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Efficacy and satisfaction of a smoking cessation telephone counseling service provided by pharmacy students

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Conflict of Interest:

Both authors of the manuscript have no conflict of interest to disclose.

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Key words: smoking cessation; tobacco dependence; telephone counseling; pharmacy student; quitline

Abstract

Objective: This was a prospective, research survey assessing patient satisfaction and efficacy of the smoking cessation telephone counseling service provided by pharmacy students at the University of Illinois Hospital.

Methods: From September 2012 through May 2013, 82 patients received telephone counseling post hospital discharge and were followed up at 30 days for a telephone survey. Primary outcomes included improvement in stages of change, motivation and confidence levels in quitting tobacco, as well as patient satisfaction of the service. Secondary outcomes included self-reported continuous and point prevalence abstinence rates at 30 days.

Results: Eighteen patients completed the survey. There was no significant difference before and after the service with regards to the stage of change ($p = 0.14$), motivation levels ($p = 0.80$) nor confidence levels ($p = 0.89$) to quit tobacco. Majority of patients felt the duration of the call was just nice (83.3%), but having only one call was too little (77.8%). Overall satisfaction of the service was 83.1%. Self-reported continuous and point prevalence abstinence rates at 30 days were 16.7% and 22.2%, respectively.

Conclusion: Although there was no statistically significant improvement in the stages of change, motivation and confidence levels to quit smoking, patients were highly satisfied with the telephone counseling service provided by pharmacy students.

Introduction

Cigarette smoking is the leading cause of preventable death in the United States, accounting for approximately 480,000 deaths each year.¹ It has been associated with cancers, cardiovascular diseases, stroke, chronic obstructive pulmonary disease (COPD), and other medical conditions.² It was reported in 2010 that about 70% of current smokers wanted to stop smoking completely and 52.4% had made a quit attempt, but only 6.2% were successful in quitting.³ Several smoking cessation interventions such as intensive individual or group counseling, telephone counseling, behavioral therapies and use of smoking cessation medications have shown to be effective in improving quit rates; however, majority of smokers quit without using these interventions, which may partly explain the low success rates.

There are two approaches to telephone counseling for smoking cessation, namely, proactive and reactive telephone counseling. Proactive telephone counseling occurs when the counselor initiates the call to assist patients with quitting smoking. Conversely, reactive telephone counseling refers to the availability of telephone counseling services when patients call the counselors for help to quit tobacco. A Cochrane review evaluating telephone counseling for smoking cessation showed that proactive telephone counseling in addition to an initial counseling session increases the chances of quitting by 20 to 40%.⁴ Another review reported that proactive telephone counseling as an adjunct to minimal interventions such as giving out educational materials was more effective than minimal interventions alone, with a 4% increase in mean quit rates.⁵

At the University of Illinois (UI) Hospital, a proactive, interdisciplinary approach is adopted for the telephone counseling service for smoking cessation. Patients admitted to the hospital are screened by the admitting nurse for a history of tobacco use and readiness to quit smoking. Once identified, patients are provided with brief counseling by the nurse, an educational package on quitting smoking, a flyer with the number to call the tobacco cessation clinic at the UI, and the state telephone quitline number. The nurse then refers the patients to the UI tobacco cessation service for a telephone consult. Tobacco cessation medications may be initiated in the hospital and provided at discharge at the discretion of the physician caring for the patient. Follow-up calls within a month post-discharge from the hospital are made by third year pharmacy students to assess the patients' progress in their quit tobacco attempts and to provide tobacco cessation advice as necessary.

Providing telephone counseling after discharge from the hospital is likely to increase a patient's motivation and confidence to quit smoking. Involving pharmacy students in providing tobacco cessation services has been explored in inpatient, outpatient and community pharmacy settings.^{6,7} Pharmacy students may assess the smoking status of each patient, gauge the patient's readiness to quit, and provide brief tobacco-cessation education and treatment recommendations to those who smoke. This not only gives pharmacy students an opportunity to interact with patients and improve their counseling skills, but also allows the expansion of tobacco cessation services under the supervision of a clinical pharmacist. The main objective of this study is to assess the patients' satisfaction with the UI telephone counseling service run by pharmacy students and to evaluate the efficacy of the service.

Methods

Study Design

This was a prospective, research survey conducted at the UI Hospital. The UI Hospital is a 485 bed tertiary care center serving primarily patients receiving public assistance. The study was approved by the institutional review board.

Telephone counseling was provided by year three pharmacy students from the UI as part of a clinical experience elective. To participate in this elective, the students had to have completed a two hour, semester-long tobacco cessation elective in their second year, where they learned about reasons why people smoke, the Transtheoretical Model of Change, pharmacotherapy used to treat tobacco dependence, motivational interviewing and treatment of tobacco dependence in special populations. Additional

training was also provided prior to starting the elective where the students were given the opportunity to shadow a clinical pharmacist at the outpatient tobacco cessation clinic. The students were expected to spend at least 2 to 4 hours each week on the elective, with a minimum of 4 tobacco cessation consults completed per week.

