FUTURE PHYSICIANS' ATTITUDES AND BELIEFS ABOUT SMOKING CESSATION INTERVENTIONS

By

ALISON CHRISTINE BABITZKE

Bachelor of Science

East Central University

Ada, Oklahoma

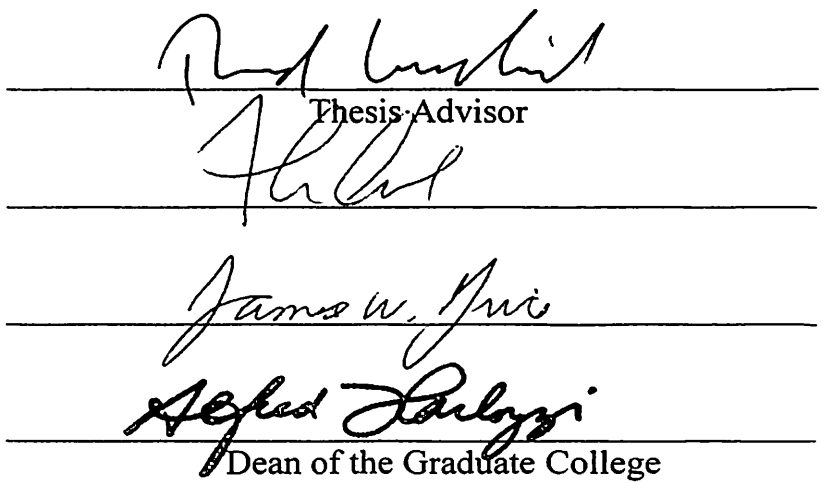
1999

Submitted to the faculty of the
Graduate College of
Oklahoma State University
in partial fulfillment of
the requirements for
the degree of
MASTER OF SCIENCE
May, 2004

FUTURE PHYSICIANS' ATTITUDES AND BELIEFS

ABOUT SMOKING CESSATION INTERVENTIONS

Thesis Approved:



Thesis Advisor

Dean of the Graduate College

ACKNOWLEDGEMENTS

I appreciate the opportunity, provided by the psychology department at Oklahoma State University, to complete this project. Specifically, I am grateful to my advisor, Thad R. Leffingwell, Ph.D., for all of his support and assistance throughout this project. I am also thankful for the guidance of my committee members, Frank L. Collins, Jr., Ph.D. and James W. Grice, Ph.D., throughout this project. I have learned a great deal from each of them. Finally, I would not have been able to complete this project without the help of Mary Anne McCaffree, M.D. and Robin Acker, M.D. at University of Oklahoma Heath Sciences Center. I am indebted to them for their generous assistance and encouragement throughout this project.

The support I have received while working on this project has not only come from my academic mentors, but also from my friends and family. My classmates, Allison Aosved, Angel Belden, and Melissa Boczar are truly my "golden girls" and I would not have been able to complete this project without their continual support. Finally, my parents, Monte and Troy Babitzke, have provided me with continual encouragement and guidance throughout this and all of my educational pursuits. I am forever grateful to them for everything they have taught me about the importance of dedication, hard work, and perseverance.

TABLE OF CONTENTS

CHAPTER PAGE

I. INTRODUCTION....1

Background....1

Problem....1

Purpose....2

II. LITERATURE REVIEW....4

Smoking Statistics....4

The Role of Physicians....5

Clinical Practice Guidelines....10

Physician Intervention Practices....11

Social Learning Theory....15

Acquisition of Attitudes and Beliefs....20

The Present Study....22

Hypotheses....23

III. METHOD....24

Participants and Procedures....24

Instruments....25

IV. RESULTS....30

Analysis Strategy....30

Sample Characteristics....30

Hypothesis 1....31

Hypothesis 2.....32

Hypothesis 3.....33

Hypothesis 4.....33

Hypothesis 5.....34

Statistical Power.....35

V. DISCUSSION.....37

REFERENCES.....55

APPENDIX A – INFORMED CONSENT FORM.....62

APPENDIX B – PAPER-AND-PENCIL VERSION OF STUDY SURVEY...66

APPENDIX C – ONLINE VERSION OF STUDY SURVEY.....72

APPENDIX D – OKLAHOMA STATE UNIVERSITY IRB APPROVAL.....81

APPENDIX E – UNIVERSITY OF OKLAHOMA IRB APPROVAL.....83

LIST OF TABLES

Table Page

I. Sample characteristics.....45

II. Means (*M*), standard deviations (*SD*), and 95% confidence intervals (*CI*).....47

III. Sample Size Needed in Order to Detect Possible Differences.....48

LIST OF FIGURES

Figure Page

I. Pros and cons of smoking cessation counseling by training group.....49

II. Self-efficacy for smoking cessation counseling by training group.....50

III. Motivation for smoking cessation counseling by training group.....51

IV. Outcome expectancy for smoking cessation counseling by training group.....52

V. Perception of role (one) for smoking cessation counseling by training group.....53

VI. Perception of role (two) for smoking cessation counseling by training group.....54

CHAPTER I

INTRODUCTION

Background

The effects of cigarette smoking have an overwhelming influence on the prevalence of the leading causes of death in the United States (i.e., cancer, cardiovascular disease, stroke) (National Cancer Institute [NCI], 2002). A substantial portion of the population is directly affected by tobacco use: roughly 48 million adults, or 25 percent of people aged 18 years or older, in the United States smoke cigarettes (Centers for Disease Control and Prevention [CDC], 1997). Over 400,000 annual deaths are attributable to tobacco use, which makes it the nation's leading cause of preventable death (CDC, 2002). In fact, one-fifth of all deaths in the United States are due to tobacco use (McGinnis & Foege, 1993). Moreover, over one third of current smokers will die prematurely of a disease caused by their smoking (U. S. Department of Health and Human Services [USDHHS], 2000). Fortunately, steps can be taken to substantially reduce, or potentially eliminate the occurrence of cigarette smoking.

Problem

In order to reduce the number of tobacco related deaths significantly, tobacco use among current smokers must be decreased (Jha & Chaloupka, 2000). Physician involvement in attempts to decrease rates of current cigarette smoking may be critical to the future of disease prevention and reversal. Nearly seventy percent of smokers visit a physician annually. Physician advice and assistance in attempts to quit smoking during

these visits will likely improve quit rates substantially (CDC, 1993). However, research has shown that most physicians fail to counsel patients about quitting smoking (CDC, 1993; Gilpin et al., 1992).

Several factors, in addition to lack of knowledge and skills in effective interventions, are believed to factor into the current, low rates of physician intervention with smoking. These factors include attitudes and beliefs about smoking and cessation interventions, such as lack of self-efficacy, low outcome expectancies, failure to perceive smoking cessation interventions as a component of the role of the physician, and ambivalence about conducting smoking cessation interventions. Little research has focused directly on the relationships between physicians' beliefs, attitudes, and self-efficacy and their counseling practices (O'Loughlin et al., 2001). Even less research has focused on attitudes and beliefs of physician trainees about smoking cessation interventions.

Purpose

Deficits in intervention training that occur in medical school may have a substantial impact on the development of physician trainees' sense of self-efficacy, outcome expectancy, and role of the physician in intervention. Medical students and residents may have high self-efficacy and outcome expectancy for intervening in patients' smoking behavior at the outset of medical school. These attitudes and beliefs may change over the course of medical training due to several factors, such as receiving little reinforcement for performing "successful" interventions and observing supervisors' pessimism and low self-efficacy regarding interventions, in addition to the low rates of intervention practice. These factors may lead trainees to develop low self-efficacy and

low outcome expectancy and, therefore, low rates of assessment and intervention in smoking behavior. Accordingly, this study seeks to determine whether future physicians develop attitudes and beliefs that may affect the rates at which they perform smoking cessation interventions during training.

CHAPTER II

LITERATURE REVIEW

Smoking Statistics

Cigarette smoking is currently one of the most important public health concerns in the United States. Cigarette smoking has a devastating impact on the incidence of the nation's leading causes of death: cancer, cardiovascular disease, and stroke (National Cancer Institute [NCI], 2002). In the United States alone, tobacco use contributes to more than 400,000 deaths annually, making it the nation's leading cause of preventable death (Centers for Disease Control and Prevention [CDC], 2002). In fact, one in every five deaths in the United States can be attributed to tobacco use (McGinnis & Foege, 1993). Moreover, over one third of current smokers will die prematurely of diseases caused by their smoking (U. S. Department of Health and Human Services [USDHHS], 2000).

While tobacco use among adults in the United States has declined since the Surgeon General's first tobacco-related health warning in 1963, it remains a significant problem due to the fact that the decline in use has started to stabilize in recent years (CDC, 1997). In 1995 national estimates indicated that roughly 48 million adults, or 25 percent of people aged 18 years or older, in the United States smoked cigarettes (CDC, 1997). Moreover, smoking rates among some minority groups, such as Native Americans are higher than those of the general population (USDHHS, 1998). Furthermore, smoking among adolescents appears to be increasing (Smith & Fiore, 1999).

Most medical conditions involve a behavioral component that exacerbates, or even causes, the problem. Clearly, smoking is a behavior that not only causes, but also aggravates, myriad medical conditions, including two of the nation's leading causes of

death, cardiovascular disease and cancer (CDC, 1993). In the early 1970s, chronic diseases such as cancer and heart disease reached epidemic proportions (Love, Davoli, & Thurman, 1996). In reaction, interest in health promotion and epidemiologic research into the etiology of chronic diseases grew exponentially (Love et al.). Etiological research has revealed individual behaviors involving poor diet, lack of exercise, stress, and smoking, which is especially notable in this context, as significant risk factors underlying chronic diseases. These current leading contributors to mortality, which are implicated in 50% of all deaths in the United States, are entirely preventable (McGinnis & Foege, 1993). In other words, smoking, a current top behavioral contributor to the nation's foremost causes of death, can potentially be eradicated. Reducing or eradicating smoking behavior will undoubtedly lower the nation's chronic disease rates in which smoking is a factor. In contrast to changing behavioral risk factors, only about 11% of the causes of the nation's total mortality respond to medical cures (USDHHS, 1995). Physician involvement in patient smoking behavior at all stages of health is critical to the future of disease prevention and reversal. The single way to reduce a significant number of tobacco related deaths in the first decades of the 21st century is by reducing tobacco use among current smokers (Jha & Chaloupka, 2000).

The Role of Physicians

Physicians control most major aspects of health care delivery. Licensing authority, extent of formal training, idiosyncrasies of the healthcare market, and the generally perceived importance of the physician role are four of the main reasons for this control (Jonas, 1981). Educational background and licensure to practice medicine are the two key factors that indicate physicians' responsibility to educate patients about

behaviorally related health risks and preventive behaviors. Physicians are clearly in a position to promote healthy behaviors in their patients, including avoidance and cessation of tobacco use. Possession of formal knowledge of human health attained in medical school, in theory, provides physicians with the knowledge necessary for interventions involving health behaviors. Furthermore, licensure of medical professionals ensures ethical treatment of patients, which implies inclusion of behavioral interventions.

Physicians not only have the opportunity to intervene with patient health behaviors, such as smoking, but empirical studies have also shown physician interventions to be effective. A meta-analysis of seven studies by the United States Public Health Service indicated that brief physician advice (i.e., as brief as three minutes) resulted in an increase in smoking cessation rates (Agency for Health Care Policy and Research [AHCPR], 1996). Another meta-analysis of 43 studies showed that minimal counseling (i.e., as brief as three minutes) by clinicians increased abstinence rates in patients who smoke (USDHHS, 2000). Furthermore, a 35-study meta-analysis indicated that a total intervention contact time as short as one to three minutes increased smokers' abstinence rates (USDHHS, 2000).

Finally, patients are aware of and believe in the power of prevention and not only want, but also expect, their healthcare providers to engage in preventive services. According to a 2001 survey, physicians who provided stop smoking advice to every smoker, assessed smokers' readiness to quit, and offered brief counseling and follow-up had more satisfied patients (Solberg, Boyle, Davidson, Magnan, & Carlson, 2001). Discussing smoking with patients is likely to indicate a physician's thoroughness of health assessment as well as orientation toward prevention of future health problems.

Furthermore, patients who smoke perceive physician advice to quit as an important motivator to do so (Fiore, 2000). Practical experience indicates that smokers expect smoking interventions when they visit their physicians. Furthermore, if patients who smoke are not asked about that behavior, they may wonder whether other important health issues are being neglected (Rigotti & Thorndike, 2001).

Individual patients' health and the health of the nation as a whole will undoubtedly benefit from consistent, effective delivery of clinical preventive services by physicians. Nearly 70% of smokers visit a physician at least once per year, yet most are not advised or assisted in attempts to quit smoking (CDC, 1993). While only about seven percent of smokers maintain abstinence when quitting on their own, long-term abstinence success rates can be increased to 15% to 30% by utilizing interventions recommended in the *Clinical Practice Guideline*, a set of recommendations for clinical tobacco interventions (USDHHS, 2000). Although intensive counseling and pharmacotherapy have been found to be the most effective treatments in smoking interventions, even brief physician interventions can significantly increase smoking cessation and abstinence rates (Fiore, 2000). Thus, physician intervention is critical to individual smokers' health. The cumulative effects of consistently delivered physician smoking interventions will likewise improve national smoking cessation and abstinence rates.

Unfortunately, the majority of primary care physicians across all disciplines and demographics are not providing adequate clinical preventive services to their patients (Ewing, Selassie, Lopez, & McCutcheon, 1999). Furthermore, the overall amount of preventive services provided by physicians is much lower than the quantity necessary for swift progression toward significant improvement in public health (Davis, McBride, &

Bobula, 1992). In other words, health promotion and intervention does not occur as frequently as it could in order to benefit society optimally. Furthermore, while physician assessment of all health behaviors occurs at less than optimum levels, one health behavior in particular has been the subject of substantial empirical research over the past several decades: smoking. Several studies have indicated that physicians fail to counsel their patients to stop smoking (CDC, 1993; Gilpin et al., 1992).

