THE USE OF A BRIEF SOLUTION FOCUSED WRITTEN INTERVENTION AND ITS EFFECT ON CURRENT SMOKERS’ WILLINGNESS TO CONSIDER MAKING A QUIT ATTEMPT

A Thesis in
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by
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Abstract

Introduction: Many current smokers are interested in quitting smoking, but only a small proportion of those interested smokers actually make a quit attempt. Health care providers typically offer only brief advice to smokers, partly because they feel ill-equipped (lack of time and training) to provide counseling. However, studies have shown that brief advice is a less effective technique to help smokers initiate a quit attempt than motivational techniques. This study proposes testing a new brief solution focused written intervention that could easily be used by health care providers to increase patient willingness to make a quit attempt.

Methods: Participants were 63 current everyday smokers recruited from the Penn State Hershey Medical Center Surgical Waiting Room.

Measures: Participants completed a survey regarding basic demographic information, tobacco use history, importance and confidence to quit smoking, and stage of change.

Intervention: Participants were randomly assigned to the treatment or control group. Both groups received a similar brief solution focused written intervention but the treatment group’s intervention discussed becoming a non-smoker while the control group’s intervention discussed a topic not related to smoking.

Results/Findings: Overall, there were no significant differences in willingness to consider quitting smoking between the treatment and control groups. However, in a sub-sample of participants in the contemplation or preparation stage of change, treatment group participants were more likely to accept an informational brochure providing help to quit smoking (p=.0491).
**Conclusion:** This pilot study has provided preliminary evidence that a brief structured intervention asking current smokers to imagine themselves as non-smokers can be used to create willingness to accept help to quit smoking. This intervention has been tested as a written patient-completed form but should be tested as a clinician-administered conversation, with a larger population, to determine if it would be effective in clinical practice.
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The use of tobacco products in the United States remains the single largest cause of preventable death and disease. With more than 19% of Americans still smoking cigarettes, finding improved methods to help smokers quit is essential [1]. The 2014 ITC United States report found that from 2002 to 2011, approximately 27% to 40% of current smokers were interested in making a quit attempt in the next 6 months. Although a large proportion of smokers expressed interest in quitting, approximately only 8% of those smokers quit for 1 month and even smaller percent quit for 6 months [3]. There is clearly a disconnect because a large proportion of smokers express interest in quitting in the near future, but only a small portion of those interested smokers become successful quitters. One part of the problem could lie in the way that smokers are presented information about quitting smoking.

Soria et al. suggests that primary health care has been traditionally based on providing advice to smokers on the harms of their tobacco use [4]. Rubak et al. defines this as a GP-centered approach; an approach where the general practitioner defines the patient’s problem from a biomedical standpoint and gives advice based on their view [5]. Although this is the common method of treatment, research suggests that traditional brief advice may not be the most effective method to help smokers quit. A meta-analysis of 17 studies looking at brief advice for smoking cessation versus usual care, with no smoking cessation advice, found that brief advice was only 1.7 times more likely to help a smoker to quit than usual care [6].

When comparing brief advice to motivational techniques, another technique used when treating smokers, a similar result is found. A meta-analysis of 14 studies comparing brief advice to motivational interviewing found that motivational interviewing was a slightly better technique
to promote abstinence. Although the difference was only modest, these studies suggested that certain aspects, like the relationship of the provider and patient, can greatly influence the outcome[7]. However, some studies have found motivational interviewing to be very successful. In a study by Soria et al., participants in the brief advice condition received short anti-smoking advice on the dangers of smoking and the benefits of quitting and participants in the motivational condition received multiple counselling sessions of a motivational nature including talking about the patients desire to change. It was found that those in the motivational condition were 5.28 times more likely to be abstinent at 6 and 12 months, compared to those who only received brief advice [4].

Since motivational interviewing can be very time consuming and health care providers are only able to spend a short amount of time with each patient, Butler et al. designed a study to compare a shortened version of motivational interviewing, called motivational consulting, to brief advice. In this study, brief advice consisted of the following statement, “Smoking is an extremely serious matter. Apart from lung cancer, smoking can damage your health in many other ways. If you give up now, a lot of the harm can be undone. It is my professional duty to tell you that you must give up smoking in the interests of your future health.” Motivational consulting consisted of “encouraging the patient to identify arguments for change or the attainable steps for quitting”. At 6-months following the interventions, 40.2% of participants who received the brief advice intervention had made a quit attempt while 47% of participants who received the motivational consulting intervention had made a quit attempt.

