearly 1/5 of North Americans smoke and account for approximately $113 billion dollars in direct and indirect costs (Centers for Disease Control and Prevention, 2008; Lindblom, 2009; Shields, 2007).

Over the years numerous smoking cessation programs and medications have been devised, each used with varying success according to the Surgeon General's Report (1990); although 80% of adult smokers reportedly want to quit, most struggle to do so using the currently available tools. Consequently, smoking's high prevalence and well-established detriments to health and the economy, combined with smokers' desire to quit and the significant benefits of doing so (Edwards, 2004; Fagerstrom, 2002) point to the need for innovative smoking cessation approaches.

Cognitive behavioural interventions for smoking cessation recently have received increased attention. Typically, they utilise one or more of the following: social support; motivation; tailoring programs to individuals; and group programs (Cohn et al., 2000; Kjaer et al., 2007; May, West, Hajek, McEwen & McRobbie, 2006; Williams et al., 2006).   Despite the emergence of these commonly used strategies, none has consistently facilitated cessation success (Elkins & Rajab, 2004; May et al., 2006; O'Loughlin, Paradis, Renaud, Meshefedgian & Barnett, 1997; Rodgers et al., 2005). One approach that has been deemed promising and yet reportedly challenging to implement successfully is called Motivational Interviewing (MI) (Rollnick & Miller, 1995). MI is a directive, 'client-centered counselling style for eliciting behaviour change by helping people explore and resolve their ambivalence for change' (Miller & Rollnick, 2002, pg 325).   Within MI, the relationship between the counsellor and client is described as a partnership which is inherently respectful of the client's right to choice regarding all aspects of his/her behaviour change (Miller & Rollnick, 2002). MI as an intervention for smoking cessation has been attempted, but to date has yielded mixed results. Wakefield, Olver, Whitford, and Rosefeld (2004) used MI in conjunction with Nicotine Replacement Therapy (NRT) and, compared to NRT- only groups, found no statistically significant differences in smoking cessation at six-month follow-up. Conversely, both Hokanson, Anderson, Hennrikus, Lando, and Kendall (2006) and Borrelli et al., (2005) used MI compared to standard care and found participants in the MI group reported a statistically significant reduction in average number of cigarettes smoked per day when compared to the control group.

The conflicting results may be due, in part, to the method with which MI itself was implemented with smokers. A primary concern with using MI as an intervention for smoking cessation has been with translating MI principles into action (Mesters, 2009). The tenets underlying MI are explained in a number of books hundreds of pages in length, and yet health care professionals typically receive minimal training and are expected to be able to put MI principles into action, apparently with varying degrees of success (Hettema, Steele & Miller, 2005; Mesters, 2009). Rubak and colleagues (2005) also raised concerns about MI-providers being aware of how to implement MI skills learned in a non-clinical workshop into a clinical setting (Rubak, Sandboer, Lauritzen & Christensen, 2005). It seems that a major challenge with using MI in a smoking cessation study involves translating MI principles into practice. A consistent approach for "how to" administer MI principles is clearly important for MI interventions meeting with success.

Our previous research and experiences indicate the tenets and premises of MI are contained entirely within, and brought to fruition via Co-Active Life Coaching (CALC) (Newnham-Kanas, Irwin & Morrow, 2008; Newnham-Kanas, Morrow & Irwin, 2010; van Zandvoort, Irwin & Morrow, 2009; Whitworth, Kimsey-House, Kimsey-House & Sandahl, 2007). This approach is evidence-based with substantial theoretical and clinical research backing its utility (Irwin & Morrow, 2005). Health-related coaching is among the fastest growing areas of research currently, as noted in an annotated bibliography of 72 critically appraised health-related coaching studies which found coaching approaches to be effective in ameliorating many health issues (Newnham-Kanas, Gorczynski, Irwin & Morrow, 2009). CALC is a specific type of coaching approach, and our recent research has found that its effectiveness may be due, in large part, to the fact that its strategies actually and effectively do put MI principles into action (Newnham-Kanas, Morrow & Irwin, under review). Previous research on CALC has deemed it to be a theoretically-grounded behaviour change method that includes constructs from Social Cognitive Theory, The Theory of Reasoned Action, and The Theory of Planned Behaviour (Irwin & Morrow, 2005).   Using the CALC approach to

implement MI for smoking cessation represents an innovative, logical, and evidence-based strategy that is worthy of investigation and, in this study, has evidence of considerable intervention merit.

