

Frequency of Nurse-led Tobacco Cessation Interventions and Influencing Factors

Dulce Mancine
School of Nursing
Abilene Christian University
1600 Campus Ct
Abilene, Texas 79601 USA

Faculty Advisor: Dr. Anita Broxson

Abstract

More than 480,000 deaths and \$193 billion in medical expenses each year are attributed to smoking tobacco¹. Smoking tobacco is an epidemic that burdens the United States health care system. Nurses are in a unique position to provide tobacco cessation interventions to patients in the clinical and community setting. The objective of the study was to measure how frequently nurses provided tobacco cessation interventions to patients and to determine if there was a significant difference in the frequency of interventions among nurses if they had previous education on tobacco counseling. The Helping Smokers Quit Survey was utilized to conduct a cross-sectional survey study². Recruitment of participants was conducted via an anonymous online survey to nurses in two locations in Texas. The final sample included 237 bedside nurses. Descriptive statistics were used to describe the sample demographics. Independent t-tests were used to determine if there were significant differences in the frequency of nurse-led tobacco cessation interventions among nurses who were and were not familiar with the 5 A's and those who had and had not had previous tobacco cessation training. The majority of nurses reported they did not always assist smokers in quitting tobacco or arranging for follow-up. Most nurses reported never recommending medications, referring patients to a Quitline or providing other resources. Few nurses reported always performing these interventions. Nurses who reported previous tobacco cessation training and/or familiarity with the 5A's of tobacco cessation had a higher frequency of performing tobacco cessation interventions when compared to nurses that did not report having previous training or familiarity with the 5A's of tobacco cessation. The findings suggested more education for nurses may increase nurse-led tobacco cessation interventions.

Keywords: Nursing, Tobacco, Cessation

1. Introduction

Tobacco use remains an epidemic in the United States because of its pervasive consequences on our health care system. "More than 16 million Americans suffer from a disease caused by smoking"¹. Smoking causes chronic inflammation of blood vessels and increases the risk of vascular diseases such as stroke, myocardial infarction, and peripheral vascular³. Additionally, the carcinogens in cigarettes are linked to cancers of the lip, oral cavity, lungs, pancreas, uterine cervix, urinary bladder, and kidneys⁴. Treating these illnesses and diseases has placed a substantial burden on our health care system. Direct medical expenses and lost productivity related to tobacco has reached \$193 billion annually⁵. Cigarette smoking is the leading cause of preventable death¹. More than 480,000 deaths or one of every five deaths each year are attributed to smoking¹. Tobacco cessation and prevention is key to curbing this epidemic.

2. Literature Review

2.1. Nurses' Role In Tobacco Cessation

Nurses at the bedside and in the community play an important role in tobacco cessation because they frequently come in contact with patients who smoke. The hospital is an appropriate place to provide tobacco cessation interventions and a place where nurses can make a difference on the population level⁶. The World Health Organization advocates for the hospital as an appropriate environment⁷. In a study to evaluate the effectiveness of nurse-led counseling, patients who received nurse-led counseling during hospitalization were compared to patients who did not receive nurse-led counseling. Patients who received nurse-led inpatient smoking cessation interventions (n =178) in the hospital were found to have significantly higher (p=0.0194) reported cessation rates than patients who did not receive nurse-led interventions⁸.

In addition to playing the role of educator and counselor, nurses must also play the role of advocate for smokers. Smoking is more prevalent among lower socioeconomic people^{9, 10}. Smokers may not be able to afford tobacco cessation resources. Nurses with the knowledge of resources and different payment options can assist smokers and effectively advocate for them. As advocates and educators, nurses play an important role in decreasing the negative consequences caused by smoking. The Surgeon General has suggested to provide tobacco cessation counseling in health care settings and to provide access to resources as a way to decrease tobacco use⁵. Nurses are in a unique position to accomplish both of these tasks.

2.2 The 5As Of Tobacco Cessation

In 2000, the surgeon general created the *Treating Tobacco Use and Dependence* report, which included an evidence-based five step intervention strategy known as the "5 A's" for health care workers, as a guide to approaching smokers. The 5A's are followed in a sequential order and include: Ask, Advise, Assess, Assist and Arrange¹¹. The first intervention of the 5A's is to "Ask". This means to ask the patient if they use tobacco¹¹. The second intervention is to "Advise" the patient to stop using tobacco because of the effect it has on health¹¹. The third intervention is to "Assess" the patient's willingness to quit¹¹. This intervention is important to the next intervention of assisting the patient to quit. "Assisting" the patient to quit is a broad intervention that could range from medication therapy to group therapy depending on the needs of the patient¹¹. The last intervention is to "Arrange" for follow up¹¹. This means to coordinate a phone call or visit with the patient to determine how successful they have been with quitting. The actual follow-up does not have to be done by the nurse. The nurse only has to arrange for the follow-up. This strategy was created to be quick and efficient so that every tobacco dependent patient that comes in contact with a doctor, nurse, respiratory therapist or other health care professional can receive tobacco cessation counseling. Although, this strategy is seemingly simple, counseling less than three minutes has been proven effective to help patients stop smoking^{12, 11}. Furthermore, the 5 A's meet the tobacco cessation core measures set forth by the Joint Commission on Accreditation of Healthcare Organizations¹³. The 5 A's have proven to be an appropriate tool for counseling tobacco users¹¹.