If research shows that motivational techniques may be more successful in eliciting change than providing brief advice, it is important to understand why one technique is superior to the other. Britt et al. suggests that brief advice on the harms of smoking may be a less beneficial
technique because it can cause a non-constructive disagreement between the patients and providers. If the health care provider focuses their advice and treatment only on the benefits of quitting smoking and they do not address the barriers the patient may face while trying to quit, the patient may feel misunderstood [8]. Since we understand that the relationship between the patient and provider is very important, non-constructive disagreement is very concerning. In addition, a study by Bulter et al. showed that many smokers were skeptical that advice given by doctors would influence their smoking habits. The smokers in this study felt that they already understood the harms of smoking and that quitting was ultimately up each individual smoker. For a smoker who already understands the harms of smoking and understands that the smoker is the one controlling the quit attempt, a health care provider reiterating why the smoker should quit is not helpful [9]. These aspects of brief advice could be creating the disconnect between the number of smokers interested in quitting smoking and the number of smokers who make an attempt to quit smoking.

Motivational interviewing and motivational consulting are designed to be patient-centered, which could contribute to these techniques successfulness. Instead of the traditional one-way direction of information from provider to patient that brief advice employs, a patient-centered approach creates a two-way dialogue that allows the patient to share their experiences and knowledge [10]. A patient-centered approach can be feasible solution to the issue of non-constructive disagreement mentioned above. If the health care provider realizes that the smoker has some knowledge about the harms of smoking, they can spend time talking about the smoker’s individual concerns about quitting. Allowing the patient to steer the direction of conversation will make the patient feel more understood and less resistant towards the advice provided.
Although many studies have examined the use of motivational interviewing or motivational consulting in a smoking cessation context, the use of Solution-Focused Therapy (SFT), a similar technique, has not been studied in a smoking population. SFT is a patient-centered counselling technique designed to help patients identify solutions to their problems, rather than focusing on the problem [11-13]. An integral part of SFT is the miracle question. The miracle question asks patients to imagine that a miracle has happened overnight and that when they wake up in the morning, the problem they sought treatment for had been resolved. Then, the patient is asked to think about the differences they would notice without the problem in their life [11, 14, 15]. This question allows the patient to “develop a specific and elaborated vision of what their lives would be like in the absence of the problem [16].” Greenberg et al suggests that merely posing this question and allowing reflection will facilitate change [11].

Solution-Focused Therapy and the miracle question have been successful in therapeutic settings but the effectiveness of the intervention relies on the provider. De Jong and Berg suggest that one of the biggest problems with the miracle question is that its delivery depends on the counselor; the counselor needs to be a good listener and remain unbiased, which can prove to be difficult [17]. Since primary health care providers are most likely to have contact with smokers, with more than 70% of smokers seeing a provider each year [18, 19], these health care providers may have the best opportunity to provide smoking cessation treatment, however, they are not trained as counselors. As Ockene et al. suggests, although primary care doctors find it important to tell smokers that quitting smoking will benefit their health, many doctors feel uncomfortable with providing that level of counselling. Because these care providers can feel ill-equipped to provide counselling due to training and time constraints, only 50-60% of smokers receive advice to quit smoking during a visit [20].
Since smoking cessation care could be provided by primary health care providers, but most of these providers are uncomfortable providing counselling, the current study designed a structured three question intervention, based on the principles of SFT, as a potential solution to problem. It is hypothesized that this short, structured, written intervention will increase willingness to consider making quit attempt, measured by a change in an importance and confidence to quit smoking and acceptance of an informational brochure with help to quit smoking. If successful, this short-structured intervention could be used by primary health care providers as a standard treatment for all smokers who enter their practice.
Chapter 2 - Methods

Recruitment and Screening:
All study participants were recruited from the Penn State Hershey Medical Center Surgical Waiting room. Potential participants were approached by the researcher and asked if they would be willing to be screened for a research study. Screening consisted of answering basic questions about age, current cigarette smoking habits, and importance and confidence to quit smoking. Participants were deemed eligible for the study if they were 18 years of age and an everyday cigarette smoker.

Randomization/Design of the Intervention:
Eligible participants were randomized, following a computer-generated randomization code, to the treatment or control group. The treatment group intervention was designed based on the principles of solution-focused therapy [11]. The treatment intervention consisted of a series of questions, beginning with the miracle question: 1) Imagine that while you are sleeping tonight, a miracle happens. You wake up tomorrow morning and you are a non-smoker…What differences would you notice? 2) If you were ever successful in becoming a non-smoker in the past, what helped you to achieve that? 3) What would you have to change in your current situation for you to become a non-smoker? The control group responded to similar questions, but instead of imagining themselves as a non-smoker, they imagined themselves being wealthier.