Supplying physicians with effective, empirically supported smoking cessation guidelines may not be adequate to improve rates of intervention with tobacco users. Several factors, in addition to lack of knowledge and skills in effective interventions, are believed to play a role in lack of physician intervention with smoking. Hypothesized factors include attitudes and beliefs about smoking and cessation interventions, including lack of self-efficacy, low outcome expectancy, failure to perceive smoking cessation as the role of the physician, and ambivalence.

According to Gilpin et al. (1992), the rate at which physicians advise patients who smoke to stop has increased substantially over the past several years. This increase occurred between the mid-1970s and the late 1980s: in 1974, 26.4% of smokers reported being advised to quit, in comparison to 1987, during which 50.9% of smokers reported being advised to stop. While the increase in advise-giving by physicians over the years has been substantial, in the late 1980s only half of all patients who smoked reported being advised by a physician to stop smoking. Gilpin et al. outline several factors that may help to improve physician intervention rates: adequate training, financial reimbursement, and prioritization of preventive rather than curative services. Further, the authors state that physicians must confidently assert themselves when counseling patients about smoking

cessation. In other words, increased physician self-efficacy is recommended to improve intervention rates.

According to Tremblay et al. (2001), improving counseling practices of physicians could be a necessary piece of a comprehensive strategy to reduce the widespread use of tobacco products. This statement brings to light the controversy surrounding the fact that physicians, as part of their professional responsibilities, should already be intervening on a regular basis with individuals who smoke. Improvement in cessation counseling techniques and rates of physician intervention is expected to have a great impact on national smoking rates. Smoking appears to be a health-related behavior that physicians cannot only treat pharmacologically, but also behaviorally, with smoking cessation interventions.

According to Prochaska and Goldstein (1991), physicians cannot only provide effective smoking cessation interventions, but can also promote forward movement in the stages of change toward quitting smoking and maintenance of the cessation. Arguably, assessment and intervention in health behavior should be a major part of physicians' jobs, since physicians have regular contact with patients in the form of yearly checkups. Nearly 70% of smokers regularly have one or more contacts per year with a physician (Office of Smoking & Health, 1992). Accordingly, roughly 35 million of the 50 million adults in the United States who smoke have an annual opportunity to be affected by physicians' interventions. This regular contact with patients provides a solid base upon which physicians can build a system of ongoing assessment and intervention in smoking behavior in patients. These interventions, implemented at a high rate of contact with patients who smoke, could lead to substantial decreases in United States smoking rates.

Clinical Practice Guidelines

In 1996 the Agency for Health Care Policy and Research (AHCPR) developed a set of practice guidelines for physicians and other health care professionals to help patients avoid and/or quit using tobacco products with effective, empirically validated tobacco dependence treatments and practices (Fiore, Bailey, & Cohen, 1996). This protocol, *Clinical Practice Guideline: Treating Tobacco Use and Dependence*, was updated in 2000 (USDHHS, 2000). The updated protocol provides five main strategies that physicians should follow in order to help their patients with smoking abstention and cessation.

The five smoking cessation strategies proposed to help physicians intervene with patients who smoke are commonly known as the "Five As": ask, advise, assess, assist, and arrange. First, every patient should be asked about tobacco use at every visit in order to systematically identify all users. Second, all tobacco users should be strongly advised to quit. Third, willingness to attempt quitting should be assessed. Fourth, assistance in quitting should be provided to the patient. For patients who want to quit smoking, this assistance might include prescriptions for pharmaceutical treatments or nicotine replacement therapies (NRTs). For patients not currently willing to quit, physicians are encouraged to use a brief, decision-making or motivational intervention. Fifth, follow-up contact with patients who use tobacco should be arranged. By following these empirically validated recommendations, physicians should be better equipped to help prevent and decrease the smoking behavior of their patients.

Clinical Practice Guideline: Treating Tobacco Use and Dependence was published in order to provide physicians, as well as other health care professionals, with

effective strategies to use when helping patients stop smoking. This publication was deemed necessary in order to increase rates of physician intervention with patients who smoke. Despite the push to improve low rates of intervention, it is unclear how frequently physicians actually intervene with patients who smoke.

Physician Intervention Practices

Research has revealed conflicting results regarding intervention rates. Across studies, physician respondents and patient respondents tend to indicate different rates of intervention. Further, across surveys of physicians, varied rates of smoking cessation interventions have been indicated. Physician surveys conducted in the early 1990s show that 46% to 77% of physicians report that they routinely counsel some patients to stop smoking (Lewis, Clancy, Leake, & Schwartz, 1991). Specifically, across the smoking cessation strategies promoted in the *Clinical Practice Guidelines* (i.e., the "As": ask, advise, assist, and arrange), physician intervention rates vary greatly. Seventy to 98% of surveyed physicians report that they routinely *ask* their patients about their smoking status, 51% to 90% *advise* most patients who smoke to quit, 25% to 68% *assist* patients in quit attempts with effective therapies (e.g., NRTs), and 5% to 11% *arrange* follow-ups of any type (as cited in Andrews, Tingen, Waller, & Harper, 2001). Despite physician reports (e.g., 51 – 90% report advising most smokers to quit) of their interventions during the past decade, surveys of patients who smoke indicate that only half have *ever* been advised by a physician to stop smoking (CDC, 1993; Frank, Winkleby, Altman, Rockhill, & Fortmann, 1991; Gilpin, Pierce, Johnson, & Bal, 1993; Goldstein et al., 1997).

According to Thorndike, Rigotti, Stafford, and Singer (1998), the discrepancy between patient and physician reports of rates of intervention is probably due to recall

bias. In other words, physicians likely overestimate the frequency of their interventions, while patients who smoke probably underestimate the frequency with which they are counseled to stop smoking. Physician recall bias probably occurs due to the nature of survey research. Surveys of physician practice patterns require physicians to retrospectively summarize their behavior in the clinical setting. Reports of this nature may reflect physicians' intentions rather than their actual practices (Thorndike et al.). In order to more accurately assess rates of physicians' practices regarding smoking, Thorndike et al. analyzed 1991 – 1995 data from the National Ambulatory Medical Care Survey (NAMCS), an annual office-based survey completed by physicians during each patient visit. The NAMCS provides a more accurate assessment of physicians' actual practice than retrospective surveys of practice (as cited in Thorndike, et al). According to NAMCS data analysis, physician smoking cessation counseling rates increased from 16% of 1991 visits to 29% of 1993 visits, but then decreased to 21% of 1995 visits. Likewise, interventions involving NRTs increased from 0.4% of 1991 visits to 2.2% of 1993 visits, but then decreased to 1.3% of 1995 visits. Fluctuations between 1991 and 1993 are correlated with the introduction of the nicotine patch in 1992. Physicians' rates of intervention increased just after the patch was introduced as a viable form of treatment, and then declined thereafter. Further, data analysis indicated that physicians identified patients' smoking status during 67% of 1991 visits. This rate of identification did not change across 1991 – 1995 study. Overall, physicians' interventions did not meet national health objectives or follow practice guidelines.

In conjunction with a shift in attitudes and beliefs about smoking cessation, physicians require skills necessary to engage in effective interventions. Recent research

has shown that physicians do not receive proper training in the area of smoking cessation in medical school (Ferry, Grissino, & Runfola, 1999; Thorndike et al., 1998). Furthermore, a 1991 study of young physicians' perspectives on their education in medical school revealed that few practicing physicians, 21% of physicians surveyed, believed medical training prepared them to help patients stop smoking (Cantor, Baker, & Hughes, 1993). Recent research has revealed that most medical school graduates are still not adequately trained in smoking intervention and treatment (Ferry et al.; Fiore, Epps, & Manley, 1994). Ferry et al. found that nearly 70% of medical schools did not require any clinical training in smoking interventions. Furthermore, of the schools that did require smoking intervention training, only five percent provided evaluation of students' performance of interventions. Additionally, close to one third of the medical schools surveyed reported that only three hours or fewer were spent teaching smoking intervention during the students' four years of training.

Knowledge and skills necessary for the treatment of tobacco use should be part of the training physicians receive. Unfortunately, this type of training is not currently implemented in medical school (Ferry et al., 1999). Cessation intervention training should be more than just an elective opportunity for medical students. According to Rigotti and Thorndike (2001), "Tobacco treatment knowledge and skills should be a required component of every medical school's curriculum, and the knowledge and skills need to be reinforced by specific curricula taught during residency training, when practice patterns form (p. 122)." According to Bellas, Asch, and Wilkes (2000), preventive health issues need to be regularly impressed upon students throughout the course of medical school in an interactive, relevant, and fun manner. Preventive medicine

information should be a continual focus of training. As such, it should be incorporated into all required curriculum and be taught by credible clinical faculty, who serve as role models to the physicians in training.

According to O'Loughlin et al. (2001), relationships between patient and physician demographics and counseling practices, as well as physician perceptions about barriers to counseling, have been investigated. However, little research has focused directly on the relationships between physicians' beliefs, attitudes, and self-efficacy and their counseling practices. The authors' survey of Montreal physicians revealed that, while many general practitioners viewed their roles in smoking cessation counseling in a favorable light, their actual practices fell below recommended counseling rates. Interestingly, too, survey results revealed that previously reported perceived barriers to counseling (e.g., lack of time, skills, reimbursement, patient compliance) were not significant correlates of physician counseling. While this difference in findings may have been due to a discrepancy in methods used to assess barriers and counseling practices, the authors state that the different findings, alternatively, may have been due to the use of a broad range of potential counseling practice correlates in the study. They state that their research results support the idea that programs designed to improve physicians' smoking cessation counseling practices need not address perceived barriers and should instead focus on areas such as increasing physicians' self-efficacy for providing counseling as well as improving negative attitudes and beliefs about counseling.

Studies have shown that physicians' attitudes and beliefs about cessation counseling include a perceived lack of effectiveness, the belief that most smokers do not want to quit, and an inclination to measure intervention success only by final outcomes

(e.g., abstinence from smoking), rather than recognizing that lasting behavior change usually occurs through multiple trials and follows stages of change (Goldstein, DePue, Kazura, & Niaura, 1998; Ockene & Ockene, 1996).

Social Learning Theory

Although most studies to date have not necessarily been theory driven, most attitude and belief constructs are consistent with Bandura's social learning theory (SLT) and, more recently, social cognitive theory (SCT) (Gottlieb, Mullen, & McAlister, 1987). SLT is a framework upon which behavior is studied using concepts such as self-efficacy and outcome expectancy. In SCT, self-efficacy is defined as an estimate of personal capability to execute a behavior necessary to produce a specific outcome, and outcome expectancy is defined as beliefs about the results of personal behavior concerning desirability and likelihood of the outcome (Bandura, 1977, 1986).

Individuals who possess a strong sense of self-efficacy in specific situations typically devote their attention and effort to dealing with the situations, and during involvement in difficult situations tend to be more persistent and invested in performing specific behaviors than people with a weaker sense of self-efficacy. According to Bandura (1977, 1986), self-efficacy can originate from four primary sources: experience of personal mastery, vicarious learning, verbal persuasion, and physiological feedback. Attribution of success to varying sources (e.g., chance, skill), in turn, will influence the extent to which the experience of success will contribute to perceptions of self-efficacy (Bandura, 1977, 1986).

Gottlieb et al. (1987) were the first team of researchers to predict physician practice behaviors in terms of social learning theory. The authors assessed the influence

of physician perceived self-efficacy and outcome expectancy on interventions regarding patient "substance abuse behavior," including smoking. Specifically, the investigators examined the interaction between self-efficacy and outcome expectancy and three practice behaviors: history taking, behavioral risk reduction counseling, and referrals. Findings indicated that history-taking and behavioral counseling were positively correlated with both self-efficacy and outcome expectancy. That is, when physicians perceived both that they had the ability to intervene in patients' health behaviors, such as smoking, and that patients would subsequently comply with recommendations, they were most likely to engage in substance use history-taking and cessation interventions. According to the authors, these findings indicate that in order to improve primary care of patients, physicians' perceptions of self-efficacy and outcome expectancy need to be increased and made more positive, respectively. Further, Gottlieb et al. state that future research should be conducted in order to more clearly understand and define the process through which physicians' perceptions of self-efficacy and outcome expectancy develop, as well as the sources of these perceptions and their effects on clinical practice. In recent studies, self-efficacy and outcome expectancy have been used as constructs upon which studies of physician assessment of and intervention in health behavior have been conducted, as well.

While Gottlieb et al. (1987) approached general practice behaviors of physicians from a social learning theory perspective, others have specifically assessed physicians' cessation intervention practices using this theoretical basis. According to Prochaska and Goldstein (1991), physicians may engage in low rates of smoking intervention due to a perceived lack of appreciation by patients. This perceived lack of patient appreciation, in

turn, may influence physicians' outcome expectancy. Physicians' expectations that patients will not appreciate their smoking cessation interventions probably influence their perceptions of intervention outcomes negatively. In other words, physicians may be operating under the assumption that patients who are unappreciative of interventions will probably not respond well to them. Similarly, Solberg and Kottke (1998) contend that physicians tend not to intervene with patients who smoke for fear of a negative reaction from them. Because smoking interventions fail to result in successful cessation at least every three out of four times, physicians understandably become frustrated with their attempts to intervene (Prochaska & Goldstein, 1991). Such low rates of reinforcement may be inadequate to establish consistent performance of interventions. In addition, low rates of "successful" interventions by physicians, in turn, may lead to the development of low self-efficacy and low outcome expectancy. Thus, because many physicians do not believe in their ability to be effective in interventions, most do not routinely counsel patients who smoke (Prochaska & Goldstein, 1991).