Methodology

The purpose of this repeated measures demonstration study was to assess the utility of MI, administered via the CALC approach, on smoking behaviours of highly addicted young adults. Qualitatively, participants' smoking triggers and obstacles to cessation were explored. Additionally, quantitative trends in terms of self-efficacy, self-esteem, cigarette dependency, and average number of cigarettes per day were assessed at various time points to complement qualitative findings. Self-report cessation claims were confirmed biologically using Cotinine saliva tests.

Participants

Nine participants were recruited utilising a variety of methods including: placing posters at fitness clubs in the host city; advertising on local radio stations; and mass emailing to students at the host university. The study targeted English speaking adults aged 19-29 years with an above average nicotine dependence as determined through both the Cigarette Dependency Scale (Etter, Bergman, Humair & Perneger, 2000) and self-reported smoking for a minimum of six months. Additional inclusion criteria were participants' willingness to set a quit date four weeks into the intervention, and willingness to complete a Cotinine saliva test (see Table 1 for demographic information).

Intervention

Two Certified Professional Co-Active Life Coaches (CPCC), with no affiliation to this study or research team, were recruited and hired to provide each participant with nine 30-minute individual sessions, over three months. The CPCCs used standardized tools and methods based on the extensive training received from the Coaches Training Institute in the form of five, 3-day trainings and an intensive 6-month certification program requiring the successful completion of a day-long oral and written examination to receive the CPCC designation. Each coach was also asked and agreed to use only their CPCC skills (in case they had received additional unrelated trainings in the past). Each participant worked with the same coach for the duration of the intervention and sessions were completed either over the telephone or in person based on participant preference. During the sessions, participants were asked to come with a specific topic they wanted to explore and the coach asked mainly open-ended questions to promote participants' insights on the topic and help the participant identify what he/she needed to quit smoking. The coaching model describes the coach's role helping the participant access his or her own answers using a variety of techniques including the following: designing an alliance with the participant; asking powerful questions that provoke thought; being genuinely curious about the participant's experience; championing and acknowledging the participant and his or her actions; challenging the participant to attain his or her desired goals and holding the participant accountable to those actions; and holding the participant's agenda (for a complete description of the Co-Active Life Coaching model and the techniques utilised in coaching please refer to Whitworth et al., 2007). All of these techniques meet the principles of MI as delineated by Miller and Rollnick (2002).

Table 1 Demographic Data for All Study Participants

Measure	Description
Age (years)	19-28 years Average: 25.30 years
Gender	Males: 5 Females: 4
Average number of cigarettes smoked per day	Range: 4-22.50 Average:13.61
Age when started smoking	Range: 12-20 Average: 16.36
Number of quit attempts	Range: 0-20 Average: 4.55
Highest level of Education achieved	Range: High school – graduate school Average: some post-secondary

Assessments

Follow-up assessments were conducted at a location that was mutually convenient to the researcher and participant, lasted approximately 45 minutes, and consisted of an in-depth interview as well as several questionnaires. Prior to the start of the assessment honesty demands were utilised to reduce demand characteristics (Bates, 1992). Additionally, participants were appraised that researcher would know nothing about what occurred during the sessions with the coach, and the coaches would be told nothing about participants' assessment information. In-depth semi-structured interviews, lasting approximately thirty minutes, consisting of seven or eight questions (see Appendix) to facilitate an understanding of smoking triggers, obstacles to cessation and participants' experiences of 'coaching' were conducted with participants at baseline, one month, three months, and six months post intervention. Interviews were audio-recorded and transcribed verbatim. Quality assurance steps, as suggested by Guba and Lincoln (1989), were used throughout data collection and the analysis phases of the study. Inductive content analysis, as described by Patton (1987), was utilised to analyse transcripts from the interviews (Table 2 below).