Baseline smoking-related behaviors such as cigarette consumption per day, number of years using tobacco products, previous quit attempts, and time to first cigarette after awakening, were obtained through interview by the telephone counselor. In addition to the standard counseling, patients' motivation and confidence levels in quitting smoking, and current stage of change⁸ were determined. Table 1 lists the interview questions used during the telephone counseling session, and the five stages of change in accordance to the Transtheoretical Model. During the telephone counseling session, the students attempted to identify any barriers and challenges to quitting smoking, develop a behavioral-based trigger plan for the patient, and make recommendations on possible use of tobacco dependence treatment medications.

After the telephone counseling session, patients were asked if they would be interested in participating in the survey. A cover letter, an informed consent form, and a set of survey questions were sent by mail to patients who expressed interest in the survey. The survey was conducted approximately 30 days after the telephone counseling session over the phone by an independent investigator other than the telephone counselors. Verbal consent was obtained from the patients prior to administering the survey. In order to improve the response rates of the survey, patients were informed that they were eligible to win a \$100 gift card after completing the survey, through a randomized drawing.

Patient Eligibility

Patients were included in the study if they were at least 18 years of age, referred to the UI tobacco cessation service from September 2012 to May 2013, and had received at least one telephone counseling session. Patients who were not able to be contacted when called once by the telephone counselor, refused the telephone counseling session, did not smoke cigarettes, discharged to jail or a long term care facility, or were unable to understand and speak English were excluded from the study.

Outcome Measures

The primary outcome was the impact of the telephone counseling session on the patients' quit attempt, including improvement in stages of change, motivation and confidence

levels in quitting smoking. In addition, the patients were surveyed on their satisfaction of the UI telephone counseling service in terms of the timing, duration and frequency of calls, as well as the content of the telephone counseling session. Secondary outcomes included patients' self-reported continuous and point prevalence abstinence rate at 30 days. Patients were considered to be continuously abstinent only if they reported not having smoked since the telephone counseling session.

Data Analysis

Continuous variables were analyzed using the Wilcoxon signed rank test, while categorical variables were analyzed using the Chi square test (IBM SPSS Statistics 21). Survey results were reported using simple descriptive statistics.

Results

Baseline demographics

A total of 271 patients who were admitted to the UI Hospital from September 2012 to May 2013 were referred to the tobacco cessation service. Eighty-two patients were contacted successfully post discharge from the hospital and received a telephone counseling session on tobacco cessation. As survey participation was voluntary, 37 patients agreed to a follow-up survey 30 days after the initial telephone counseling session. Eighteen patients completed the survey, while the remaining patients were either lost to follow-up or refused to do the survey. The baseline demographics of the patients are presented in Table 2.

Primary Outcomes

There was no significant difference in the stages of change ($p = 0.14$; Figure 1), median motivation levels (9.0 versus 9.5; $p = 0.8$), and median confidence levels (8 versus 8; $p = 0.89$) before and after the telephone counseling session.

The patient satisfaction survey questions and results are presented in Table 3. With regards to the duration and frequency of the telephone counseling sessions, 83.3% of the patients felt that the duration of the session was just nice, while 77.8% felt that having only one telephone counseling session was too little to help them quit smoking. The majority of patients rated the telephone counselors well with scores between 4 and 5 on educating them on the benefits of and addressing their concerns about quitting smoking, providing them a brief trigger plan and informing them about the use of medications to quit smoking. Overall, 66.6% of patients felt that the information provided during the session was useful to extremely useful. In addition, 77.7% of patients felt that the telephone counselors were encouraging to extremely

encouraging in motivating the patient to quit smoking, while 83.3% were satisfied to extremely satisfied with the service.

Secondary Outcomes

After 30 days of follow-up, the patients' self-reported continuous and point prevalence abstinence rates were 16.7% and 22.2%, respectively.

Pharmacy Students' Involvement in the Telephone Counseling Service

There were a total of 6 pharmacy students providing smoking cessation telephone counseling during the period of the study. At the beginning of the semester, the clinical pharmacist in charge of the service worked out a schedule with the pharmacy students to provide the service during their non-class hours but within the usual business hours. Having a schedule also minimized having multiple students working at the same time in view of the limited resources including telephone lines and computers.