2.3 Other Tobacco Cessation Interventions

In addition to the 5 A's, there are three other interventions that nurses can implement. The additional interventions include the recommendation of medications, a Quitline and resources. The use of medications is helpful to tobacco users when dealing with the physical addiction. According to a study titled "Assisting With Tobacco Cessation" published in the *Journal of Vascular Nursing* by Cahall in 2004, five types of medication have been proven to double the success rate of tobacco cessation compared to the placebo¹². These medications include: bupropion sustained release, nicotine replacement gum, oral inhaler, nasal spray and transdermal patch¹². The Quitline is available at 1-800-QUITNOW, 7 days a week with long hours¹⁴. The Quitline provides cessation resources to the smoker¹⁴. The Quitline is also a resource a nurse can use to arrange for follow-up with patients. The Quitline has low usage rates but has been proven to be an effective way to improve healthcare professionals' participation in cessation interventions¹⁴. Other resources include pamphlets and counseling.

2.4 Objective of study

Nurses are in a prime position to offer tobacco cessation interventions but many are not providing them at a sufficient rate. The objective of this research study is to query nurses about the frequency of tobacco cessation interventions and determine associated factors.

3. Methodology

3.1 Design

This quantitative study used a cross-sectional survey to gather exploratory data of the frequency of tobacco cessation interventions performed by nurses, and factors influencing the delivery of those interventions. The factors measured were common throughout the literature and already in place by the *Helping Smokers Quit* survey². The Institutional Review Board for the Protection of Human Subjects in Research at Abilene Christian University granted approval for the study.

3.2 Instruments

The *Helping Smokers Quit* survey was utilized to measure the frequency that nurses provided smoking cessation interventions and assess factors associated with the delivery of those interventions. Permission to use the survey was obtained from Dr. Linda Sarna and colleagues. Psychometrics for the web-based survey had previously been performed in a national study (n=3482) with a resulting Kappa level of 0.70². The survey includes questions about demographics, smoking status, familiarity with the 5 A's of smoking cessation and previous tobacco cessation counseling training. Frequency of self-reported tobacco cessation interventions was measured using a Likert scale with the options: always, usually, sometimes, rarely and never². Questions regarding the familiarity with the organization, *Tobacco Free Nurses*, and the curriculum, *Rx for Change*®, were not included in the survey. One question regarding employer policy for hiring cigarette smokers was added to measure if the environment played a role in the frequency of tobacco cessation interventions.

3.3 Participant Recruitment

The snowball method was used to obtain respondents. Participants were given the chance to enter a drawing for an Abilene Christina University sweatshirt as an incentive to participate in the study. The link to the online survey was sent to the local chapter of the Oncology Nursing Society, the local Texas Nurses Association chapter and to nurses at the University of Texas Medical Branch. Respondents were asked to share the link with other nurses. The survey included a disclaimer to not retake the survey to prevent multiple responses from one nurse.

3.4 Data Analysis

Descriptive statistics were used to describe the demographics of the sample and the frequency of the nurse-led tobacco cessation interventions. Independent t-tests were run to determine if there were significant differences in the frequency of nurse-led tobacco cessation interventions among nurses who were and were not familiar with the 5 A's and those who had and had not had previous tobacco cessation training. Significance was achieved if $p < 0.05$. The nurse-led tobacco cessation interventions were the 5 A's of tobacco cessation. In addition to the 5A's, the interventions of recommending tobacco cessation medications, recommending a Quitline and referring patients to tobacco cessation resources were also measured.