Park et al. (2001) created a decisional balance measure to specifically identify and quantify the pros and cons of smoking cessation counseling for physicians. Decisional balance is not part of SLT; the theory of decisional balance, or weighing of pros and cons of behaviors, can be attributed to Janis and Mann (1977). Park et al. surveyed a convenience sample of physicians, which consisted of general internists who had previously been identified as having an interest in psychosocial aspects of medicine and members of the Association for Medical Education and Research in Substance Abuse. Approximately 600 surveys were mailed; 155 responses were obtained from physicians. Findings indicated that physicians' attitudes about facilitators and barriers to counseling

were related to their self-reported counseling behavior. In other words, physicians who reportedly intervened with all smokers also reported significantly higher pros and lower cons for engaging in smoking cessation counseling compared with physicians who did not intervene with all smokers. In addition to assessing physicians' perceptions of facilitators and barriers to smoking cessation counseling, items on the decisional balance scale also reflect attitudes about self-efficacy, outcome expectancy, and the role of the physician. For example, the item, "I have insufficient skills to effectively counsel patients about smoking cessation," taps into the respondents' perceptions about self-efficacy. Additionally, the item, "Physician-delivered smoking cessation interventions do not work," deals with perceptions of intervention outcome expectancy. Finally, the item, "Physicians play an important role in countering the influence of tobacco advertising," addresses perceptions about physicians' roles in practice. Overall, the Park et al. study indicated that attitudes and beliefs about the pros and cons of smoking cessation counseling appeared to have impacted rates of physician intervention with smokers.

Other studies have indicated that self-efficacy and perceptions of the physician's role are correlated with cessation interventions. A 1991 survey indicated that only 21% of practicing physicians believed that their medical education prepared them to help patients stop smoking (Cantor, Baker, & Hughes, 1993). This lack of formal training may have an effect on physicians' concept of self-efficacy. In other words, feeling unprepared to counsel smokers may lead physicians to believe that they are unable to do so, as well. Lack of training in this area may also contribute to medical students' and residents' perceptions of physicians' roles. Specifically, medical students and residents may learn through observation that intervention in smoking behavior is not a primary concern for

physicians because smoking intervention and counseling techniques are not taught in medical school.

Recent data indicate that the majority of graduates from medical school are still trained inadequately in smoking cessation interventions (Ferry et al., 1999; Fiore et al., 1994). According to Ferry et al., in 122 of the 126 United States medical schools surveyed, only three schools required a course specifically geared toward tobacco treatment. Furthermore, roughly one third of surveyed schools (31.4%) spent three hours or fewer teaching about smoking cessation counseling during the entire four years of medical school. Moreover, the majority of medical schools (69.2%) did not require any formal training in smoking cessation interventions. Specifically, according to Ferry et al., lack of instruction and evaluation in smoking cessation during medical school is a major deficit in training. These deficits in intervention training may have a significant impact on development of future physicians' self-efficacy in intervention. Moreover, these training deficits may have an impact on medical students' and residents' perceptions of the role of the practicing physician. In other words, medical students may fail to perceive smoking cessation interventions as a part of the physician's role due to lack of modeling of these behaviors during training.

In addition to physicians' perceived lack of ability to intervene effectively with patients who smoke, other attitudinal factors may affect physician practice. According to Kottke et al. (1992), because physicians generally do not accept smoking as a health-related behavior that demands attention, clinical smoking intervention programs cannot and will not be maintained in practice without both the demand from patients and payment from an outside source. While practicing physicians may not intervene with

patients' smoking behaviors due to these factors, it is unknown when low rates of assessment and intervention actually begin.

Acquisition of Attitudes and Beliefs

Do physicians acquire the attitudes and beliefs that lead to low rates of intervention in smoking behaviors at current, low rates in medical school? According to Levinson, Roter, Mullod, Dull, and Frankel (1997), physicians currently do not learn communication skills necessary for providing proper patient care in medical school. Preventive care attitudes of medical students, regardless of their level of education and training, are one component of the information that is necessary for making recommendations for improved smoking cessation services. It is possible that medical students have higher self-efficacy and outcome expectancy in terms of intervening in patients' smoking behavior early in their training careers. These beliefs may change over the course of medical training due to experiencing low rates of reinforcement for "successful" interventions, observing the modeling of low rates of intervention behavior by supervisors, and observing the modeling of pessimistic and low-efficacy attitudes of supervisors. These factors may lead to the production of physicians with low self-efficacy and low outcome expectancy and, therefore, low rates of assessment and intervention in smoking behavior. Students enter medical school with previously formed attitudes and beliefs that probably factor into how and what they learn as well as how they practice medicine in the future. According to the Association of Teachers of Preventive Medicine (ATPM), physicians should hold several fundamental values, including a philosophical view of medical care that involves health promotion and prevention as well as a dedication to health promotion and prevention (Wallace, Wiese,

Lawrence, Runyan, & Tilson, 1990). As such, physicians should act as role models for patients, view patients in a holistic light, and use treatment strategies that include the environmental contexts of patients (Wallace, et al.). In accord with this value system, physicians should also actively engage in smoking cessation interventions with patients who smoke.

In order to implement responsible rates of prevention and health promotion, specifically smoking cessation interventions, beliefs and attitudes of future physicians should be assessed throughout the course of medical school and residency in an attempt to discern if and when their perspectives change. In order to better understand the development of physicians' attitudes toward health promotion and prevention, Bellas et al. (2000) surveyed students on the first day of medical school. Results indicated that prior to beginning medical school, students possessed positive attitudes toward health promotion and prevention in general, as well as counseling. Future research is needed to determine whether these positive attitudes persist throughout medical school and clinical practice and, if not, which experiences diminish them. Ewan (1988) found that senior Australian medical students were significantly less likely to perceive the implications of social factors in illness as important as they were when they began medical school. Likewise, the author of the present study believes that medical students' and residents' attitudes toward smoking cessation become more negative throughout the course of training. Paradoxically, Greenland and Derby (1992) found that medical students' attitudes toward prevention of cardiovascular diseases actually improved from entry to graduation of medical school. These findings oppose the hypotheses of the present study, as well as findings from other related studies. As such, it is hoped that the present study

will contribute more information to this area of research in order to increase knowledge about future physicians' attitudes and beliefs about conducting smoking cessation interventions.

The Present Study

To date, a systematic cross-sectional survey of medical students and residents concerning their attitudes and beliefs about smoking cessation has not been conducted. Research in this area is necessary in order to ascertain when physicians' negative attitudes toward counseling, low self-efficacy, lack of motivation, poor outcome expectancy, and limited perceptions of their roles develop in terms of smoking cessation. When that information is attained, steps to remedy those problems can be taken and, theoretically, physician interventions with smoking behavior will increase to optimum levels.

The present study seeks to determine whether physicians develop attitudes and beliefs that may affect the rates at which they conduct smoking cessation interventions during medical school and residency. In order for physicians' interventions to reach optimal rates, physicians must (a) develop more positive attitudes about counseling patients who smoke, (b) believe in their abilities to intervene effectively with patients who smoke, (c) be motivated to intervene with patients who smoke, (d) believe that their interventions with patients who smoke will result in a good outcome, (e) perceive interventions in their patients' smoking as a role of a medical doctor, and (f) expect positive outcomes from their efforts.

Hypotheses

1. Trainees' decisional balance about counseling smokers will be different between groups based on training level. Specifically, more advanced trainees will rate the benefits (pros) of smoking cessation counseling lower, and the barriers (cons) of counseling higher, than less advanced trainees.
2. Trainees' self-efficacy to intervene with future patients who smoke will be different between groups based on training level. Specifically, more advanced trainees will rate self-efficacy for smoking cessation counseling lower than less advanced trainees.
3. Trainees' motivation to intervene with future patients who smoke will be different between groups based on training level. Specifically, more advanced trainees will rate motivation for smoking cessation counseling lower than less advanced trainees.
4. Trainees' expectations of positive outcomes from their intervention efforts will be different between groups based on training level. Specifically, more advanced trainees will rate outcome expectancy for smoking cessation counseling lower than less advanced trainees.
5. Trainees' beliefs that it will be part of their roles as physicians to assist patients in smoking cessation will be different between groups based on training level. Specifically, more advanced trainees will rate the role of the physician in smoking cessation counseling lower than less advanced trainees.

CHAPTER III

METHOD

Participants and Procedures

Medical students and residents ($N = 95$) from the College of Medicine at the University of Oklahoma Health Sciences Center (OUHSC) in Oklahoma City participated in this study. A variety of recruitment methods were attempted. Third-year medical students were recruited and surveyed at a routinely scheduled meeting time. This approach resulted in participation from 49 individuals. Other students and residents were recruited initially via paper questionnaires left in their campus mail boxes, with a return drop-box available in the mail room. Only 20 participants returned completed questionnaires to the drop-box. Finally, students and residents were recruited through email to participate in the study via an internet questionnaire. Three emails were sent to all OUHSC medical students and residents: one initial invitation and two reminders. This recruitment strategy resulted in an additional 26 participants.

All participants were 18 years of age or older. Participants consisted of first- and second-year students, whose training did not involve work with patients; third- and fourth-year students, whose training did involve some contact with patients; and residents, whose training consists primarily of supervised, direct patient care. Due to incomplete surveys, data from 11 participants were not included in the data analyses. After exclusion of incomplete surveys, participants ($N = 84$) consisted of first and second year students ($N = 25$), third and fourth year students ($N = 50$), and residents ($N = 9$). Sample characteristics regarding gender, age, ethnicity, specialty, and smoking status of each group as well as the entire sample are presented in Table 1.

Participants were asked to complete a questionnaire that required approximately 15 minutes of their time. Surveys were completed in a group setting via paper and pencil forms on the University of Oklahoma Health Sciences Center (OUHSC) campus (for third-year students) or individually via paper-and-pencil or online forms. Each participant was asked to read and sign an informed-consent form (see Appendix A). After signing the consent form, participants completed the study questionnaire. All instruments are described below and are included in Appendix B. Participants received no compensation or tangible incentive in return for their participation in this study. This study was approved by the Oklahoma State University (OSU) and OUHSC institutional review boards (IRBs) (see Appendixes C and D for approval letters).

Instruments

Background Information Questionnaire. A questionnaire was designed for the purpose of this study to collect demographic information regarding the participant's gender, age, ethnicity, standing in school, specialty or proposed specialty, and current smoking status. Additionally, two items addressing participants' familiarity with the USDHHS document, *Clinical Practice Guideline: Treating Tobacco Use and Dependence*, were created for this survey. The first item required a response of "yes" or "no" regarding knowledge about the document, while the second item required a projection of future practice related to information in the *Guideline*.

Physicians Counseling Smokers Decisional Balance Scale (PCS). The PCS (Park et al., 2001) is a 20-item questionnaire designed to assess pros and cons related to physicians' counseling of patients who smoke. Using a 5-point Likert scale ranging from "Not at All Important" to "Extremely Important," participants rate the degree to which

the items factor into their decision to counsel smokers. Scores on the Pro Scale can range from 10, suggesting that participants perceive few benefits from conducting smoking cessation interventions, to 50, indicating that they perceive many benefits from providing counseling. Scores on the Con Scale can range from 10, indicating that participants perceive few barriers to providing counseling, to 50, suggesting that they perceive many barriers to providing smoking cessation counseling. Consistent with other literature using decisional balance measures, raw scores from the decisional balance data were converted to T-scores (Prochaska, et al., 1994).

Research has demonstrated that the PCS Pro and Con scale scores are internally consistent and valid. Specifically, Cronbach's alphas of .83 and .86 for the Pro and Con scales, respectively, have been reported. Construct validity has been demonstrated by two findings. First, research has indicated that both scales are significantly related to physician self-report of thoroughness of smoking cessation counseling. Second, the Pro and Con scales were found to be significantly related to stage of physician readiness to change smoking cessation counseling behavior (Park et al., 2001).

The PCS was included in the present study in order to examine the relationship between two important elements of attitudes toward smoking cessation: the potential costs and benefits of intervention. According to Park et al. (2001), "...attitudes, such as those reflected by the Pros and Cons, appear to be important determinants of counseling patients about smoking cessation" (p. 266). These attitudes about the pros and cons of smoking cessation counseling may develop over the course of medical school and residency, during which time trainees are forming other related attitudes and beliefs about

smoking cessation interventions, which may have a profound impact on their future counseling practices.

Self-Efficacy Scale. The Self-Efficacy Scale was taken from a larger scale, the University of Massachusetts Medical Center/Massachusetts Medical School (UMMC/MMS) Physician Survey (Zapka & Fletcher, 1997), which is a questionnaire designed to measure physicians' attitudes and beliefs about smoking cessation interventions in terms of barriers, motivation, and performance. The Self-Efficacy Scale, which assesses practicing physicians' perceptions about personal capabilities regarding smoking cessation interventions, was revised for use in this study in order to measure medical students' confidence in their ability to intervene with future patients who smoke. The scale is comprised of 10 items. Using an 8-point Likert scale, participants rate the degree to which the items relate to their confidence to engage in smoking cessation interventions with future patients. Scores can range from 10, suggesting that a participant is not at all confident in his or her ability to counsel future smokers, to 80, indicating that a participant is very confident in his or her ability to do so.

Research has shown that the Self-Efficacy Scale from the UMMC/MMS Physician Survey yields reliable and valid scores. The internal consistency of the Self-Efficacy Scale has been reported to be as high as .93 (Zapka & Fletcher, 1997). Self-Efficacy scores were significantly and positively associated with UMMC/MMS Physician Survey Performance (i.e., intervention behavior) scores, to a greater degree than with the other survey scale scores.

Motivation Scale. The Motivation Scale was also selected from the UMMC/MMS Physician Survey (Zapka & Fletcher, 1997). The Motivation Scale, which assesses

practicing physicians' personal and social drives to implement smoking cessation interventions, was revised for use in this study in order to measure medical students' and residents' motivation to intervene with future patients who smoke. The scale is comprised of 8 items. Using an 8-point Likert scale, participants rate the degree to which they agree or disagree with motivation-related statements. On the Motivation Scale, scores can range from 8, indicating that a participant is not motivated to implement smoking cessation interventions in the future, to 64, suggesting that a participant is driven to utilize interventions in the future.

Research has shown that the Motivation Scale of the UMMC/MMS Physician Survey yields reliable and valid scores. Specifically, internal consistency for the Motivation Scale has been reported to be as high as .82 (Zapka & Fletcher, 1997). Further, the Motivation Scale was divided into two subscales based on factor analysis: the Personal Motivation subscale and Norms Motivation subscale. Internal consistency was adequate on the two subscales (Personal Motivation subscale, $\alpha = .81$; Norms Motivation subscale, $\alpha = .71$); (Zapka & Fletcher, 1997).