The clinical pharmacist assessed each student's competency in providing smoking cessation counseling before allowing them to work independently. Each student was asked to gather pertinent patient information including laboratory results, past medical history, smoking history, complete social history, medication list and insurance information in order to recommend treatment that was appropriate for the patient. During the counseling session, the clinical pharmacist would observe how the student gave smoking cessation advice over the phone and provide feedback as necessary. Once the student was deemed competent in providing smoking cessation counseling by the clinical pharmacist, he/she would be able to provide the service independently. Documentation of the smoking cessation counseling sessions performed by the students in the patients' hospital electronic records would be forwarded to the clinical pharmacist for review. The clinical pharmacist also met with the students once a month to provide feedback on their performance as well as find out if they were facing any difficulties during the counseling sessions.

The students spent an average of 31 minutes on each patient, including an average of 12 minutes on initial research of patient information, 12 minutes on actual counseling of patient over the phone, and 7 minutes documenting the session. As the students counselled 82 patients during the period of study, this translates to a saving of 2542 minutes of the clinical pharmacist's time. This does not account for the time taken by the students' multiple attempts to call other patients who were not contactable, and excludes the time spent by the clinical pharmacist to train the students.

Discussion

The study showed no significant differences in patients' stages of change, motivation and confidence levels in quitting smoking after the telephone counseling session. Of the 18 patients that completed the survey at 30 days, 16.7% were continually abstinent while the point prevalence abstinence rate was 22.2%. This was lower compared to another study conducted by Myung *et al* who investigated the short-term effectiveness of a proactive quitline service in Korea and reported a continuous abstinence rate of 38.3% at 30 days follow-up.⁹ However, patients received 7 telephone counseling sessions in that study. According to a previous Cochrane meta-analysis on telephone counseling for smoking cessation, there is a significant association between the number of calls and quit rates.⁴ In 9 trials providing only 1 to 2 calls, the effect on smoking cessation was small and not significant, while there were significant benefits found in studies providing 3 or more calls. Given that the patients only received one telephone counseling session, this may in part explain the lower abstinence rate in this study. The survey also revealed that 77.8% of patients found having only one counseling session as being too little to help them quit tobacco.

There were several limitations in this study. One limitation of the study was the small sample size (n=18), which decreased the sensitivity of the study to detect significant effects of the telephone counseling service. As the study was voluntary in nature, many patients chose not to participate in the study. For patients who initially expressed interest in the survey, only about 50% were eventually enrolled in the study. The remaining patients either were not able to be contacted or refused to participate in study, citing reasons such as lack of time or interest in the study. Secondly, there is potential for selection bias due to enrollment of study participants from UI Hospital rather than the general population as they may be more motivated to quit smoking in view of their recent hospitalization. In addition, patients who agreed to have a second follow-up call for the survey may have higher motivation levels to quit smoking than those who refused to participate in the study. Lastly, our study did not pursue reasons for those patients who had a decrease in motivation and confidence levels after the telephone counseling session. Further inquiry is warranted as it would provide us with better insight on how to improve our service.

Despite its limitations, this study demonstrated a role for pharmacy students in helping patients with tobacco cessation. Providing telephone counseling for smoking cessation has been shown to be beneficial in many studies⁴⁻⁷, but it may be too time-consuming and labor-intensive for

clinical pharmacists to perform on top of their daily responsibilities. In this study, the students spent an average of 31 minutes on each patient, including the time taken for initial research of patient information, actual counseling, and documentation of the counseling session. Given the large number of referrals for the smoking cessation counseling service, it will be difficult to provide the service with only one clinical pharmacist due to time constraints. Having pharmacy students conduct telephone counseling with the clinical pharmacist overseeing the service may be a solution to this issue.

In addition, the elective provides a valuable opportunity for pharmacy students to gain experience interacting with and counseling real patients, which cannot be learned in the typical classroom setting. The students' feedback on the elective is generally positive. There may be initial concerns about pharmacy students' ability to educate and counsel patients about smoking cessation, but this may be overcome by having the students complete the prerequisite course, observe at the smoking cessation clinic, and be assessed on their competency to counsel patients by the clinical pharmacist before working independently. The survey also showed that the majority of the patients rated the pharmacy student counselors highly on their abilities to provide information and motivate them to quit smoking.

Future Recommendations

Based on the feedback provided by the patients, there are several possible improvements that can be made to the telephone counseling service. First, the number of telephone counseling sessions should be increased to improve confidence and quit rates. Second, the duration of the service should be extended beyond a month to provide longer support to patients attempting to quit tobacco. Finally, more pharmacy students should be encouraged to participate in similar tobacco cessation counseling services as part of a clinical experience elective as this study has shown that they can be a valuable resource to provide tobacco cessation education to patients.