4. Findings

4.1 Sample

Two hundred forty-five nurses responded to the survey. Eight of those responses were excluded from the final analysis due to failure to answer how frequently they provided smoking cessation interventions. The final sample included 237 responses. The majority of the respondents were middle-aged, white females, with a bachelor's degree employed as staff nurses. (Table 1)

Table 1. Sample demographics

Sample Demographics n = 237	n (%)
<u>Age</u> Mean	44.6
<u>Sex</u> Female Male	221 (93.2) 16 (6.8)
<u>Race</u> White Black or African American Asian Biracial or multi-racial American Indian or Alaska Native Native Hawaiian or other Pacific Islander	163 (68.8) 25 (10.5) 31 (13.1) 9 (3.9) 2 (0.8) 3 (1.3)
<u>Education</u> LVN/LPN Associate degree Diploma Bachelors degree Masters degree Doctoral degree	3 (1.3) 81 (34.2) 11 (4.6) 110 (46.4) 28 (11.8) 4 (1.7)
<u>Position</u> Staff nurse Head nurse/ Supervisor Educator Nurse Practitioner Clinical nurse specialist Other	177 (74.7) 14 (5.9) 9 (3.8) 6 (2.5) 2 (0.8) 12 (5.1)
<u>Professional Experience</u> 1 - 10 years 11-20 years 21-30 years 31-40 years Over 40 years	81 (34.2) 72 (30.4) 46 (19.4) 27 (11.4) 3 (1.3)
<u>Usual Shift</u> Day Evening Night No Usual	146 (61.6) 9 (3.8) 75 (31.6) 4 (1.7)
<u>Smoking Status</u> Former smoker Current smoker Never a smoker	74 (31.2) 20 (8.4) 147 (62.0)

4.2 Survey results

Descriptive statistics showed the nurses performed tobacco cessation interventions at a suboptimal frequency. (Table 2) More than half of nurses reported consistently asking and advising patients to stop smoking. Less than thirty percent of nurses reported assisting, arranging or providing further resources to smokers on a consistent basis. More nurses reported never arranging for follow up, recommending tobacco medication, a Quitline or resources on a consistent basis than nurses that reported consistently offering these interventions. Factors measured were smoking status, employer nicotine use policy ($p=0.05$), previous tobacco cessation education ($p=0.05$) and familiarity with the 5 A's of tobacco cessation ($p=0.05$). The two factors that produced the most significant results were previous tobacco cessation education and familiarity with the 5 A's. Nurses who reported having previous tobacco cessation training had a significantly higher average ($p=0.05$) of arranging follow up for patients, recommending the Quitline ($p=0.05$) and referring patients to tobacco cessation resources ($p=0.05$). (Table 3) Although the first four interventions were not statistically significant, the nurse must perform the first four interventions before implementing the last interventions. Nurses familiar with the 5 A's of tobacco cessation had a significant difference ($p=0.05$) in the frequency of tobacco cessation interventions than nurses that were not familiar with the 5 A's. (Table 4)

Table 2. Frequency of nurse-led tobacco cessation interventions

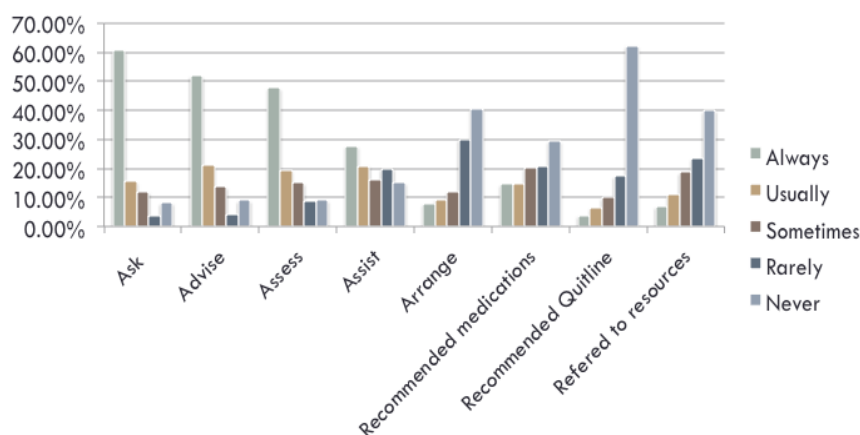


Table 3. Familiarity with the 5 A's

	Familiar with the 5A's	Not familiar with the 5A's	p-Value
	Mean (SD)	Mean (SD)	
Ask	4.46 (1.11)	4.05 (1.30)	.037*
Advise	4.31 (1.16)	3.93 (1.31)	NS
Assess	4.30 (1.19)	3.74 (1.36)	.007*
Assist	3.63 (1.31)	3.13 (1.46)	.027*
Arrange	2.57 (1.43)	2.01 (1.20)	.006*
Recommend tobacco cessation medications	3.11 (1.41)	2.50 (1.40)	.006*
Recommend Quitline	2.11 (1.27)	1.61 (1.05)	.004*
Refer to tobacco cessation resources	2.92 (1.40)	2.01 (1.16)	.000*