Due to a technical error in the online study, data for two items (#6 and #8) on the Motivation Scale were not collected. The original Personal Motivation subscale was comprised of items 1, 2, 3, 4, 5, and 8. According to Zapka and Fletcher, internal consistency was good, with $\alpha = .81$. In this study, items 1, 2, 3, 4, and 5 were analyzed to assess personal motivation. The modified personal motivation analyses did not include item 8 (i.e., "It is unconscionable to me that tobacco companies are not regulated in their business practices."), which is not a statement of affect. The remaining items that were analyzed all reflect statements of affect related to motivation to intervene with patients

who smoke (e.g., "I will feel rewarded when I help a patient to successfully quit smoking"). Internal consistency for this modified personal motivation scale was adequate, with $\alpha = .78$.

Outcome Expectancy Item. One item regarding beliefs about effectiveness of physicians' smoking cessation counseling was created for this survey. Using an 8-point Likert scale, ranging from "Definitely No" to "Definitely Yes," participants rated whether they believe interventions can be successful.

Role of Physician Items. Two items concerning beliefs about physicians' roles regarding both addressing cessation with all patients who smoke and assisting with quit attempts were created for this survey. Using an 8-point Likert scale, ranging from "Definitely No" to "Definitely Yes," participants rated whether they believe it is the physician's role to intervene in these situations.

CHAPTER IV

RESULTS

Analysis Strategy

The overall strategy for data analysis included the use of two methods of analysis of variance (ANOVA): a split-plot ANOVA and one-way ANOVAs to test the pros and cons in the decisional balance hypothesis and a series of one-way ANOVAs to test the remaining hypotheses. Sample characteristics were analyzed with chi-square tests. See Table 2 for means, standard deviations, and confidence intervals for each dependent variable.

A preliminary examination of the data revealed that, in total, 95 participants had completed the survey. Due to missing data, 11 surveys were omitted, so that in the final analyses, data from 84 participants were analyzed. As is typical with survey research, several participants had missing data on one or more items. When summing items to create subscale scores, participants were required to have usable data for 80% or more of the total items included in the scale. Scales were scored by creating an item mean for all usable scale items, then multiplying the means by the total number of items included in the original scale. When an individual had missing data on greater than 80% of scale items, the individual's data were not included in further analyses.

Sample Characteristics

The survey was completed by 84 participants including both men (n = 47, 56.0%) and women (n = 37, 44.0%). The mean age of participants was 25.4 (SD = 3.2, range = 22 - 45). Most participants described themselves as Caucasian (n = 69, 82.4%). Most participants reported their smoking status as having never smoked cigarettes (n = 61,

73.5%). Seventy-nine (94.0%) participants reported that they had not heard of the *Clinical Practice Guideline: Treating Tobacco Use and Dependence*. Chi-square tests indicated no differences in gender status [$\chi^2(2, N = 84) = 2.20, p = .33$)], ethnicity [$\chi^2(12, N = 84) = 19.27, p = .08$], smoking status [$\chi^2(6, N = 83) = 6.74, p = .35$], choice of specialty [$\chi^2(16, N = 82) = 19.11, p = .26$], knowledge of *Guideline* [$\chi^2(2, N = 84) = 2.39, p = .30$], and encouragement from supervisors to intervene [$\chi^2(14, N = 84) = 12.15, p = .60$], between the three groups. These tests must be interpreted with caution, because as expected frequencies approximate zero, the theoretical chi-square distribution becomes less reliable for estimating probabilities (Spatz, 1997). See Table 1 for complete demographic information.

Hypothesis 1. Trainees' decisional balance about counseling smokers will be different between groups based on training level. Specifically, more advanced trainees will rate the benefits (pros) of smoking cessation counseling lower, and the barriers (cons) of counseling higher, than less advanced trainees.

In order to test this first hypothesis about decisional balance across medical training, group differences were examined in terms of both the pros and cons of intervention. A pattern of decreasing scores on the Pro PCS subscale and increasing scores on the Con PCS subscale was expected.

For the decisional balance data, two separate one-way ANOVAs were run to test differences between trainee groups on both the Pro scale and Con scale of the PCS. No significant differences were observed on the Pro scale, $F(2, 83) = 2.31, p = .11, \eta^2 = .05$, which indicated that all groups reported similar levels of perceived benefits of treating patients who use nicotine (see Table 2). No significant differences were observed on the

Con scale, $F(2, 83) = .50$, $p = .61$, $\eta^2 = .01$, which indicated that all groups reported similar levels of perceived cons of treating patients who use nicotine (see Table 2).

In order to investigate the relative balance between the pros and cons across training groups, a split-plot analysis of variance (ANOVA), with Pro and Con T-scores as the dependent variables and level of training as the independent variable, was run to test group differences on the PCS. No significant differences were observed for the interaction effect of decisional balance by level of training, $F(2, 81) = 1.69$, $p = .19$, $\eta_p^2 = .04$. No significant differences were observed for the main effect of decisional balance in the test of the within-subjects effect, $F(1, 81) = .16$, $p = .69$, $\eta_p^2 = .00$, No significant differences were observed for the main effect of level of training in the test of the between-subjects effect, $F(2, 81) = 1.04$, $p = .36$, $\eta_p^2 = .03$. Whereas a statistically significant interaction effect was not observed, the data did follow the predicted trend. Specifically, as expected, Con scores appeared to be higher at more advanced levels of training, while Pro scores appeared to be lower at more advanced levels (see Table 2 and Figure 1).

Hypothesis 2. Trainees' self-efficacy to intervene with future patients who smoke will be different between groups based on training level. Specifically, more advanced trainees will rate self-efficacy for smoking cessation counseling lower than less advanced trainees.

In order to test this second hypothesis about self-efficacy across training, group differences were examined. A pattern of decreasing scores on the Self-Efficacy Scale was expected.

A one-way ANOVA was run to test differences across level of training on the Self-Efficacy Scale. No significant differences were observed on the Self-Efficacy Scale, $F(2, 81) = .07$, $p = .93$, $\eta^2 = .00$, which indicated that all groups reported similar confidence in ability to treat patients who use nicotine (see Table 2 and Figure 2).

Hypothesis 3. Trainees' motivation to intervene with future patients who smoke will be different between groups based on training level. Specifically, more advanced trainees will rate motivation for smoking cessation counseling lower than less advanced trainees.

In order to test this third hypothesis about motivation across training, group differences were examined. A pattern of decreasing scores on the modified Personal Motivation subscale was expected.

A one-way ANOVA was run to test group differences on the modified Personal Motivation subscale of the Motivation Scale. No significant differences were observed on the total score of the modified Personal Motivation Scale, $F(2, 81) = 1.09$, $p = .34$, $\eta^2 = .03$, which indicates that all groups reported similar affective motivation to treat patients who smoke (See Table 2 and Figure 3).

Hypothesis 4. Trainees' expectations of positive outcomes from their intervention efforts will be different between groups based on training level. Specifically, more advanced trainees will rate outcome expectancy for smoking cessation counseling lower than less advanced trainees.

In order to test this fourth hypothesis about outcome expectancy across training, group differences were examined. Lower scores on the outcome expectancy item for more advanced trainees were predicted.

A one-way ANOVA was run to test differences across training on the outcome expectancy item. No significant differences were observed on the item, $F(2, 81) = 2.52$, $p = .09$, $\eta^2 = .06$, which indicates that all groups reported similar outcome expectancy when treating patients who smoke. A trend was noted, however, which indicated that medical students' and residents' beliefs that smoking cessation counseling with patients will be effective were increasingly negative across years of training (see Table 2 and Figure 4).

Hypothesis 5. Trainees' beliefs that it will be part of their roles as physicians to assist patients in smoking cessation will be different between groups based on training level. Specifically, more advanced trainees will rate the role of the physician in smoking cessation counseling lower than less advanced trainees.

In order to test this final hypothesis about the role of the physician across training, group differences were examined. Decreasing scores on the role of physician items were predicted.

Unexpectedly, the two items designed to tap role beliefs were not substantially correlated ($r = .37$, $p < .001$), so analyses were run on the items separately. A one-way ANOVA was run to test group differences on each of the two role of physician items. Significant differences were observed on the first item (*"Do you think that it will be part of your role as a physician to assist patients in efforts to stop smoking?"*), $F(2, 81) = 4.38$, $p = .02$, $\eta_p^2 = .10$, which indicated group differences regarding the expectations of future physicians' personal role when treating patients who smoke. Level of training explained 10% of the observed varience in the role time ratings. Tukey's HSD post-hoc tests revealed that both first- and second-year students and third- and fourth-year students had higher scores than residents, which indicated that the students believed more strongly

that it will be part of their roles as physicians to assist patients in efforts to stop smoking compared to residents. No significant difference was observed among the two student groups (see Table 2 and Figure 5).

No significant differences were observed on the second item ["*Do you think that it is part of the physician's role to intervene with all patients who smoke (even those who don't want to quit)*?"], $F(2, 81) = 1.42, p = .25, \eta^2 = .03$, which indicates that first- and second-year students ($M = 4.96$, $SD = 1.99$), third- and fourth-year students ($M = 5.76$, $SD = 1.89$), and residents ($M = 5.22$, $SD = 2.54$) all reported similar beliefs about the general role of the physician when treating patients who smoke, even those who do not want to quit. The mean scores across levels of training were all above the midpoint (four) of the scale. This finding indicated that, in general, future physicians do believe that intervening with patients who smoke is part of the physician's role. However, this belief is not strongly held, as evidenced by means just above the midpoint of the item scale (see Figure 6).

Statistical power

Due to the unexpected recruitment difficulties and low sample size, this study suffered from low power for most hypothesis tests. Across the five hypotheses in this study, a range of power was detected, from a minimum of .13 to a maximum of .71. Power of .71 approaches the recommended level of .80, typically considered a minimum requirement in data analysis. A post-hoc power analysis was conducted with the program, G-power (Faul & Erdfelder, 1992), to determine the minimum sample size necessary to have appropriate power for the remaining hypotheses in this study. In order to have adequate power (i.e., .80), according to effect sizes for each of the tests, a sample size as

low as 171 (for the outcome expectancy item) and as high as 6027 (for the Self-efficacy Scale) would have been needed (see Table 3).

CHAPTER V

DISCUSSION

The purpose of this study was to investigate medical students' and residents' current attitudes and beliefs about smoking intervention. Research has indicated that most physicians fail to counsel their patients to stop smoking (CDC, 1993, Gilpin et al., 1992). Several factors are believed to play a role in the lack of physician intervention in the area of tobacco use, including both personal factors and systemic factors. For personal factors, physicians' attitudes and beliefs about smoking and cessation interventions predict whether physicians actually intervene with smoking behavior. Relevant attitudes and beliefs include decisional balance of pros and cons, self-efficacy, motivation, outcome expectancies about patient change, and perception of physicians' role in terms of physician intervention with smoking. It is currently unknown when beliefs and attitudes about smoking interventions develop or which factors specifically influence their development. By determining when and how attitudes associated with low rates of intervention with smoking develop, steps can be taken to improve physicians' rates of intervention, which will, in turn, reduce current rates of smoking in the United States population.

Medical students and residents at the University of Oklahoma in the College of Medicine were recruited to complete surveys regarding attitudes and beliefs about conducting smoking cessation interventions with future patients. Questionnaires were comprised of demographic items, three scales (i.e., Physicians Counseling Smokers Decisional Balance Scale (PCS), Self-Efficacy Scale, Motivation Scale) originally written to survey practicing physicians that were revised for this study, and several newly

created items related to medical students' and residents' attitudes and beliefs about outcome expectancy and role of the physician regarding smoking and smoking cessation.

Overall, findings from this study failed to demonstrate reliable differences in attitudes and beliefs across levels of medical training. One significant difference was detected for one measure of role beliefs. This finding indicates that students believe more strongly that it is part of their personal roles as physicians to assist patients in efforts to stop smoking compared to residents.

In terms of attitudes and beliefs about the pros and cons of conducting smoking cessation interventions, it was hypothesized that future physicians' decisional balance would be different between groups based on training level. Further, it was expected that the cons of intervention would outweigh the pros later in training. An interaction was predicted, with Con scores increasing over time and Pro scores decreasing over time.

Analyses of data indicated that while scores for pros and cons did not differ significantly by level of training, as hypothesized, the data did follow the predicted trend. Specifically, as expected, Con scores increased across levels of training, while Pro scores decreased. The pros for conducting smoking cessation interventions with future patients are highest early in training and lowest during residency, while cons are lowest early in training and highest during residency. This trend may indicate that decisions to intervene with patients who smoke decrease during training, so that by the time trainees are ready to begin their careers, they may be less ready to counsel smokers. This trend should be explored further in future research across multiple medical school settings.

In this study, it was also hypothesized that trainees' self-efficacy to intervene with future patients who smoke would be different between groups based on training level.

Findings did not support this hypothesis, but rather indicated that all groups had similar confidence in their ability to treat future patients who use nicotine.

These results can be examined in the context of the findings of Zapka and Fletcher (1997). Results from their research have indicated that self-efficacy is positively correlated with intervention behavior. More specifically, the mean rating of the 112 participants was 50.44 (SD = 14.84) of a possible score ranging from 10 to 80. In this study, the mean rating of all participants was 53.40 (SD = 12.50). Although not statistically analyzed, the sample in this study appeared to have similar, although slightly higher, levels of self-efficacy as the practicing physicians who participated in Zapka and Fletcher's study. Unfortunately, as mentioned above, the small sample size resulted in little power to detect all but very large effects.

Statistically significant differences were not found between groups on self-efficacy, and, further, the differences that did exist did not occur in the expected direction. Results indicated that self-efficacy scores were higher across years of training, rather than lower, which was expected, based on the findings of Zapka and Fletcher (1997).