To complement the qualitative findings, in service of gaining as full an understanding as possible for this demonstration study, several quantitative questionnaires were utilised at all assessment time points including a demographic questionnaire, and the previously validated Cigarette Dependency Scale; Rosenberg Self-Esteem Scale (RSES); and the Smoking Self-Efficacy Questionnaire (SEQ) (Etter et al., 2000; Rosenberg, 1965). During the three-month assessment, participants who claimed cessation completed a confirmatory Cotinine saliva test (most participants were no longer in the vicinity during the 6-month assessment, precluding the repetition of the saliva testing).

Table 2 Measures to Ensure Data Trustworthiness

Measure	Description
Credibility	Member checking was done between questions to ensure the research correctly understood the response.
Dependability	The data collection protocol was consistent for all participants therel reducing the introduction of any biases.
Confirmability	Inductive content analysis was performed independently ar simultaneously by two researchers (TM and JI), who later compared the analysis. Data were examined for similarities and differences across tim and emerging themes were identified. A summary of the analysis w prepared and discussed.
Transferability	The research process has been documented in detail, thus enablir potentially interested parties to determine whether our results a transferable to other settings.

Source: adapted from Irwin, He, Bouck, Tucker, and Pollett, 2005

Psychometric Properties of Scales

Cigarette Dependence Scale (CDS). The CDS is a 12-item, self-administered, unidimensional, continuous measure that reflects the *Diagnostic and Statistical Manual of Mental Disorders IV and International Classification of Diseases-10* criteria for cigarette dependence and is considered both valid and reliable (Cronbach's $\alpha \geq 0.84$) (Etter, 2008).

Rosenberg Self-Esteem Scale (RSES). The RSES is a previously validated and reliable (Cronbach's $\alpha \geq 0.77$ and Convergent Validity of 0.83) 10-item scale measuring global self-esteem using a four point Likert scale (Rosenberg, 1965; 1986).

Smoking Self-Efficacy Questionnaire (SEQ). The SEQ is a previously validated and reliable (internal and external Cronbach's α coefficients of 0.95 and 0.94, respectively) 12-item questionnaire comprised of two sub-scales (the internal stimuli and the external stimuli) and measures responses on a five point Likert scale with lower scores representing higher self-efficacy to avoid temptation in various situations (Etter et al., 2000).

Cotinine saliva test. At baseline participants were made aware that Cotinine saliva tests would be completed at the three-month assessment for all participants who claimed they had quit. Cotinine (a major metabolite of nicotine) saliva tests were administered; they consisted of a saliva swab which was analysed by an independent laboratory specializing in the analysis of biological samples (Salimetrics) using gas-liquid chromatography in a duplicate analysis, with scores less than 15 ng/ml signifying non-smokers.

Qualitative Findings at Baseline Assessment

To provide context for where participants began with regard to their cessation process, the baseline in-depth interviews were analysed and the theme of stress was identified as participants' main smoking trigger. Additional cessation-barrier themes were participants experiencing: smoking as a social experience; smoking as part of their personal identity; and feelings of lack of control over smoking and cessation.