Measures:
Basic demographics: Participants were asked to self-report their current age, gender, marital status, educational attainment, employment status, race, and ethnicity.
Tobacco use history: Participants were asked to self-report the number of cigarettes smoked per day, the number of years using tobacco, and the number of quit attempts. The Fagerstrom Test for Nicotine Dependence [21] was used to measure nicotine dependence.

Stage of Change: Stage of change was measured using one question: Which one statement best describes your current situation? a) Preparation stage: I am interested in quitting smoking/tobacco use in the next 30 days and I would be interested in any assistance I could get, b) Contemplation stage: I am seriously considering quitting smoking/tobacco use in the next 6 months, but not in the next 30 days, or c) Pre-contemplation stage: I am not seriously considering quitting smoking/tobacco use in the next 6 months. Participants who indicated interest in quitting smoking/tobacco use in the next 30 days or next 6 months were considered interested in quitting smoking [22].

Willingness to consider making a quit attempt was measured by the following items:

1. Importance and Confidence to quit smoking: Importance and confidence to quit smoking were assessed using two questions, on a scale of 1(not at all) to 10(extremely), “How important is it to you to stop tobacco use now?” and “How confident are you that you will succeed in stopping your tobacco use now? [23]” These questions were asked during the screening process and in the survey to get a pre-intervention and post-intervention value.

2. Acceptance of informational brochure: To measure the behavioral aspect of willingness to consider quitting smoking, an informational brochure was placed on the survey clipboard and the researcher recorded whether or not the brochure was accepted by the participant. The brochure contained information on how to quit, important facts about tobacco use, the medications that can be used to aid a quit attempt, and phone numbers to call for counselling and support. In
addition, this brochure included a to-do list that asked participants to write down a quit date and to ask friends and family for their support. The brochure was not mentioned to the participants, but if the participants asked a question about the brochure, the researcher remained neutral and explained that it was the participant’s choice to keep the brochure or to hand it back the researcher.

**Data Analysis:**

All analyses were performed using SAS version 9.3. Chi-square analysis was used to determine differences between categorical variables and two sided t-tests were used to determine differences between the means of continuous variables. Study data was collected and managed using REDCap (Research Electronic Data Capture) electronic data capture tools hosted at the Penn State Hershey Medical Center and College of Medicine. This study was approved by the Penn State Hershey Institutional Review Board.
Chapter 3 – Results

315 participants were approached by the researcher to complete the screening questionnaire, 273 (86.7 %) participants completed the screening questionnaire, and 66 (24.2 %) participants were deemed eligible for the study. Of the 66 eligible participants, 63 (95.5 %) agreed to complete the intervention. Participants were ineligible if they were not 18 years of age or older or not a current every day smoker.

Basic demographic and smoking characteristics of the study population are presented in Table 1. At baseline, there were no significant differences between the treatment and control groups. Although not significant, participants in the control group found quitting more important and were also more confident in their ability to quit at baseline.

Table 1 – Baseline demographic characteristics for entire sample, overall and by treatment group.

<table>
<thead>
<tr>
<th></th>
<th>Overall (n=63)</th>
<th>Treatment group (n=37)</th>
<th>Control Group (n=26)</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Age</td>
<td>44.2</td>
<td>44.4</td>
<td>44.0</td>
<td>.9087</td>
</tr>
<tr>
<td>% female</td>
<td>66.7</td>
<td>64.9</td>
<td>69.2</td>
<td>.7174</td>
</tr>
<tr>
<td>% married</td>
<td>50.8</td>
<td>51.4</td>
<td>50</td>
<td>.9159</td>
</tr>
<tr>
<td>% college degree</td>
<td>23.8</td>
<td>29.7</td>
<td>15.4</td>
<td>.1881</td>
</tr>
<tr>
<td>% in full-time employment</td>
<td>65.1</td>
<td>62.2</td>
<td>69.2</td>
<td>.5623</td>
</tr>
<tr>
<td>% white</td>
<td>95.2</td>
<td>97.3</td>
<td>92.3</td>
<td>.3599</td>
</tr>
<tr>
<td>Mean Fagerstrom Score</td>
<td>4.7</td>
<td>4.5</td>
<td>4.8</td>
<td>.5502</td>
</tr>
<tr>
<td>Mean cigarettes per day</td>
<td>14.3</td>
<td>14.3</td>
<td>14.2</td>
<td>.9630</td>
</tr>
<tr>
<td>% Interested quitting smoking in next 6 months</td>
<td>64.5</td>
<td>58.3</td>
<td>73.1</td>
<td>.2312</td>
</tr>
<tr>
<td>Number of lifetime quit attempts</td>
<td>5.3</td>
<td>5.8</td>
<td>4.5</td>
<td>.5842</td>
</tr>
<tr>
<td>Mean Importance to quit smoking (baseline)</td>
<td>5.8</td>
<td>5.4</td>
<td>6.1</td>
<td>.2717</td>
</tr>
<tr>
<td>Mean Confidence to quit smoking (baseline)</td>
<td>4.5</td>
<td>4.2</td>
<td>5.0</td>
<td>.2600</td>
</tr>
</tbody>
</table>
Analyses of the primary outcome variables are presented in Table 2. Overall, there was no significant difference in willingness consider making a quit attempt between the treatment and the control group. While importance to quit smoking slightly increased in the treatment group, the difference was not significant between the groups (p=.4666). Similarly, there was no significant change found in confidence to quit smoking between the groups (p=.7528). In addition, a similar proportion of smokers in each group accepted the informational brochure (p=.5638).

