Utilizing Technology in a Randomized Pilot Study for a Smoking Cessation Intervention: An Innovative Approach Using SMS Messaging Systems

Elise Garcia, McNair Scholar, Psychology Major
Dr. Elliot Berkman, Faculty Mentor, Psychology Department (University of Oregon)

ABSTRACT

Objective: Previous randomized controlled trials of Short Message Service (SMS) technology in smoking cessation interventions have been proven to be effective. Upon the completion of our pilot study, we will investigate the combined effects of delivering self-help SMS text messages with candidate that rate < 5 on the Contemplation Ladder attention to quit than an natural-based setting.

Method: A sample of (N=60) adult smokers from the Eugene Community intending to quit will come in our lab for two sessions (baseline and follow-up) where psychological tests and self-reports will be conducted. Participants will be allocated to one of three conditions groups where they will be sent text messages per day for four weeks.

Hypothesized Results: Our results showed significant positive outcomes. In addition, over forty participants from the self-generated group reported a drastic reduction of cigarette smoking than the control group. Subjects from the self-generated implementation condition reported a slight increase in self-efficacy over participants in the self-generated condition.

Discussion: This findings demonstrate the efficacy of SMS-text messaging in a smoking cessation intervention conducted under natural-based settings.

INTRODUCTION

Various randomized controlled trials of Short Message Service (SMS) technology in smoking cessation interventions have been tested for effectiveness in professional institutional settings. Upon reviewing the available literature reviews, we were able to conclude the efficacy of utilizing interactive text-based SMS technology which is particularly effective in aiding participants in real-world settings. Specifically, the focus of this study is on smoking cessation using SMS messaging intervention. Subjects who are intending to overcome their nicotine addiction will be sent six SMS text messages for one month. After one month, participants were invited for their follow-up session.

METHODOLOGY

Ninety-three potential participants were recruited from the Eugene community. Various marketing methods were exercised. Among these methods, flyers were posted on local bus stations, public light polls, department stores and public posting boards. The most fruitful method of recruitment was the posting of an ad on a local newspaper. Approximately one hundred and fifteen potential participants replied to the SafeGuard. Furthermore, nineteen of these potential participants did not respond to the ad due to disconnected number. Fifty-seven of the ninety-seven potential participants who received a reply from our ad proceeded to schedule an initial 20-45min telephone screening session. Subsequently, twenty participants consented to the initial session. Lastly, an incentive was allotted for the amount of 20 dollars. Participants were sent six SMS text messages for one month. After one month, participants were invited for their follow-up session.

LITERATURE REVIEW

Current studies suggest almost half a million tobacco users die each year from tobacco related illnesses; excluding the death rates in evolving countries. Consequently, nicotine addiction is the number one leading cause of preventable deaths worldwide (Spring, Pintugore, McCluggage, 2003).

Current Interventions

The wide variety of smoking cessation interventions are steadily increasing in large numbers. Some of these costly interventions include: acupuncture, inhalers, nicotine patches, nicotine gum, pharmaceutical pills, guided imagery, and other cognitive strategies used to regulate persistent cravings (Kouwen et al., 2012). Many of which are ineffective and/or inaccessible to the low-income population; this may help explain the unexpected plateau in the rate of adult smokers looking to quit (Carry, Grothaus, & McBride, 1997).

Indeed, effective and inexpensive smoking cessation programs are needed to reach the low and medium-income population. Importantly, an innovative smoking cessation program involves the use of cell phone short-message-service and is necessary to target the two confounding variables that impede valuing messages from smoking professional help. The usage of SMS text messages are growing rapidly among both culturally diverse and low-income populations.

The systematic use of SMS texts allow the experimenter to simultaneously treat and communicate with any subgroup from virtually any location (Feldtose, Marshall, & Miller, 2009). Importantly, it allows the experimenter to receive instant personalized feedback. This flexible response acquisition can be used to enhance the efficacy of future interventions.

Over the last decade, numerous randomized control trials have been undertaken to test the efficacy of cell phone technologies for smoking cessation interventions among college-aged students and adults. In New Zealand, almost two thousand smokers were recruited for participation in a smoking cessation intervention. Young adults were the intended sub-group population for the implementation of this intervention. The subjects were randomly assigned to one of three intervention groups.

Participants were sent five “quit-smoking” intended text messages per day for the first four weeks of the intervention. Later, the quantity of the encouraging text messages were decreased to three texts messages per week, upon the completion of the first thirty days for the remaining five months. The initial follow-up session was undertaken after the first six weeks and secondary follow-up session was concluded after twenty-six weeks (Rodgers et al., 2005).

One recent literature review assessed several studies for high self-report efficacy and other criterion. A total of thirty-three pilot studies were evaluated for both effective behavioral outcomes and feasible treatment models. This literature review explored only one type of intervention, the usage of SMS-text messaging. In this investigation, slightly more than a dozen of the thirty-three studies were proven to have feasible positive outcomes. Moreover, only four of the dozen reviews actually pertained to smoking cessation interventions.

FURTHER RESEARCH

Previous limitations were addressed in our pilot study. Hence, results from our pilot study will yield fruitful modifications and positive outcomes to future studies. Short-term self-efficacy and intentions to quit were established in the self-generated implementation intentions group. However, longitudinal studies need to conducted to test the long-term efficacy of this study.

CONCLUSIONS

Current Status

Approximately thirteen smokers (M=10,F=3) between the ages of 25-54 are currently participating in our 30 day SMS smoking cessation program. All participants will terminate the program in the following week. Since our current messaging generating system QUITJUICE, can only generate texts messages to thirteen participants at one time, further proactive recruitment will be required. As research assistant, I will be in charge of screening and scheduling the follow-up group of thirteen, until the total number of participants have been met.

Hypothesized Results

In our upcoming study, the 30 days, 30 day reports and physiological tests samples from current and prospective participants will be collected and analyzed. We hope to conclude the efficacy of our smoking cessation study by utilizing SMS technology in a natural-based settings. Secondly, smokers with strong intentions to quit in the self-generated implementation intentions group will be compared to the self-generated condition group. Promising findings will depict a noticeable change between the self-generated implementation intentions group and self-generated group. Implementation intention group will have lower cotinine levels and increases in self-efficacy. This will confirm the efficacy of our pilot study.

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