Stress
The vast majority of participants identified stress as a trigger for smoking and indicated that smoking provided a coping mechanism for said stress. One participant, whose comment mirrored those of most participants, described the stress and smoking relationship as a vicious cycle. She said, "[i]f I'm stressed I want a cigarette, if I don't have a cigarette I'm stressed. It's just a never-ending circle." Smoking served as the primary coping mechanism for many participants, and one said, "[e]very time I get anxious, or nervous, or angry, or excited it's a trigger to have a cigarette, go relax and have a cigarette."   One participant compared her relationship with smoking and stress to a rollercoaster saying:

> *I'd say it's a rollercoaster; I have my good days, where I don't smoke as much. I*
> *don't feel the urge to smoke as much and I'm content with a few or no cigarettes on*
> *occasion, but then it all depends on what's happening in my life and then the*
> *rollercoaster goes up when it's a crazy week at school and [I] have a lot in my head.…*

Smoking as a Social Experience
When asked what they believed would need to change in their lives for cessation, participants talked about their social lives. The majority of participants identified smoking as a social phenomenon that serves as both a trigger to smoke, and a deterrent to quit. One participant depicted the importance of the smokers' social network and her fear of losing it, were she to quit, when she said:

> *… I find that smokers have this social aspect to them and that's something I don't want to*
> *lose because most of the people, or the really cool people that I've met throughout my life,*
> *funnily enough, have been met while having a cigarette somewhere else. And I hate losing*
> *that aspect, because there is this social aspect about cigarettes that I would really miss.*

It was clear that the social processes involved in having a cigarette served an important role in smokers' lives. This was summarized by one participant who explained:

> *The biggest challenge [of quitting] is not being able to do the normal things that I usually do*
> *when I have a cigarette. Hang out with my friends, go out on break, coffee breaks at work*
> *and hanging out with the guys that have a cigarette. It's a social thing, not having that little*
> *social unity you have with other smokers when you're out there having a smoke.*

Because of the strong social bonds and, therefore, cigarette triggers associated with smoking with others, several participants projected the need to withdraw from social situations to achieve cessation. One participant explained that to be successful at quitting she "…would have to say no to

going out with my friends and especially drinking and hanging around people that smoke." A third participant stated:

> *I would probably have to say 'no' to going out a few times… at least [in] this initial period because I know that's when I get tempted to smoke, it's tough to restrain yourself when you go out and you've had a couple drinks or something like that.*

Smoking and Identity

Smoking as a meaningful part of participants' self-identity was an obstacle to cessation described by over half of participants. Two participants said, "I feel like if I quit smoking I have to change the person that I am…". And "…smoking actually represents some of myself." Other participants identified smoking as a less central part of themselves but felt smoking was an ingrained part of their lifestyle, as one explained that "…it's just a lifestyle, just like everybody drinks coffee in the morning; I smoke everyday but I don't drink coffee…." Another said simply, "… I barely even think about it [smoking], it is just a part of my lifestyle."

Lack of Control Over Smoking and Cessation

A sense of lack of control over smoking and quitting was a cessation barrier described by five participants. One participant said, " … there's one thing I can't control in my life right now and that's smoking." Some participants' perspectives about how smoking cessation would suddenly just 'happen' further complicated the struggle between control and the enjoyment associated with cigarettes. For example, one person said:

> *Like I'm sure with most smokers like you always think that there will be one day when you wake up and you're just like that's it, 'I'm not [smoking] anymore.' But in the end... that day will never come; you know every day is today."*

This self-described misperception was common among participants as illustrated by a participant who acknowledged the many lies he told himself about quitting smoking when he described his deceptive self-talk. This participant explained that many times he would say to himself "I don't have to [quit] right now, or that I need to be in a place where I've decided I'm ready. Or when I'm ready I'll quit, I can [quit] when I want to… a whole bunch of crap."

One-Month Assessment

At the one-month assessment participants were focused particularly on the importance of identifying reasons for smoking. Additional themes from this time period were about the relationship they experienced between control and cigarettes, and their need for finding a substitute for smoking.

Identifying reasons for smoking

The majority of participants (6) described the importance of identifying underlying reasons for their smoking habit, in service of being able to quit. Half of these participants had made their intervention-required quit attempt. One participant explained her journey of trying to identify reasons for smoking as "it's extremely difficult to wrap my head around quitting… I've been having and trying to identify reasons why I [smoke]…I'm finding it difficult." One said, "I've learned [from coaching sessions]… why I smoke, and maybe we're still learning… why, what I'm trying to hide [emotionally] that I'm covering up with smoking." Another explained that the emotional

connection he felt with cigarettes was a main focus of his quitting focus. He said, "I will also try to detach myself from the emotional attachment I have with cigarettes right now."