Table 2 – Outcome measures for entire sample, overall and by treatment group

<table>
<thead>
<tr>
<th></th>
<th>Overall (n=63)</th>
<th>Treatment group (n=37)</th>
<th>Control Group (n=26)</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean change in Importance to quit smoking from baseline to post-intervention</td>
<td>.04</td>
<td>.16</td>
<td>-.12</td>
<td>.4666</td>
</tr>
<tr>
<td>Mean change in confidence to quit smoking from baseline to post-intervention</td>
<td>-.06</td>
<td>-.03</td>
<td>-.12</td>
<td>.7528</td>
</tr>
<tr>
<td>% accepting informational brochure</td>
<td>61.9</td>
<td>64.9</td>
<td>57.8</td>
<td>.5638</td>
</tr>
</tbody>
</table>

However, in a sub-sample of the population, a group of smokers in the contemplation or preparation stage of change, there was a significant difference was found in the number of participants who accepted the informational brochure. In the control group, 57.9% of participants accepted the brochure while 85.7% of the treatment group accepted the brochure (p=.0491). These results are presented in Table 3.
Table 3 – Outcome measures for sub-sample of participants in contemplation or preparation stage of change

<table>
<thead>
<tr>
<th></th>
<th>Treatment group (n=21)</th>
<th>Control Group (n=19)</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mean Age</strong></td>
<td>42.7</td>
<td>43.7</td>
<td>.7725</td>
</tr>
<tr>
<td>% female</td>
<td>71.4</td>
<td>79.0</td>
<td>.5834</td>
</tr>
<tr>
<td>% married</td>
<td>57.1</td>
<td>52.6</td>
<td>.7746</td>
</tr>
<tr>
<td>% college degree</td>
<td>38.1</td>
<td>21.1</td>
<td>.2402</td>
</tr>
<tr>
<td>% Full-time employment</td>
<td>66.7</td>
<td>68.4</td>
<td>.9058</td>
</tr>
<tr>
<td>% white</td>
<td>95.2</td>
<td>94.7</td>
<td>.9421</td>
</tr>
<tr>
<td><strong>Mean Fagerstrom Score</strong></td>
<td>4.5</td>
<td>5.0</td>
<td>.4496</td>
</tr>
<tr>
<td>Mean cigarettes per day</td>
<td>13.6</td>
<td>14.3</td>
<td>.7581</td>
</tr>
<tr>
<td>Number of lifetime quit attempts</td>
<td>4.9</td>
<td>5.1</td>
<td>.7745</td>
</tr>
<tr>
<td><strong>Mean Importance to quit smoking (baseline)</strong></td>
<td>6.5</td>
<td>6.5</td>
<td>.9430</td>
</tr>
<tr>
<td><strong>Mean Confidence to quit smoking (baseline)</strong></td>
<td>4.9</td>
<td>5.1</td>
<td>.7745</td>
</tr>
<tr>
<td>Mean change in Importance to quit smoking from baseline to post-intervention</td>
<td>.33</td>
<td>-.31</td>
<td>.1521</td>
</tr>
<tr>
<td>Mean change in confidence to quit smoking from baseline to post-intervention</td>
<td>-.10</td>
<td>.05</td>
<td>.6281</td>
</tr>
<tr>
<td>% accepting informational brochure</td>
<td>85.7</td>
<td>57.9</td>
<td>.0491</td>
</tr>
</tbody>
</table>
Chapter 4 – Discussion

This study successfully tested a brief structured intervention designed to increase willingness to consider making a quit attempt in a population of current everyday smokers. Although overall there were no differences in willingness to make a quit attempt between the treatment and control groups, a significant difference was found in a sub-sample of the population that was interested in quitting smoking in the next 6 months. In this sub-sample, smokers in the treatment group were more likely to accept an informational brochure with help to quit smoking than the smokers in the control group.