Further, in this study, it was hypothesized that trainees' motivation to intervene with future patients who smoke would be different between groups based on training level. Again, findings did not support this hypothesis, but rather indicated that all groups had similar motivation to treat future patients who use nicotine. Similar to the findings from the self-efficacy data, these findings can be assessed in the context of the findings of Zapka and Fletcher (1997). Findings from their research have indicated that motivation is positively correlated with intervention behavior. More specifically, the mean rating of the

101 participants who completed the scale was 51.70 (SD = 8.72) of a possible score ranging from 8 to 64 (Zapka & Fletcher, 1997). In this study, the mean rating of participants was 52.48 (SD = 8.40). These mean ratings are not directly comparable to those from Zapka and Fletcher's study, because the modified Personal Motivation subscale used in this study was missing one item that was included in the original subscale. However, while it is unknown, it is probable that participants in this study are more personally motivated to intervene with patients who smoke than the physicians from the original study. This interpretation is evidenced by the higher mean ratings of participants in this study when compared to those in the previous study, which included a 6-item subscale, rather than a 5-item one. In this study, results may indicate that medical students and residents have moderately high personal motivation to counsel future smokers. Additionally, results from this study indicate that results from a modified measure of personal motivation are not significantly different across levels of training, as expected.

Unfortunately, as mentioned above, the small sample size in this study resulted in little power to detect all but very large effects. Further, the modified personal motivation assessed in this study did not include an item used by Zapka and Fletcher (1997) in their original scale and subscale development. Nonsignificant findings may be due to item differences in the scales.

While statistically significant differences were not found between groups on motivation, the observed trend did occur in the expected direction. More specifically, motivation to intervene with patients who smoke in the future was lower across levels of training.

In this study it was also hypothesized that trainees' expectations of positive outcomes from their intervention efforts would be different between groups based on training level. The outcome expectancy item created for this study was used to assess medical students' and residents' beliefs about effectiveness of physicians' smoking cessation counseling. Findings did not support this hypothesis, but rather indicated that all groups had similar beliefs about the effectiveness of treating future patients who use nicotine. The sample size ($N = 84$) was too small to detect any meaningful group differences, and the estimated effect size ($\eta^2 = .06$) suggested that such differences would nonetheless be small.

Whereas statistically significant differences were not found between groups on outcome expectancy, the differences that existed did occur in the expected direction. More specifically, outcome expectancy regarding intervening with patients who smoke in the future was lower across increasing levels of training. It should be noted that these findings were based on an item constructed specifically for this study. More research is needed on the item.

Finally, in this study, it was hypothesized that future physicians' beliefs that it will be part of their roles as physicians to assist patients in smoking cessation would be different between groups based on training level. The role of physician items created for this study were used to assess medical students' and residents' beliefs about the physicians' role in smoking cessation counseling.

Interestingly, students did not differ in their beliefs that it should be part of the role of physicians, in general, to intervene with smokers. However, when asked whether it would be part of *his* or *her* role as a physician, significant differences were observed. It appears that as medical trainees begin to get a better idea of the breadth of responsibilities of

practicing physicians during residency, they become less enthusiastic about endorsing another responsibility of intervening with tobacco use. However, residents continued to believe that some physicians should be intervening; it just shouldn't necessarily be them, personally. This kind of professional diffusion of responsibility could certainly contribute to low rates of intervention observed in samples of practicing physicians.

Several limitations should be noted in this study. The largest limitation was small sample size. The small sample size makes it very difficult to determine the reliability of the results, and small sample sizes adversely affect power. According to the G-power program (Faul & Erdfelder, 1992), with a sample size as large as 969, the power of the analysis of variance (ANOVA) tests would have been greater than .80 for small effect sizes ($f = .10$). The study would have had inadequate power for smaller effect sizes, but these effects would likely have been too small to be of practical interest. The actual recruited sample size of this study was 84. The smallest effect that could have been detected with the sample of 84 was $f = .35$. One hundred seventy-one participants would have been needed in order to attain adequate power to detect a difference ($f = .24$) in outcome expectancy if it had existed. See Table 3 for all power analyses calculated with the G-power program (Faul & Erdfelder, 1992). These adverse effects may help to explain why significant differences between groups were not observed on the majority of measures.

Recruitment methods were obviously inadequate. Initially, recruitment was attempted by dispersing surveys through campus mail. A lack of response required the author to recruit during a prescheduled meeting and through the internet and e-mail. Recruitment difficulties may have been due to a lack of compensation for participants' time. Further,

data collection proved differentially difficult across levels of training, which resulted in unequal sample size across levels. Residents, in particular, were difficult to recruit in large numbers. Finally, it is possible that the sample characteristics of the students and residents at University of Oklahoma College of Medicine differ from those of the general population of medical students and residents.

Several strengths of this study can be identified. Despite difficulties with recruiting participants, the researcher was able to sample participants across all levels of training. Further, reliable and valid measures were used to assess attitudes and beliefs in this study.

Finally, in addition to the significant finding regarding attitudes and beliefs about the physician's role, another finding from this study was noteworthy. The vast majority of medical students and residents in this study had never heard of the *Clinical Practice Guideline*, which is a document published for use by all healthcare professionals and considered to be a standard of care for smoking cessation interventions. This finding may be used to help inform future medical training, so that the *Guideline* will be incorporated into the curriculum. Moreover, this finding may help to explain why null results were found for tests of hypotheses about decisional balance, self-efficacy, motivation, and outcome expectancy, and one measure of physicians' role in this study. Because most trainees were not aware of the *Guideline*, their ratings of attitudes and beliefs about conducting smoking cessation interventions may have been affected by this very lack of knowledge about best intervention practices. If trainees had been knowledgeable of the document, then their attitudes and beliefs might have followed the patterns proposed in this study's hypotheses. Students' and residents' lack of exposure to the *Guideline* may have decreased the level of variance between levels of training. Specifically, it appears

that across levels of training no *Guideline* instruction occurs that has an effect on students' and residents' attitudes and beliefs about conducting interventions.

The findings from this study add data to the continuing body of research, which suggests that attitudes and beliefs about conducting smoking cessation interventions develop and change across levels of medical school and resident training. While most of these findings were nonsignificant, trends in the data suggest that with appropriate power, significant differences may have been detected. Thus, the information gained from this study can be used to support attempts at future research in this area. Future research may yield results that could enhance medical school curriculum in order to increase the likelihood that physicians will intervene with patients who smoke in the future.

Table 1

Sample Characteristics

	Level of Training			
	First- and Second- Year Students	Third- and Fourth-Year Students	Residents	Total
Gender				
Males	11 (44.0%)	30 (60.0%)	6 (66.7%)	47 (56.0%)
Females	14 (56.0%)	20 (40.0%)	3 (33.3%)	37 (44.0%)
Ethnicity				
African-American	1 (4.0%)	0 (0.0%)	0 (0.0%)	1 (1.2%)
Asian-American	0 (0.0%)	6 (12.0%)	2 (22.2%)	8 (9.5%)
Caucasian	24 (96.0%)	39 (78.0%)	6 (66.7%)	69 (82.1%)
Native American	0 (0.0%)	1 (2.0%)	0 (0.0%)	1 (1.2%)
Hispanic	0 (0.0%)	2 (4.0%)	0 (0.0%)	2 (2.4%)
Latino	0 (0.0%)	0 (0.0%)	1 (11.1%)	1 (1.2%)
Other	0 (0.0%)	2 (4.0%)	0 (0.0%)	2 (2.4%)
Smoking status				
Never smoker	18 (72%)	37 (76.0%)	6 (66.7%)	61 (73.5%)
Current smoker	0 (0.0%)	1 (2.0%)	0 (0.0%)	1 (1.2%)
Former smoker	2 (8.0%)	5 (10.2%)	3 (33.3%)	10 (12.0%)
Other	5 (2.0%)	6 (12.2%)	0 (0.0%)	11 (13.3%)
Choice of specialty				
Family practice	6 (24.0%)	3 (6.3%)	3 (33.3%)	12 (14.6%)
Internal medicine	2 (8.0%)	8 (16.7%)	0 (0.0%)	10 (12.2%)
Pediatrics	5 (20.0%)	6 (12.5%)	0 (0.0%)	11 (13.4%)

Surgery	5 (20.0%)	8 (16.7%)	1 (11.1%)	14 (17.1%)
General practice	1 (4.0%)	1 (2.1%)	0 (0.0%)	2 (2.4%)
Obstetrics/ gynecology	2 (8.0%)	4 (8.3%)	0 (0.0%)	6 (7.3%)
Psychiatry	0 (0.0%)	1 (2.1%)	1 (11.1%)	2 (2.4%)
Orthopedics	0 (0.0%)	2 (4.2%)	1 (11.1%)	3 (3.7%)
Other	4 (16%)	15 (31.3%)	3 (33.3%)	22 (27.0%)
Knowledge of Guideline				
No	25 (100.0%)	46 (92.0%)	8 (88.9%)	79 (94.0%)
Yes	0 (0.0%)	4 (8.0%)	1 (11.1%)	5 (6.0%)

Table 2

Means (M), standard deviations (SD), and 95% confidence intervals (CI) for all dependent variables

	Level of Training						
	First- and Second-year		Third- and Fourth-year		Residents		Full Sample
Variable	*M (SD)*	*CI*	*M (SD)*	*CI*	*M (SD)*	*CI*	*M (SD)*
Pros	3.78 (.56)	3.55 – 4.01	3.50 (.54)	3.35 – 3.66	3.46 (.65)	2.95 – 3.96	3.58 (.57)
Cons	2.58 (.64)	2.31 – 2.84	2.58 (.57)	2.42 – 2.75	2.80 (.79)	2.19 – 3.41	2.61 (.62)
Self-efficacy	5.26 (1.70)	4.56 – 5.96	5.36 (1.02)	5.07 – 5.65	5.40 (1.13)	4.53 – 6.27	5.34 (1.25)
Motivation	6.81 (.83)	6.47 – 7.15	6.48 (1.04)	6.17 – 6.77	6.33 (1.55)	5.15 – 7.52	6.56 (1.05)
Outcome expectancy	6.24 (1.33)	5.69 – 6.79	5.90 (1.49)	5.48 – 6.32	4.89 (2.32)	3.11 – 6.67	5.89 (1.58)
Role of physician (Item 1)	7.12 (1.13)	6.65 – 7.59	6.80 (1.47)	6.38 – 7.22	5.44 (2.19)	3.76 – 7.12	6.75 (1.53)
Role of physician (Item 2)	4.96 (1.99)	4.14 – 5.78	5.76 (1.89)	5.22 – 6.30	5.22 (2.54)	3.27 – 7.17	5.46 (2.00)

Table 3

Sample Size Needed in Order to Detect Possible Differences

Variable	η_p^2	f	Sample Size
Decisional balance interaction	.04	.20	246
Self-efficacy	.002	.04	6027
Motivation	.03	.16	381
Outcome expectancy	.06	.24	171
Role of physician (Item 1)	.10	.31	105
Role of physician (Item 2)	.03	.18	303

Note. Because G-power requires f as the metric for effect size, new effect sizes for each test were calculated using G-power. The two effect sizes are a mathematical function of each other [(f = sqrt (η_p^2 / 1 - η_p^2)], (Cohen, 1988).

Figure 1. Pros and cons of smoking cessation counseling by training group. Error bars represent 95% confidence intervals for group means.

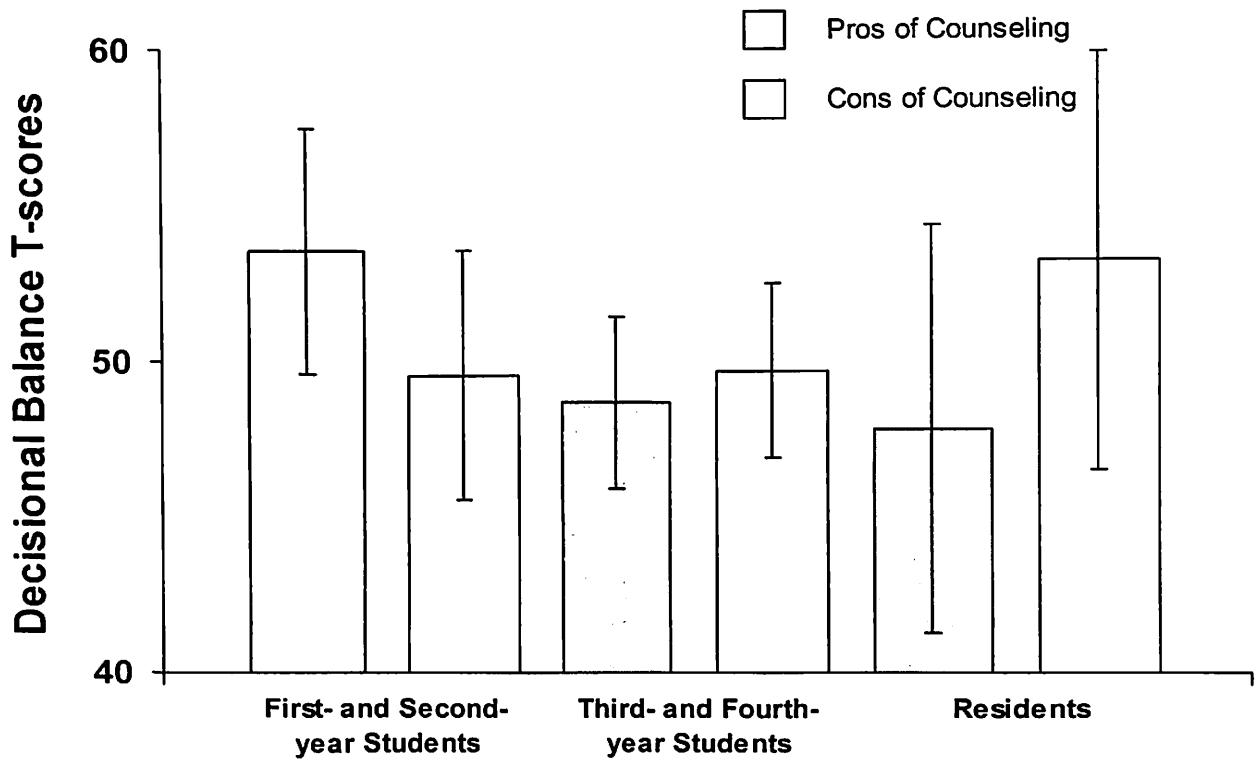


Figure 2. Self-efficacy for smoking cessation counseling by training group. Error bars represent 95% confidence intervals for group means.