Control and cigarettes

An increased awareness about cigarettes' control over participants was apparent at the one-month assessment as described by seven participants. The participants were at various stages of their control struggle. Of the three participants who had not yet made their quit attempt, one said, "I've learned how easy it is for me to be controlled by [cigarettes]." Of the four participants who had complied with their targeted quit date, one participant explained that quitting smoking was not 'just' about not smoking anymore. She said, "[quitting] means, like, officially I do not need to depend on cigarette[s], not even that once a week, or whatever." Regaining lost control over cigarettes was liberating according to some participants, as illustrated by two who stated that quitting smoking "…means, it really does mean freedom…" and, "… fixing the aspect of my life where I depend on cigarettes, yeah, where I let cigarettes influence my life."

Finding a substitute for smoking

One obstacle to cessation identified by six participants was the need to find a personally suitable substitute for cigarettes. Of these participants, four were currently using a substitute, and all four had made a cessation attempt. One said he needed to "… [use a] substitute, substituting [cigarettes] with something else like a candy or something else that gives me a bit of a rush." Another substituted smoking with having a conversation with himself in order to remind him of his goal. He said, "I tried to have small monologues with myself where I get to, get to the point where, or I try to convince myself that I want to be a non-smoker." The two participants who had not made their quit attempt recognized the importance of finding a substitute; however, this had not yet come to fruition. One participant explained her specific need as:

> *I've tried to find something that works that are alternatives to going out and   smoking, but still … being able to get away from my desk, maybe getting a   basketball   game, or something to do.*

Three-Month Assessment

The three-month assessment with participants revealed an overall sense of empowerment and a clear direction for the future. Specifically, participants built upon the themes identified at the one-month assessment and the following salient themes emerged: establishing control; attaining awareness; and seeing future possibilities for change.

Establishing control

Similar to the one-month measurement, at the three-month assessment participants continued to focus on the relationship between control and cigarettes, with seven participants describing their new found control over cigarettes as pivotal in their cessation journey. One participant said, "I feel I have more control and I don't have to rely on cigarettes or the feeling of having the cigarettes. So it's a good feeling." Another participant explained that he had achieved an important realization that would help him to remain in control. He said it was helpful "just knowing the real truth to smoking cigarettes, how it's almost self-imposed slavery to nicotine…." Another participant was emotionally impacted as a result of establishing control. He said, "… I'm glad I don't [smoke] anymore, I feel more in control now, just overall happy."

Attaining awareness

Through the realization that smoking was a *decision*, the majority of participants (6) overcame the obstacle of feeling cigarettes were in control. For one participant, awareness of the reasons she smoked was paramount to achieving cessation. She explained, "I've learned a lot about a lot of different things. But mostly that I needed to understand fully why I was smoking." Another participant discovered certain behaviours, such as smoking, were the result of other issues in his life. He said, "I've learned some things about myself [through coaching sessions] just in terms of personality traits and different sort of, crutches that I have, or habits that I have that are really symptoms of something else." The impact of the new-found awareness on decision-making was an important discovery for several participants. One participant explained coaching, "help[ed] me retain more control over myself … not just with smoking but with everything. I've kind of learned how to better control myself."

Seeing possibility for change

Removing cessation obstacles (which participants reported came from their awareness gained through coaching) facilitated eight participants to discover greater possibilities for their lives and provided them with a sense of hope. One participant simply expressed, "[quitting smoking is] possible. Really overall it's possible and at the beginning it seemed next to impossible when I was doing it alone before the study." The sense of possibility and hope was not just limited to smoking cessation, but rather, was also reflected in other aspects of participants' lives. Another participant described a shift in self-perception and what was possible for her and said, "I feel a lot more positive about myself and about different changes that I can make in my life." Reframing situations and shifting perspectives, two strategies utilised in coaching, seemed to raise some participants' sense of possibility. One participant explained, "I feel like I can deal with situations, everyday situations as well as extraordinary situations a lot better just by putting them in the right frame, in the right perspective."