Since this study has been conducted, the UI Tobacco Treatment Center counseling service now has the third year pharmacy students who have completed the elective course work during the second year, go to the hospital and provide in-person consults. This change has significantly increased the number of consults completed per week to approximately ten consults per week. The number of patients started on treatment while in the hospital and upon discharge has also significantly increased with the inpatient consults. The number of students interested in the elective course-work

has increased and consults are provided most days of the week. Language is no longer a barrier with the hospital video interpreter network. Although satisfaction with the service has not officially been measured, counselors report the majority of patients and health care providers thankful for the consult. Future plans for the consult service will evolve with the changing curriculum at the University of Illinois at Chicago College of Pharmacy. Tobacco dependence will be taught during the first year of pharmacy school starting in 2016 and students will have counseling skills and experiences much earlier.

Conclusion

This study investigated the efficacy and assessed patients' satisfaction with the UI telephone counseling service. Participants were highly satisfied with smoking cessation phone consults post-discharge, although the efficacy of the service in terms of improvement in the stages of change, confidence and motivation levels to quit smoking was not statistically significant. Further studies with larger sample sizes, increased counseling intensity, and an extended length of service are warranted to determine the effectiveness of the telephone counseling service.

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Tables

Table 1: Interview Questions During Initial Phone Interview

Patients are asked the following questions during the telephone counseling sessions to assess their motivation and confidence levels:

1. On a scale of 0 to 10, with 0 as not at all motivated and 10 as extremely motivated, how motivated are you now to quit smoking?
2. On a scale of 0 to 10, with 0 as not at all confident and 10 as extremely confident, how confident are you now to quit smoking?

Patients are assessed on their stages of change based on the Transtheoretical Model:

- Pre-contemplation: Not intending to quit within the next 6 months
- Contemplation: Intending to quit within the next 6 months, but not within the next 30 days
- Preparation: Intending to quit within the next 30 days
- Action: Quit smoking within the last 6 months
- Maintenance: Quit smoking for more than 6 months

Table 2: Baseline Demographics

Sex, n (%):	
Male	5 (27.8)
Female	13 (72.2)
Age, y, median (interquartile range, IQR):	51.5 (38, 58)
Race, n (%):	
African American	13 (72.2)
Caucasian	2 (11.1)
Hispanic	3 (16.7)
Cigarette consumption per day, median (IQR):	10 (5, 20)
Number of years smoked, median (IQR):	22.5 (20.0, 32.5)
Previous Quit Attempts, n (%):	
No	2 (11.1)
Yes	16 (88.9)
Number of quit attempts, median (IQR):	2 (1, 3)
Time of first cigarette after awakening, n (%):	
Less than 30 minutes	9 (50.0)
More than 30 minutes	8 (44.4)
Missing	1 (0.06)
Counseled in the hospital before discharge, n (%):	
Yes	5 (27.8)
No	13 (72.2)

Table 3: Survey Questions and Results					
I. DURATION AND FREQUENCY OF CALL					
	n (%)		n (%)		n (%)
1) Was the duration of the telephone counseling session:	Too short		Just nice		Too long
	2 (11.1%)		15 (83.3%)		1 (5.6%)
2) Was having only one telephone counseling session:	Unnecessary		Sufficient		Too little
	1 (5.6%)		3 (16.7%)		14 (77.8%)
II. CONTENTS OF TELEPHONE COUNSELING					
On a scale of 1 to 5, with 1 as poor and 5 as excellent, how well did the telephone counselor:					
	n (%)	n (%)	n (%)	n (%)	n (%)
	1	2	3	4	5
3) Educated on the benefits of quitting smoking?	1 (5.6%)	0 (0%)	5 (27.7%)	3 (16.7%)	9 (50.0%)
4) Addressed concerns about quitting smoking?	1 (5.6%)	1 (5.6%)	4 (22.2%)	1 (5.6%)	11 (61.1%)
5) Provided with a brief trigger plan	4 (22.2%)	2 (11.1%)	2 (11.1%)	3 (16.7%)	7 (38.9%)
6) Informed about use of medications	1 (5.6%)	2 (11.1%)	1 (5.6%)	4 (22.2%)	10 (55.6%)
7) Usefulness of overall information:	Not at all useful	A little useful	Useful	Very Useful	Extremely useful
	2 (11.1%)	4 (22.2%)	4 (22.2%)	6 (33.3%)	2 (11.1%)
III. OVERALL SATISFACTION					
8) Was the telephone counselor:	Not at all encouraging	A little encouraging	Encouraging	Very encouraging	Extremely encouraging
	1 (5.6%)	3 (16.7%)	4 (22.2%)	6 (33.3%)	4 (22.2%)
9) Overall satisfaction with service:	Not at all satisfied	A little satisfied	Satisfied	Very satisfied	Extremely satisfied
	1 (5.6%)	2 (11.1%)	5 (27.7%)	5 (27.7%)	5 (27.7%)

Figures