The comparison of the treatment and control interventions and groups are very important to the interpretation of the results. The control intervention was designed using the same structure as the treatment intervention, however, the questions in the control intervention did not include any mention of smoking. It was important to have a control comparison group so that changes in willingness to make a quit attempt could not be attributed to simply receiving any kind of solution focused intervention, not specific to smoking behaviors. In the sub-sample of participants contemplating or preparing to make a quit attempt, participants in the control group accepted the informational brochure significantly fewer times than those in the treatment group. This result means that solution focused therapy specifically targeted at smoking behaviors is more effective at creating willingness to consider making a quit attempt than solution focused therapy targeted at other behaviors.

In addition, though there were no significant differences between treatment and control groups at baseline, the control group found quitting smoking more important and they were more confident in their ability to quit smoking, compared with the treatment group. This result
confirms that completing the treatment intervention influences whether or not participants are willing to consider making a quit attempt. If importance and confidence to quit smoking were driving the behavior of accepting the informational brochure, then it would have been expected that more participants in the control group would accept the brochure since they rated quitting more important and they were more confident in doing so. However, it was found that participants completing the treatment intervention, those who had lower baseline importance and confidence to quit smoking, were more likely to accept the informational brochure with help to quit smoking.

The findings from this study are important because they provide information on a new intervention that can be used to help treat smokers interested in quitting. If the treatment intervention, a series of solution focused questions asking the participant to imagine themselves as a non-smoker, can make a smoker more willing to accept a brochure helping them to quit smoking then there is good evidence that these questions could be incorporated to standard treatment for smokers. Since this study was a pilot study, testing a new intervention, these questions were administered to participants on paper. In clinical practice, these questions could be asked in sequence by the health care provider to facilitate a conversation.

As discussed earlier, non-constructive disagreement can occur when providers talk to patients about the harms of smoking. This can occur because the patient already understands that smoking can be bad for their health and the provider’s advice can lead to the patient feeling like the provider is in control and they are being told what to do [8]. This study suggests instead of brief advice, providers could ask the series of solution focused questions detailed in this study. Instead of making the patient feel like the provider is in control, this series of questions are designed to let the patient take the lead. The patient is asked to discuss what would be different
in their life if they quit smoking and to think about the things that would need to change for that to happen. The provider’s role would be to ask the questions and reflect on what the patient has explained. If the provider is able to make the patient feel understood, then non-constructive disagreement will be avoided and a relationship between the provider and patient can be built.

Conducting a patient visit using this series of solution focused questions versus traditional brief advice on the harms of smoking could offer many benefits. First, as discussed above, a relationship between the patient and the provider would be built. Second, it can be time-saving. The series of questions ask the patient to identify barriers to quitting smoking so the provider does not need to make assumptions about the patient or guess about what might help the patient to quit; the patient will tell the provider what will help. Last, this series of questions provides a template for the conversation between the patient and health care provider. Since it is known that most providers are not comfortable providing counselling, this intervention offers a guide for the traditionally uncomfortable conversation. The provider simply needs to ask the questions to the patient and reflect on what the patient has to say.

Although the results of this study provide insight into a new way to help smokers interested in quitting, there are several limitations. The first limitation of the study was the timing of the intervention and outcome measures. In the overall population, differences in changes to importance and confidence to quit smoking between the treatment and the intervention group were not found. Since the study was a pre-test post-test design, participants were asked to rate importance and confidence to quit smoking at two occasions, before and after the intervention. Even though the responses to the pre-test were collected after participant completion and the participants were not able to see their responses, most participants indicated the same rating for importance and confidence to quit smoking before and after the intervention.
This could be due to the fact that the participant could remember their ratings or it could be because the intervention had no effect on importance or confidence to quit smoking.

Another limitation of the study was the small sample size. Since this study was completed as a pilot study, only a small number of participants were recruited to complete the survey. With more resources, more research using the same intervention in a larger population would be needed to further validate the results of the study. In addition, the treatment and control groups had a varying number of participants due to a change in the recruitment plan during the study.
Chapter 5 - Conclusion

This pilot study has provided preliminary evidence that a brief structured intervention asking current smokers to imagine themselves as non-smokers can be used to create willingness to accept help to quit smoking. This intervention has been tested as a written patient-completed form but should be tested as a clinician-administered conversation, with a larger population, to determine if it would be effective in clinical practice.
References