Six-Month Follow-up

At the six-month follow-up six participants were interviewed and asked about their smoking status, obstacles to cessation, and the impact of the intervention on the past six months. The emergent themes where similar to those found during the three-month follow-up. Participants reiterated the theme of attaining awareness in terms of their obstacles to cessation. Once participant clearly identified her specific obstacles as boredom and avoidance and described the impact as, "[a]ll those are obstacles that you will come across on a daily basis… those are triggers that are constant." The theme of establishing control over smoking and cigarettes was also discussed during the six-month follow-up. One participant described a shift in perspective in terms of the way he viewed himself as fundamental in his control over is addiction. He said, "I really learned to think about myself as a non-smoker, and having that become part of how I see myself… has really been helpful."

Perspectives on Coaching

At both three- and six-month follow-ups participants reported having very positive coaching experiences which facilitated many self-discoveries. Three main themes consistently emerged, namely: increased learning about self; the importance of making conscious choices; and the value of finding ways to cope.

Learning about self

The introspection achieved by participants through life coaching's application of MI was an aspect of the study experience that seven participants purported as useful in the pursuit of smoking cessation. The sessions provided one participant, who quit smoking, with the opportunity to get to know herself better. This was illustrated when she said, "I don't think I was out of control before, but I mean just knowing that much more about myself allows me to lead that much better of a life knowing these things [about myself]." Another participant, who also quit smoking, described the shift of control he experienced (resulting from learning about himself as "I feel a lot more positive about myself) and about the different changes that I can make in my life." One participant realized, through her coaching experience, that she was very critical of herself and despite not attempting cessation she was putting this learning into action saying she was "…trying to be not so hard on myself."

Making conscious choices

Participants underscored the importance and value of realizing they are always 'at choice.' One participant's realization that, historically, his lack of choice was actually a choice in and of itself empowered him to start making conscious decisions. He explained, "I guess the main thing I learned was to just start making decisions for myself… and to stop letting the current just kind [of] take me where I am supposed to go." Another participant explained the impact choice had on him simply as:

> *I am definitely more aware; I think the sessions really helped me be more aware of why you're doing what you do, when you do it, how you feel about it and if you can change it. So right now I'm feeling more aware of my choices, even if I still have that cigarette, it's nice to be aware [of] why I want to do it.*

Another participant had the preconceived notion that coaching would involve someone telling him what do to. However, when this did not occur and, in fact, all actions were generated from himself, he was exhilarated by the opportunity to make a choice. He stated, "It's just a weird experience [be]cause it's [coaching] not like someone is telling you what to do it's… it's just someone telling you to… you know get off your ass and make decisions for yourself."

Finding ways to cope

Six participants described a change in the way they dealt with daily struggles (related and not related to smoking) by seeing the issues within context, through the use of perspectives. The utility of coaching at providing, experiencing, and enlisting different perspectives further substantiated participants' positive views of coaching. Applying context to problems increased one participant's ability to cope, as illustrated when she said, "I feel like I can deal with situations, everyday situations as well as extraordinary situations a lot better just by putting them in the right frame, in the right perspective." The ability to contextualize issues in a different way was one participant's main action resulting from coaching. He said, "I would say that the meetings that I've had with [the coach] definitely [gave] me a different way of looking at things." Moreover, the two participants who remained smoke-free, at the six-month follow-up, attributed their success to coaching. One said "I think… coaching can actually work" and the other participant further explained "the coach gave me the skill and then I just did it and [the coach] supported me." One participant stressed the value that would have come with more sessions. He explained "… I feel the study should be more than nine weeks."