* p-Value < .05 NS = Not Significant

Table 4. Previous tobacco cessation training

	Had received tobacco cessation training Mean (SD)	Had not received tobacco cessation training Mean (SD)	p-Value
Ask	4.33 (1.15)	4.13 (1.28)	NS
Advise	4.30 (1.14)	3.96 (1.31)	NS
Assess	4.23 (1.19)	3.82 (1.35)	NS
Assist	3.47 (1.28)	3.20 (1.46)	NS
Arrange	2.77 (1.41)	2.04 (1.23)	.003*
Recommend tobacco cessation medications	2.87 (1.28)	2.61 (1.44)	NS
Recommend Quitline	2.24 (1.46)	1.64 (1.05)	.007*
Refer patient to tobacco cessation resources	2.93 (1.51)	2.11 (1.21)	.001*

* p-Value < .05 NS = Not Significant

5. Discussion

The results revealed that nurses perform tobacco cessation intervention at a suboptimal frequency and this is in agreement with past studies^{2, 14, 15}. This may be due to nurses lacking the skills, knowledge or confidence to provide smoking cessation counseling to patients¹⁶. These beliefs are not surprising since there is a definite lack of tobacco cessation education for nurses in the work place and in the formal curriculum of professional nursing schools^{17, 2}. In the current study, less than fifteen percent of nurses reported ever receiving tobacco cessation training. In a qualitative study, 21 nursing faculty representing nine schools were interviewed for perceived barriers to teaching tobacco cessation¹⁸. Key findings from this study were faculty believed practicing nurses were too busy to provide tobacco cessation education and did not consider tobacco cessation as primary curriculum material because students already had previous knowledge of tobacco cessation education¹⁸. An alternative to having tobacco cessation education in curriculum could be to offer it in the workplace. When tobacco cessation classes are implemented in the workplace, nurses report better role satisfaction and confidence in providing the tobacco cessation interventions^{19, 17}. This reflects the findings in the current study because previous tobacco cessation training and familiarity with the 5 A's is associated with a higher frequency of tobacco cessation interventions. Availability of resources such as the 5 A's of tobacco cessation and more training seem to have a positive effect on the nurse to provide tobacco cessation interventions.

Research shows that workplace environment also affects the frequency of tobacco cessation interventions. Two negative misconceptions in the workplace are nurses do not have enough time or nurses feel it is not part of their role to provide tobacco cessation interventions. In 2009, researcher Schultz and colleagues conducted a study measuring tobacco reduction activities and work place climate variables using model testing analysis¹⁵. Researchers found that "the two tobacco-related workplace climate variables in the model were the strongest contributors to the variance in reported workplace behavior"¹⁵. They discovered nurses who felt their colleagues were performing tobacco reduction activities were more likely to also perform tobacco reduction activities.

Well-trained nurses are more likely to not only provide tobacco cessation interventions, but also have a greater impact on smokers^{8, 6}. This has led to some facilities having a single nurse provide tobacco cessation interventions to all smoking patients. However, this approach does not necessarily increase awareness of smoking cessation

interventions in a workplace as a whole, nor does it allow staff nurses who spend the most time with patients at the bedside to counsel patients. Any addiction is personal and a nurse who has already formed a relationship with the patient would be more effective at counseling.

5.1 Limitations

Three main limitations associated with this study were self-report bias, selection bias and homogenous sample. Nurses could have over reported or under reported how often they provided nursing cessation interventions. Selection bias is inherent with a survey study. Participants may have elected to take the survey because they had vested interests in the subject or an opinion they wanted to be heard on the subject. The sample for the current study was a homogenous sample. While this was the population targeted, results can only be generalized to similar populations. The results may not be representative to nurses outside these similar characteristics.

6. Implications for Nursing and Future Research

The research suggests nurses are in prime position to educate patients. Providing education for nurses on smoking cessation may increase the frequency of nurse-led interventions. In addition, nurses should be armed with an efficient strategy to counsel patients on the tobacco cessation such as the 5 A's. With cigarette smoking causing more than 480,000 deaths in the United States each year and more than \$193 billion annually in direct medical expenses and lost productivity, nurses need to increase the frequency of tobacco cessation interventions^{10, 5}.

More controlled studies on workplace environment and willingness for nurses to provide tobacco cessation education is needed. Controlled experimental research is lacking in this area of nursing practice⁶. Further research on nurse-led tobacco cessation interventions in pediatric nursing should also be conducted. The hospitalization of a child is an excellent opportunity for nurses to counsel parents on tobacco cessation. This can be described as a teachable moment that helps promote behavioral change²⁰. More research could help ease the challenges pediatric nurses face when counseling parents.

7. References

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