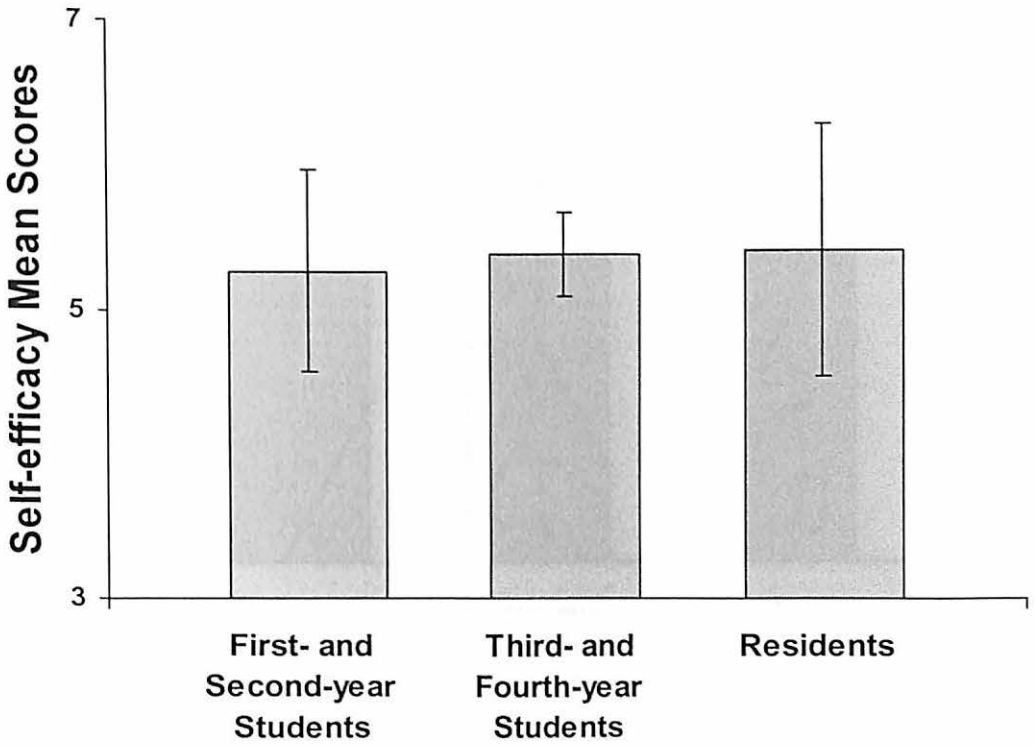


Figure 3. Motivation for smoking cessation counseling by training group. Error bars represent 95% confidence intervals for group means.

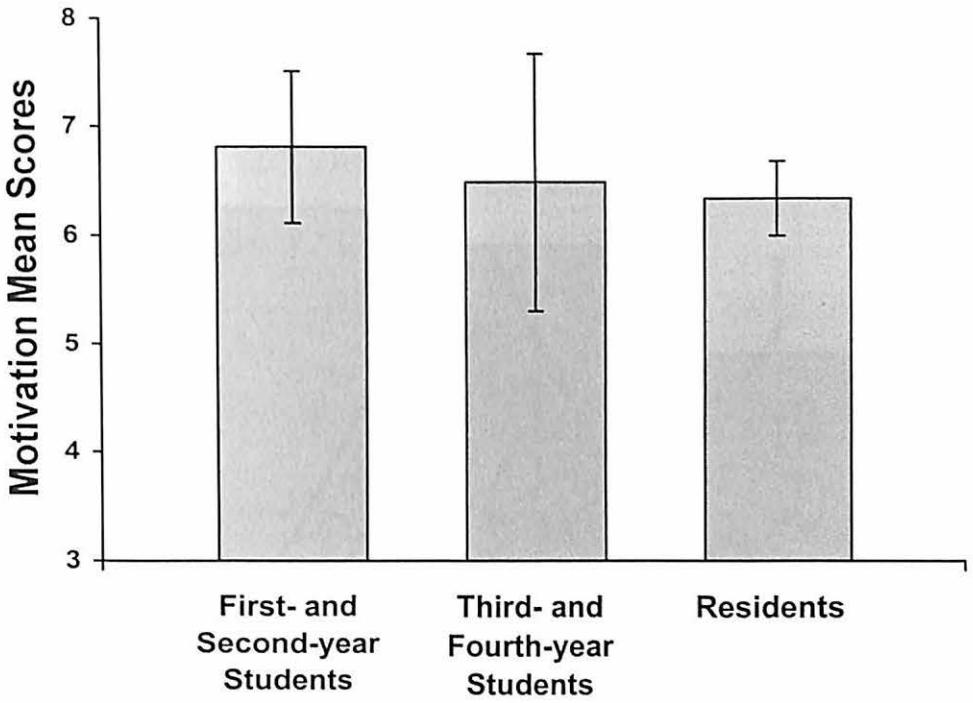


Figure 4. Outcome expectancy for smoking cessation counseling by training group. Error bars represent 95% confidence intervals for group means.

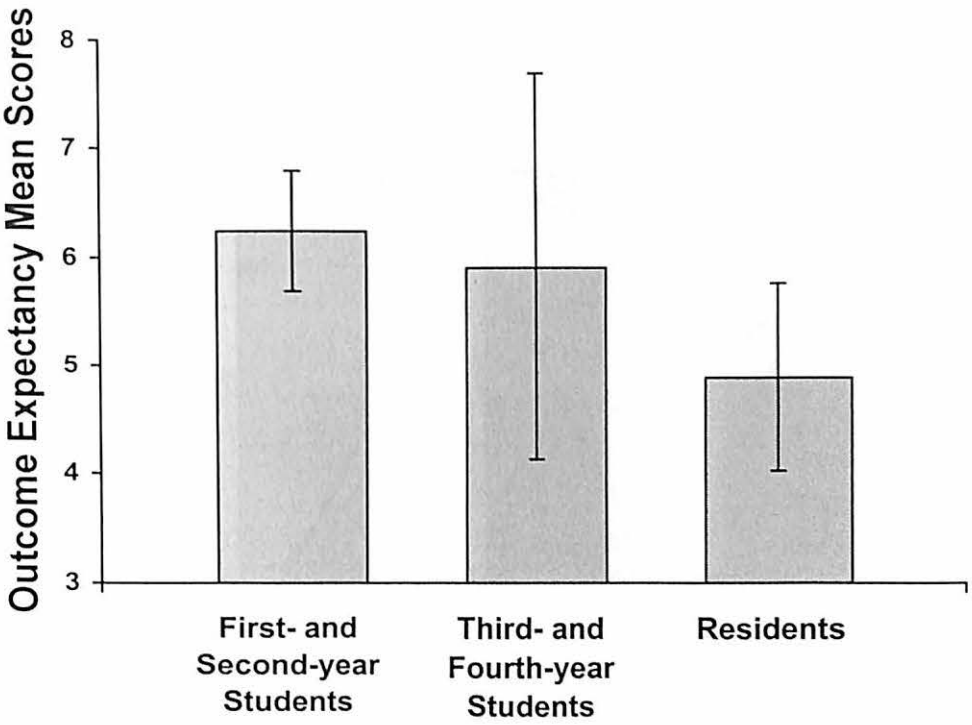


Figure 5. Perception of role (one) for smoking cessation counseling by training group. Error bars represent 95% confidence intervals for group means.

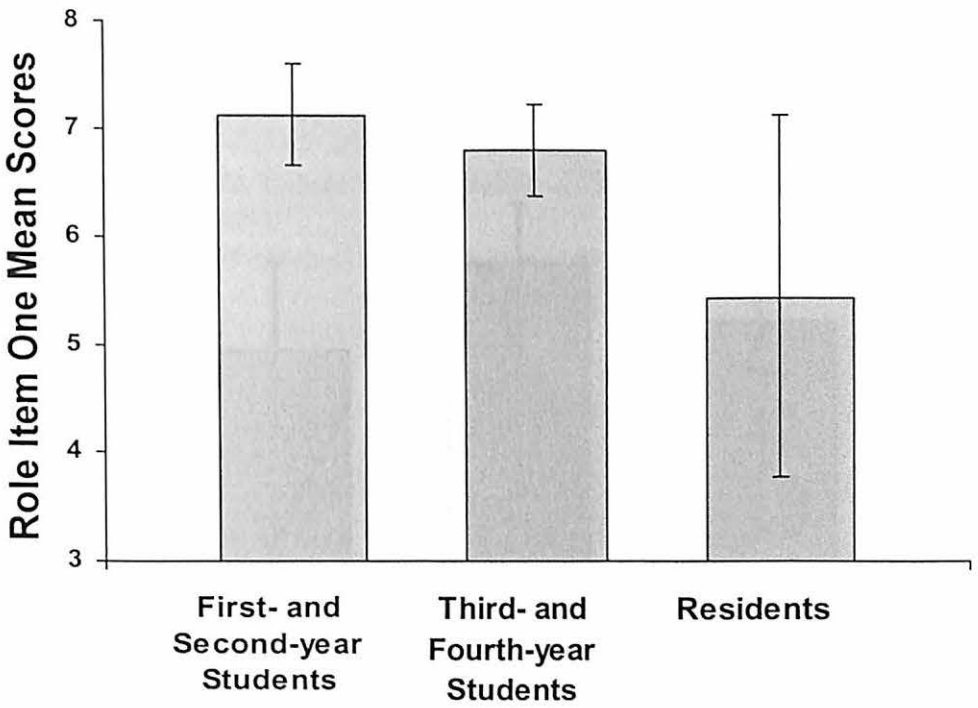
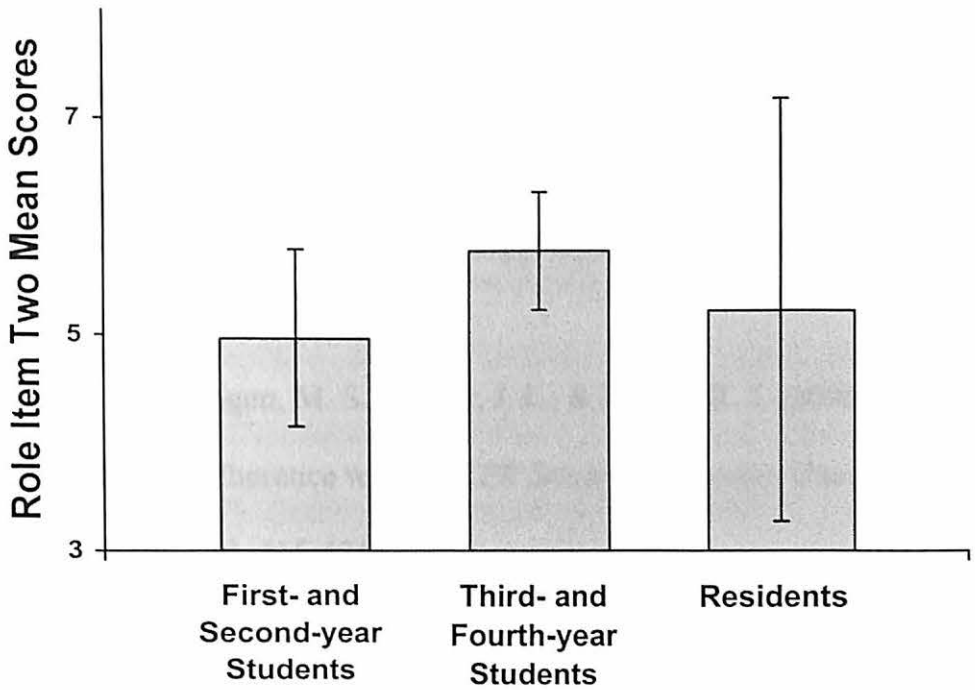


Figure 6. Perception of role (two) for smoking cessation counseling by training group. Error bars represent 95% confidence intervals for group means.



References

Agency for Health Care Policy and Research. (1996). *Smoking cessation: Clinical Practice Guideline No. 18* (AHCPR Publication No. 96-0692). Rockville, MD: Fiore, M. C., Bailey, W. C., & Cohen, S. C.

Agency for Healthcare Research and Quality. (2000). *Treating tobacco use and dependence: A clinical practice guideline* (AHRQ Publication No. 00-0032). Rockville, MD: USDHHS.

Andrews, J. O., Tingen, M. S., Waller, J. L., & Harper, R. J. (2001). Provider feedback improves adherence with *AHCPR Smoking Cessation Guideline. Preventive Medicine, 33,* 415-421.

Bandura, A. (1977). *Social learning theory.* Englewood Cliffs, NJ: Prentice Hall.

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory.* Englewood Cliffs, NJ: Prentice Hall.

Bellas, P. A., Asch, S. M., Wilkes, M. (2000). What students bring to medical school: Attitudes toward health promotion and prevention. *American Journal of Preventive Medicine, 18,* 242-248.

Bruce, N. & Burnett, S. (1991). Prevention of lifestyle-related disease: General practitioners' views about their role, effectiveness and resources. *Family Practice, 8,* 373-377.

Cantor, J. C., Baker, L. C., & Hughes, R. G. (1993). Preparedness for practice: Young physicians' views of their professional education. *Journal of the American Medical Association, 270,* 1035-1040.

Centers for Disease Control and Prevention (1993). Cigarette smoking-attributable mortality and years of potential life lost. *Morbidity and Mortality Weekly Report, 42, 645-649.*

Centers for Disease Control and Prevention (1993). Physician and other health-care professional counseling of smokers to quit. *Morbidity and Mortality Weekly Report, 42,* 854-857.

Centers for Disease Control and Prevention (1997). Cigarette smoking among adults – United States, 1995. *Morbidity and Mortality Weekly Report, 46,* 1217.

Centers for Disease Control and Prevention (n.d.). *Tobacco information and prevention source (TIPS).* Retrieved November 11, 2002, from http://www.cdc.gov/tobacco/issue.htm

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences.* Lawrence Erlbaum Associates, Hillsdale, NJ.