Quantitative Findings

Participants' qualitatively-defined shift towards empowerment and gaining control over their smoking behaviour was supported by the decreasing trends in all quantitative measures, as outlined in Table 3. All constructs demonstrated trends that offered support for the qualitative insights described by participants. Moreover, smoking cessation was attempted by five participants and was achieved and biologically verified at the three-month assessment by three of those five participants and two participants remained smoking-free at the six-month follow-up.

Table 3 Trends in Quantitative Constructs

Construct	Baseline	1 Month Assessment	3 Month Assessment	6 Month Post Intervention
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Smoking Cessation	N/A	N/A	3 Participants	2 Participants
Average Number of Cigarettes Smoked per Day	13.61(6.41)	6.00(5.08)	5.33(5.17)	5.75(5.46)
Cigarette Dependency	48.89(5.82)	35.11(13.78)	30.89(13.20)	33.00(17.40)
Self-Efficacy (Internal)	24.78(3.19)	20.78(5.87)	18.11(5.90)	18.83(8.11)
Self- Efficacy (External)	25.33(2.55)	20.67(5.39)	18.33(6.63)	17.67(6.89)
Self-Esteem	21.67(3.77)	22.44(5.03)	25.44(3.28)	22.00(4.33)

*Note: *SD= Standard Deviation; Self-efficacy is scored with lower scores denoting a decrease in temptation to smoke; Time 1= One month assessment; Time 2= Three month assessment; Time 3= Six month follow-up.*

Discussion

Participants offered rich descriptions regarding what they learned about their relationship to cigarettes and their smoking behaviours over the course of the intervention and follow-up. Participants identified stresses as a major trigger for smoking and over the course of coaching developed techniques to help overcome obstacles to cessation including: finding a suitable substitute for cigarettes; separating cigarettes and smoking from their identity through attaining awareness; and seeing life possibilities.

Participants indicated that they experienced a shift in control regarding their relationship with cigarettes. This shift may be indicative of a shift in their locus of control, which has been deemed important for long-term smoking cessation. Both Stuart et al. (1994) and Zimmermann, Hofer, Holzner, Strobl, and Gunther (2004) argued that acquiring a stronger internal locus of control is an essential step in the smoking cessation process, and, in fact, it is associated with higher abilities to quit smoking. Therefore, this qualitative finding is an important feature of life coaching as a viable and attainable tool for smokers to acquire through MI in support of their battle to quit.

Participants' perspectives on the impact of life coaching became known through actions as well as data from the interviews. Notably, they described a positive experience of coaching. Participants deemed life coaching to be fundamental in gaining insight into themselves, providing awareness of their power to "choose" or "not choose to smoke" in every decision, and discovering and using different perspectives in all situations. Changing perspective by increasing awareness of the many ways of looking at a decision, and encouraging participants to make a conscious choice are two prominent tools in the life coaching model (Whitworth et al., 2007). These life coaching tools help create a shift in perspective and promote choice thereby greatly facilitating change (Whitworth et al., 2007). Participants felt that the life coaching experiences helped them to overcome long-standing obstacles to cessation, and helped them to achieve or be on the road to achieving their smoking cessation goals.

A cessation rate of 2 participants at six months and three at the three-month assessment represents a quit rate 10% higher than the average success rate for cognitive-behavioural interventions (Lancaster & Stead, 2008; Stead et al., 2008) and is suggestive of the value of Co-active life coaching as an intervention for smoking cessation. Compared with other interventions for smoking cessation such as NRT, self-help, hypnotherapy and acupuncture the success of MI via life coaching is noteworthy. Compared with NRT interventions, which boast a 14% cessation rate (Stead et al., 2008), life coaching in this study was associated with a cessation rate of 22%. In a review of self-help cessation studies, quit rates were found to be between 1% and 11%, averaging 5% (Lancaster & Stead, 2008), substantially lower than the cessation rates found in this study. The efficacy of MI via life coaching is further substantiated when results from this study are compared to systematic reviews on hypnotherapy and acupuncture as interventions for smoking cessation, which found a lack of evidence and insufficient evidence compared to a placebo, respectively, to support the efficacy of these interventions at promoting cessation (Abbot, Stead, White & Barnes, 2008; Whhite, Rampes, & Campbell, 2008). Moreover, participants with similar cigarette dependency as our study, a cognitive-behavioural intervention that utilised one-to-one counseling yielded a cessation rate of 11.8% versus 22% in life coaching (Williams et al., 2006). More specifically, two meta-analyses revealed that using MI as an intervention for smoking cessation was not efficacious as only one study yielded a small effect size once several outcome variables were collapsed (Burke, Arkowitz & Menchola, 2003; Hettema et al., 2005).

The lack of consistency of MI in promoting behaviour change across several problem behaviours, specifically regarding smoking cessation, has piqued researcher interest. Speculation as to the lack of training and the inability of health professionals to translate proficiently the principles of MI into action has been cited as potentially problematic (Hettema et al., 2005; Miller & Mount, 2001). The intense training of coaches for this study, as previously described, offers a solution to the aforementioned limitation and may account for the positive trends toward cessation and the cessation observed in this study.

The clinical relevance is clear in terms of all the positive gains for participants, in terms of cigarette dependency, average number of cigarettes smoked per day, self-efficacy, self-esteem, and smoking cessation. These gains suggest life-coaching skills may have important and meaningful potential for reducing smoking behaviours. Decreases in number of cigarettes smoked per day and cigarette dependency are each strong predictors of success in future cessation attempts (Cohen et al., 1989; Mothersill, McDowell and Rosser, 1988; Ockene, Benfari, Nutall, Hurwitz and Ockene, 1982).

Matheny and Weatherman (1998) found a decrease in the average number of cigarettes smoked per day coupled with a reduction in cigarette dependency to be indicative of future success in cessation attempts. This finding further substantiates the potential value of life coaching as an intervention for smoking cessation.

Previous researchers (Kowalski, 1997; Ockene et al., 1982; Stuart, Borland & McMurray, 1994) found increased self-efficacy to quit smoking indicative of an increased motivation and commitment to behaviour change, and a significant predictor of attempting and sustaining cessation. Therefore, the current participants' increases in both internal and external self-efficacy, observed over time, may be illustrative of participants' changes in beliefs about their capabilities. The latter, in turn, can result in meaningful smoking-related behaviour changes.

Limitations and Direction for Future Research

This study was intended to explore qualitatively smoking triggers and obstacles to cessation and use quantitative measures to support qualitative findings when MI was put into action through life coaching tools as an intervention for smoking cessation with adults. A limitation of this study was the lack of a control group. Although a comparison group to control for personalized contact was attempted, with ten participants receiving scripted check-in calls from a trained research assistant at matching time frames to the MI sessions, comparisons between the two conditions were not possible due to a 70% attrition rate in the control condition (leaving insufficient power for any data comparisons). While the high retention rate of the intervention compared to comparison group is an important finding in and of itself, no other statistical conclusions can be drawn between the two groups. Thus, comparing intervention findings with findings from literature is more suitable.

A study with a larger sample size should be conducted to assess life coaching's full potential and utility as a smoking cessation intervention given the positive outcomes. Moreover, the duration of follow-up should be increased to one year to determine the sustainability of both the participant change which was described during the intervention as well as cessation.

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Assessment of motivation presents a significant challenge. External influences and pressures, as well as internal thoughts and feelings, contribute to a person's motivation both to consider and impl-ment a change in behavior (Cunningham et al. 1994). Evaluating a person's moti-vation requires assessment of the person's attitudes and intentions, confidence and commitment, and decisionmaking ability (DiClemente and Prochaska 1998). As an outcome of the revised per-spective on the concept of motivation, clinicians and researchers are attempt-ing to intervene earlier with problem drinkers and design programs to recruit and motivate unmotivated patients. Such programs are designed to address specific tasks and obstacles that arise at the different stages of change.