Davis, J. E., McBride, P. E., & Bobula, J. A. (1992). Improving prevention in primary care: physicians, patients, and processes. *Journal of Family Practice, 35,* 385-387.

Ewan, C. E. (1988). Social issues in medicine: A follow-up comparison of senior-year medical students' attitudes with contemporaries in non-medical faculties. *Medical Education, 22,* 375-380.

Ewing, G. B., Selassie, A. W., Lopez, C. H., & McCutcheon, E. P. (1999). Self-report of delivery of clinical preventive services by U. S. physicians: comparing specialty, gender, age, setting of practice, and area of practice. *American Journal of Preventive Medicine, 17,* 62-72.

Faul, F. & Erdfelder, E. (1992). GPOWER: A priori, post-hoc, and compromise power analyses for MS-DOS [Computer program]. Bonn, FRG: Bonn University, Department of Psychology 1992.

Ferry, L. H., Grissino, L. M., & Runfola, P. S. (1999). Tobacco dependence curricula in U.S. undergraduate medical education. *Journal of the American Medical Association, 282,* 825-829.

Fiore, M. D. (2000). A clinical practice guideline for treating tobacco use and dependence: A U. S. Public Health Service report. *Journal of the American Medical Association, 283,* 3244-3254.

Fiore, M. C., Epps, R. P., & Manley, M. W. (1994). A missed opportunity: Teaching medical students to help their patients successfully quit smoking. *Journal of the American Medical Association, 271,* 624-626.

Frank, E., Winkleby, M. A., Altman, D. G., Rockhill, B., & Fortmann, S. P. (1991). Predictors of physicians' smoking cessation advice. *Journal of the American Medical Association, 266,* 3139-3144.

Gilpin, E., Pierce, J. P., Johnson, M., & Bal, D. (1993). Physician advice to quit smoking : Results from the 1990 California Tobacco Survey. *Journal of General Internal Medicine, 8,* 549-553.

Gilpin, E., Pierce, J., Goodman, J., Giovino, G., Berry, C., & Burns, D. (1992). Trends in physicians' giving advice to stop smoking, United States, 1974-1987. *Tobacco Control, 1,* 31-36.

Goldstein, M. G., DePue, J., Kazura, A., & Niaura, R. (1998). Models for provider-patient interaction: Applications to health behavior change. In S. A. Shumaker, E.

Schron, & J. Ockene (Eds.), *Handbook of health behavior change* (pp. 85-113). New York: Springer.

Goldstein, M. G., Niaura, R., Willey-Lessne, C., DePue, J., Eaton, C., Rakowski, W. et al. (1997). Physicians counseling smokers: A population-based survey of patients' perceptions of health care provider-delivered smoking cessation interventions. *Archives of Internal Medicine, 157,* 1313-1319.

Gottlieb, N. H., Mullen, P. D., & McAlister, A. L. (1987). Patients' substance abuse and the primary care physician: Patterns of practice. *Addictive Behaviors, 12,* 23-32.

Greenland, P. & Derby, C. A. (1992). Medical students' improved attitudes toward prevention of cardiovascular diseases from entry to graduation. *American Journal of Preventive Medicine, 8,* 53-57.

Janis, I. L. & Mann, L. (1977). *Decision making : A psychological analysis of conflict, choice, and commitment.* New York: Free Press.

Jha, P. & Chaloupka, F. J. (2000). The economics of global tobacco control. *Behavioral Medicine Journal, 321,* 358-361.

Jonas, S. (1981). Health-oriented physician education. *Preventive Medicine, 10,* 700-709.

Kottke, T. E., Solberg, L. I., Brekke, M. L., Conn, S. A., Maxwell, P., & Brekke, M. J. (1992). A controlled trial to integrate smoking cessation advice into primary care practice: Doctors helping smokers, round III. *The Journal of Family Practice, 34,* 701-707.

Levinson, W., Roter, D. L., Mullod, J. Dull, T. T., & Frankel, R. M. (1997). Physician-patient communication: The relationship with malpractice claims among primary

care physicians and surgeons. *Journal of the American Medical Association, 277,* 553-559.

Lewis, C. E., Clancy, C., Leake, B., & Schwartz, J. S. (1991). The counseling practices of internists. *Annals of Internal Medicine, 114,* 54-58.

Love, M. B., Davoli, G. W., & Thurman, Q. C. Normative beliefs of health behavior professionals regarding the psychosocial and environmental factors that influence health behavior change related to smoking cessation, regular exercise, and weight loss. *American Journal of Health Promotion, 10,* 371-379.

McGinnis, J. M. & Foege, W. M. (1993). Actual causes of death in the United States. *Journal of the American Medical Association, 270,* 2207-2212.

National Cancer Institute (n.d.). Scientific priorities for cancer research: NCI's extraordinary opportunities. Retrieved October 12, 2002, from http://plan.cancer.gov/scipri/tobacco.htm

Ockene, I. S. & Ockene, J. K. (1996). Barriers to lifestyle change, and the need to develop an integrated approach to prevention. *Cardiology Clinics, 14,* 159-169.

Office of Smoking & Health. (1992). Special analysis of the 1983 National Health Interview Survey for Principal Investigators. Washington, DC: Public Health Service.

O'Loughlin, J., Makni, H., Tremblay, M., Lacroiz, C., Gervais, A., Dery, V. et al., (2001). Smoking cessation counseling practices of general practitioners in Montreal. *Preventive Medicine, 33,* 627-638.

Park, E., Eaton, C. A., Goldstein, M. G., DePue, J., Niaura, R., Guadagnoli, E., Gross, N. M., & Dube, C. (2001). The development of a decisional balance measure of physician smoking cessation interventions. *Preventive Medicine, 33,* 261-267.

Prochaska, J. O., & Goldstein, M. G. (1991). Process of smoking cessation: Implications for clinicians. *Clinics in Chest Medicine, 12,* 727-735.

Prochaska, J. O., Velicer, W. F., Rossi, J. S, Goldstein, M.G., Marcus, B.H., Rakowski, W., Fiore, C., Harlow, L.L., Redding, C.A., Rosenbloom, D., Rossi, S.R. (1994). Stages of change and decisional balance for twelve problem behaviors. *Health Psychology, 13,* 47-51.

Rigotti, N. A., & Thorndike, A. N. (2001). Reducing the health burden of tobacco use: What's the doctor's role? *Mayo Clinic Proceedings, 76,* 121-123.

Smith, S. S., & Fiore, M. C. (1999). The epidemiology of tobacco use, dependence, and cessation in the United States. *Primary Care, 26,* 433-461.

Solberg, L. I., & Kottke, T. E. (1998). Patient perceptions: An important contributor to how physicians approach tobacco cessation. *Tobacco Control, 7,* 421-422.

Solberg, L. I., Boyle, R. G., Davidson, G., Magnan, S.J., & Carlson, C.L. (2001). Patient satisfaction and discussion of smoking cessation during clinical visits. *Mayo Clinic Proceedings, 76,* 138-143.

Spatz, C. (1997). *Basic Statistics: Tales of Distributions.* Pacific Grove, CA: Brooks/Cole Publishing Co.

Thorndike, A. N., Rigotti, N. A., Stafford, R. S., & Singer, D. E. (1998). National patterns in the treatment of smokers by physicians. *Journal of the American Medical Association, 279,* 604-608.

Tremblay, M., Gervais, A., Lacroix, C., O'Loughlin, J., Makni, H., & Paradis, G. (2001). Physicians taking action against smoking : An intervention program to optimize smoking cessation counselling by Montreal general practitioners. *Canadian Medical Association Journal, 165,* 601-607.

United States Department of Health and Human Services (1995). Healthy People 2000 Midcourse review and 1995 Revisions, Page 3.

U. S. Department of Health and Human Services. (1998). *Tobacco use among U. S. racial/ethnic minority groups – African American, American Indians and Alaska Natives, Asian Americans, Pacific Islanders, and Hispanics: A report of the surgeon general.* Atlanta, GA: USDHHS.

U. S. Department of Health and Human Services. (2000). *Clinical practice guideline: Treating tobacco use and dependence.* Rockville, MD: Public Health Service.

Wallace, R. B., Wiese, W. H., Lawrence, R. S., Runyan, J. W., & Tilson, H. H. (1990). Inventory of knowledge and skills relating to disease prevention and health promotion. *American Journal of Preventive Medicine, 6,* 51-56.

Wechsler, H., Levine, S., Idelson, R. K., Schor, E. L., & Coakley, E. (1996). The physician's role in health promotion revisited: A survey of primary care practitioners. *New England Journal of Medicine, 334,* 996-998.

Zapka, J. G. & Fletcher, K. E. (1997). Physicians and smoking cessation. *Evaluation and the Health Professions, 20,* 407-428.

APPENDIX A – INFORMED CONSENT FORM

CONSENT FORM

April 23, 2003
Page 1 of 2

University of Oklahoma Health Sciences Center
Oklahoma State University
Future Physicians' Attitudes and Beliefs about Smoking Cessation Interventions
Mary Anne McCaffree, MD (OU Medical Center) and Thad R. Leffingwell, Ph.D. (OSU)

This study is a research study. Research studies involve only individuals who choose to participate. Please take your time to make a decision whether to participate.

You are being asked to take part in this trial/study because you are a medical student or resident at OUHSC.

Why Is this Study Being Done?

The purpose of this study is to assess the impact that medical school may have on future physicians' attitudes and beliefs about smoking cessation interventions.

How Many People Will Take Part in the Study?

About 550 people will take part in this study at this location.

What Is Involved in the Study?

You are being asked to participate in a research study that will assess attitudes and beliefs about smoking cessation interventions. During this study, you will be asked to complete a questionnaire related to smoking cessation interventions. The questionnaire should take approximately 15 minutes to complete.

How Long Will I Be in the Study?

We expect that you will be in the study for 15 minutes only. You may stop participating in the study at any time. However, if you decide to stop participating in the study, we encourage you to talk to the researcher first. No consequences exist for withdrawing from the study at any time.

What Are the Risks of the Study?

The risks of this study are minimal and do not exceed those ordinarily encountered in everyday life

Are There Benefits to Taking Part in the Study?

While there is no direct benefit to you for participation in this study, the information that you contribute is expected to provide a better understanding of the attitudes and beliefs that medical students hold about smoking cessation interventions. This information may be useful in working to improve training of medical students regarding intervention rates with patients, which is expected to, in turn, reduce national smoking rates.

What about Confidentiality?

Efforts will be made to keep your personal information confidential. You will not be identifiable by name or description in any reports or publications about this study. Numbers will be used to code records and your name will not appear on any forms other than this consent form. The only individual(s) who will have access to this data are Dr. Thad Leffingwell and the research assistants conducting the project. We cannot guarantee absolute confidentiality. Your personal information may be disclosed if required by law.

Certain organizations may inspect and/or copy your research records for quality assurance and data analysis. These organizations include the OUHSC Institutional Review Board and the OSU Institutional Review Board.

What Are the Costs?

Taking part in the study will not lead to added costs to you.

What Are My Rights as a Participant?

Taking part in this study is voluntary. You may choose not to take part or may leave the study at any time. If you agree to take part and then decide against it, you may withdraw for any reason. Leaving the study will not result in any penalty or loss of benefits that you would otherwise receive.

Whom Do I Call if I Have Questions or Problems?

If you have questions about the study, contact the researchers: Mary Anne McCaffree, MD at 405-271-5215 or Thad R. Leffingwell, PhD at 405-744-7494.

For questions about your rights as a research subject, contact the Director, Human Research Participant Protection, Office of Research Administration, at 405-271-2045. You may also contact Nancy Nisbett, Director of the Office of Research Administration (OUHSC), at 405-271-2090 or Sharon Bacher, IRB Executive Secretary, Oklahoma State University, 203 Whitehurst, Stillwater, OK 74078 (Phone: 405-744-5700).

Signature:

By signing this form, you are agreeing to participate in this research study under the conditions described. You have not given up any of your legal rights or released any

individual or institution from liability for negligence. You have been given an opportunity to ask questions. You will be given a copy of this consent document.

I agree to participate in this study:

Research Subject: _____
Date:_____

Subject's Printed Name _____

Witness: _____
Date:_____

Person Obtaining Informed Consent:_____
Date:_____

Principal Investigator:_____
Date:_____

APPENDIX B

Paper-and-pencil Version of Study Survey

FUTURE PHYSICIANS SURVEY

INSTRUCTIONS

The following questionnaire contains questions about your attitudes and beliefs regarding patient smoking and physician smoking interventions. There are no right or wrong answers, so please answer each question as honestly as you can. The questionnaire should take no more than 15 minutes to complete. Thank you for your assistance.

DEMOGRAPHICS

A. What is your gender? O Male O Female

B. What is your age? _____ years

C. How do you describe your ethnicity?

- O African-American or Black
- O Asian-American or Pacific Islander
- O Mexican-American or Hispanic
- O Mixed or other (please describe):
- O Latin-American or Latino
- O Caucasian or White
- O Native American or American Indian

D. What is your current standing in medical school?

- O First year student
- O Second year student
- O Third year student
- O Fourth year student
- O Resident
- O Other (please describe):

E. What is your specialty (or probable future specialty)?

- O Family practice
- O Internal medicine
- O Pediatrics
- O Surgery
- O Adolescent medicine
- O General practice
- O Obstetrics/gynecology
- O Psychiatry
- O Orthopedics
- O Other (please describe):

F. How do you define your current smoking status?

- O Never smoked cigarettes
- O Current cigarette smoker
- O Former cigarette smoker
- O Other (please describe):

ATTITUDES AND BELIEFS

A. In your opinion, how important is each of the following factors in your decision to counsel smokers in the future?

	Not at All Important	Slightly Important	Moderately Important	Very Important	Extremely Important
1. Physicians can be effective in helping their patients stop smoking.	①	②	③	④	⑤

FUTURE PHYSICIANS SURVEY

	Not at All Important	Slightly Important	Moderately Important	Very Important	Extremely Important
2. I am not familiar with the guidelines for prescribing medication to help my future patients stop smoking.	①	②	③	④	⑤
3. Patients will want me to help them stop smoking.	①	②	③	④	⑤
4. Smokers are generally non-compliant about quitting.	①	②	③	④	⑤
5. Advice from a physician is one of the best ways to help people stop smoking.	①	②	③	④	⑤
6. Smoking cessation counseling is a thankless task.	①	②	③	④	⑤
7. Patients want to stop smoking.	①	②	③	④	⑤
8. Smoking cessation counseling will not be an efficient use of my time.	①	②	③	④	⑤
9. Patients will appreciate it when I provide smoking cessation counseling.	①	②	③	④	⑤
10. I have insufficient skills to effectively counsel future patients about smoking cessation.	①	②	③	④	⑤
11. Based on years of life saved, physician counseling about smoking is a cost effective intervention when compared to other interventions.	①	②	③	④	⑤
12. Smoking cessation counseling is not a priority to me.	①	②	③	④	⑤
13. Patients are interested in prevention.	①	②	③	④	⑤
14. Counseling patients about smoking will be frustrating.	①	②	③	④	⑤
15. Patients will expect me to counsel them about smoking.	①	②	③	④	⑤
16. I am unaware of the best strategies for helping patients to stop smoking.	①	②	③	④	⑤

	Not at All Important	Slightly Important	Moderately Important	Very Important	Extremely Important
17. Providing follow-up visits helps patients stay off cigarettes.	①	②	③	④	⑤
18. Physician-delivered smoking cessation interventions do not work.	①	②	③	④	⑤
19. Physicians play an important role in countering the influence of tobacco advertising.	①	②	③	④	⑤
20. I am not confident in my ability to help patients stop smoking.	①	②	③	④	⑤

B. How confident are you in your ability to do the following with your future patients who smoke?

	Not at All Confident							Very Confident
1. Counsel them on how to stop smoking	①	②	③	④	⑤	⑥	⑦	⑧
2. Assess their stage of readiness to stop smoking	①	②	③	④	⑤	⑥	⑦	⑧
3. Tailor your counseling/intervention to smokers at different stages of change	①	②	③	④	⑤	⑥	⑦	⑧
4. Assess their nicotine dependence	①	②	③	④	⑤	⑥	⑦	⑧
5. Treat nicotine dependence by prescribing the patch	①	②	③	④	⑤	⑥	⑦	⑧
6. Treat nicotine dependence by having patients decrease number of cigarettes smoked	①	②	③	④	⑤	⑥	⑦	⑧
7. Assist them to identify their triggers to smoke and develop strategies to stop	①	②	③	④	⑤	⑥	⑦	⑧
8. Help them to develop a cessation plan, including setting a quit date	①	②	③	④	⑤	⑥	⑦	⑧
9. Arrange follow-up for cessation	①	②	③	④	⑤	⑥	⑦	⑧

	Not at All Confident							Very Confident
10. Effectively refer them to appropriate resources for cessation	①	②	③	④	⑤	⑥	⑦	⑧

C. Using the scale below, indicate how strongly you agree or disagree with each of the following statements.

	Strongly Disagree							Strongly Agree
1. I will feel rewarded when I help a patient to successfully quit smoking.	①	②	③	④	⑤	⑥	⑦	⑧
2. Seeing the health effects of smoking on my patients will upset me.	①	②	③	④	⑤	⑥	⑦	⑧
3. It bothers me that passive smoking will have a negative impact on the health of my patients' children.	①	②	③	④	⑤	⑥	⑦	⑧
4. I feel so strongly that smoking cessation will be critical to my patients' health that I will assist smokers in their efforts to stop smoking regardless of barriers such as time and insurance coverage.	①	②	③	④	⑤	⑥	⑦	⑧
5. If my own child started smoking, I would do everything in my power to get him/her to quit.	①	②	③	④	⑤	⑥	⑦	⑧
6. Physicians in the medical community are increasing their emphasis on smoking cessation interventions with their patients.	①	②	③	④	⑤	⑥	⑦	⑧
7. The health care system is changing in ways that encourage physicians to actively help patients quit smoking.	①	②	③	④	⑤	⑥	⑦	⑧
8. It is unconscionable to me that tobacco companies are not regulated in their business practices.	①	②	③	④	⑤	⑥	⑦	⑧

D. In general, how effective do you believe smoking cessation counseling from a physician can be?

Not at All Effective — Very Effective

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

E Do you think that it will be part of your role as a physician to assist patients in efforts to stop smoking?

Definitely No — Definitely Yes

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

F. Do you think that is part of the physician's role to intervene with all patients who smoke (even those who don't want to quit)?

Definitely No — Definitely Yes

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

G. Have you heard of a document, called *Clinical Practice Guideline: Treating Tobacco Use and Dependence*, published by the United States Department of Health and Human Services (USDHHS)?

O Yes O No

H The *Clinical Practice Guideline* recommends that physicians a) ask all patients about smoking, b) advise them about the dangers of smoking, c) assess readiness to change, d) assist them with quitting, and e) arrange for follow-up. What percentage of your future patients who smoke do you think would quit smoking each year if you were to intervene in a way consistent with these recommendations?

_____%

Conversely, what percentage of your future patients who smoke do you think would quit smoking each year if you were to refrain completely from intervening?

_____%

I. In general, how much have individuals in supervisory roles encouraged you to intervene with patients who smoke?

Very Little — Very Much

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

J. What percentage of individuals in supervisory roles has emphasized the importance of smoking cessation interventions?

_____%

K. Indicate all training experiences in which information about smoking cessation interventions has been provided.

O Classes
O Grand rounds
O Direct instruction
O Other (please describe):

THANK YOU! YOUR PARTICIPATION IS GREATLY APPRECIATED!

APPENDIX C

Online Version of Study Survey

Future Physicians Survey

behavior change laboratory oklahoma state university

ⓘ You must answer all questions to successfully submit the survey!

Demographic information

Gender: ○ male ○ female

Ethnicity: [ ] (choose one)

What is your current class standing?: [ ]

Age [ ]

What is your specialty (or probable future speciality)? [ ]

How would you define your current smoking status? [ ]

Page 1 of 7| continue |

In your opinion, how improtant is each of the following factors in your decision to counsel smokers in the future?

1. Physicians can be effective in helping their patients stop smoking.

2. I am not familiar with the guidelines for prescribing medication to help my future patients stop smoking.

3. Patients will want me to help them stop smoking.

4. Smokers are generally non-compliant about quitting.

5. Advice from a physician is one of the best ways to help people stop smoking.

6. Smoking cessation counseling is a thankless task.

7. Patients want to stop smoking.

8. Smoking cessation counseling will not be an efficient use of my time.

9. Patients will appreciate it when I provide smoking cessation counseling.

10. I have insufficient skills to effectively counsel future patients about smoking cessation.

Page 2 of 7 | continue | top

11 Based on years of life saved, physician counseling about smoking is a cost effective intervention when compared to other interventions.

12 Smoking cessation counseling is not a priority to me

13 Patients are interested in prevention.

14 Counseling patients about smoking will be frustrating

15. Patients will expect me to counsel them about smoking

16 I am unaware of the best strategies for helping patients to stop smoking.

17. Providing follow-up visits helps patients stay off cigarettes.

18. Physician-delivered smoking cessation interventions do not work.

19. Physicians play an important role in countering the influence of tobacco advertising.

20 I am not confident in my ability to help patients stop smoking

How confident are you in your ability to do the following with your patients who smoke?

Counsel them on how to stop smoking.

Not at All Confident ○ ○ ○ ○ ○ ○ ○ ○ **Very Confident**

Assess their stage of readiness to stop smoking.

Not at All Confident ○ ○ ○ ○ ○ ○ ○ ○ **Very Confident**

Tailor your counseling/intervention to smokers at different stages of change.

Not at All Confident ○ ○ ○ ○ ○ ○ ○ ○ **Very Confident**

Assess their nicotine dependence.

Not at All Confident ○ ○ ○ ○ ○ ○ ○ ○ **Very Confident**

Treat nicotine dependence by prescribing the patch.

Not at All Confident ○ ○ ○ ○ ○ ○ ○ ○ **Very Confident**

Treat nicotine dependence by having patients decrease number of cigarettes smoked.

Not at All Confident ○ ○ ○ ○ ○ ○ ○ ○ **Very Confident**

Assist them to identify their triggers to smoke and develop strategies to stop.

Not at All Confident ○ ○ ○ ○ ○ ○ ○ ○ **Very Confident**

Help them to develop a cessation plan, including setting a quit date.

Not at All Confident ○ ○ ○ ○ ○ ○ ○ ○ **Very Confident**

Arrange follow-up for cessation.

Not at All Confident ○ ○ ○ ○ ○ ○ ○ ○ **Very Confident**

Effectively refer them to appropriate resources for cessation.

Not at All Confident ○ ○ ○ ○ ○ ○ ○ ○ **Very Confident**

Using the scale below, indicate how strongly you agree or disagree with each of the following statements.

I will feel rewarded when I help a patient to successfully quit smoking.

Strongly Disagree ○ ○ ○ ○ ○ ○ ○ ○ **Strongly Agree**

Seeing the health effects of smoking on my patients will upset me.

Strongly Disagree ○ ○ ○ ○ ○ ○ ○ ○ **Strongly Agree**

It bothers me that passive smoking will have a negative impact on the health of my patients' children.

Strongly Disagree ○ ○ ○ ○ ○ ○ ○ ○ **Strongly Agree**

I feel so strongly that smoking cessation will be critical to my patients' health that I will assist smokers in their efforts to stop smoking regardless of barriers such as time and insurance coverage.

Strongly Disagree ○ ○ ○ ○ ○ ○ ○ ○ **Strongly Agree**

If my own child started smoking, I would do everything in my power to get him/her to quit.

Strongly Disagree ○ ○ ○ ○ ○ ○ ○ ○ **Strongly Agree**

The health care system is changing in ways that encourage physicians to actively help patients quit smoking.

Strongly Disagree ○ ○ ○ ○ ○ ○ ○ ○ **Strongly Agree**

It is unconscionable to me that tobacco companies are not regulated in their business practices.

Strongly Disagree ○ ○ ○ ○ ○ ○ ○ ○ **Strongly Agree**

In general, how effective do you believe smoking cessation counseling from a physician can be?

Not at All Effective ○ ○ ○ ○ ○ ○ ○ ○ **Very Effective**

Do you think it will be part of your role as a physician to assist patients in efforts to stop smoking?

Definitely No ○ ○ ○ ○ ○ ○ ○ ○ **Definitely Yes**

Do you think that it is part of the physician's role to intervene with all patients who smoke (even those who don't want to quit)?

Definitely No ○ ○ ○ ○ ○ ○ ○ ○ **Definitely Yes**

Have you heard about a document called the *Clinical Practice Guideline: Treating Tobacco Use and Dependence*, published by the United States Department of Health and Human Services (USDHHS)?

○ Yes ○ No

The *Clinical Practice Guideline* recommends that physicians (a) ask all patients about smoking, (b) advise them about the dangers of smoking, (c) assess readiness to change, (d) assist them with quitting, and (e) arrange for follow-up. What percentage of your future patients who smoke do you think would quit smoking each year if you were to intervene in a way consistent with these interventions?

[ ] % (must be between 1 and 100)

Conversely, what percentage of your future patients who smoke do you think would quit each year if you were to refrain completely from intervening?

[ ] % (must be between 1 and 100)

In general, how much have individuals in supervisory roles encouraged you to intervene with patients who smoke?

Very Little ○ ○ ○ ○ ○ ○ ○ ○ **Very Much**

What percentage of individuals in supervisory roles has emphasized the importance of smoking cessation interventions?

[ ] % (must be between 1 and 100)

Indicate all training experiences in which information about smoking cessation interventions has been provided.

- [ ] Classes
- [ ] Direct Instruction
- [ ] Grand Rounds
- [ ] Other (describe):

[ ]

You're finished!

Click the "Submit" button below to submit your answers. **Do NOT click the "Submit" button more than once.**

Submit | Reset Form

APPENDIX D

Oklahoma State University Institutional Review Board (IRB) Approval

Oklahoma State University
Institutional Review Board

Protocol Expires: 9/21/2004

Date Thursday, September 25, 2003 IRB Application No AS0412

Proposal Title FUTURE PHYSICIANS' ATTITUDES AND BELIEFS ABOUT SMOKING CESSATION INTERVENTIONS

Principal Investigator(s):

Alison Bobitzke
215 N Murray
Stillwater, OK 74078

Thad Leffingwell
215 N. Murray
Stillwater, OK 74078

Reviewed and Processed as: Expedited

Approval Status Recommended by Reviewer(s): Approved

Dear PI :

Your IRB application referenced above has been approved for one calendar year. Please make note of the expiration date indicated above. It is the judgment of the reviewers that the rights and welfare of individuals who may be asked to participate in this study will be respected, and that the research will be conducted in a manner consistent with the IRB requirements as outlined in section 45 CFR 46.

As Principal Investigator, it is your responsibility to do the following:

1. Conduct this study exactly as it has been approved. Any modifications to the research protocol must be submitted with the appropriate signatures for IRB approval.
2. Submit a request for continuation if the study extends beyond the approval period of one calendar year. This continuation must receive IRB review and approval before the research can continue.
3. Report any adverse events to the IRB Chair promptly. Adverse events are those which are unanticipated and impact the subjects during the course of this research; and
4. Notify the IRB office in writing when your research project is complete.

Please note that approved projects are subject to monitoring by the IRB. If you have questions about the IRB procedures or need any assistance from the Board, please contact Sharon Bacher, the Executive Secretary to the IRB, in 415 Whitehurst (phone: 405-744-5700, sbacher@okstate.edu).

Sincerely,

Carol Olson, Chair
Institutional Review Board

APPENDIX E

University of Oklahoma Health Sciences Center Institutional Review Board (IRB) Approval

The University of Oklahoma
Health Sciences Center
INSTITUTIONAL REVIEW BOARD

IRB Number: 10813
Exemption: 2
Approval Date: May 29, 2003

May 30, 2003

Mary McCaffree, M.D.
Pediatrics Neonatology
940 N. E. 13th, CHO 2B2311
Oklahoma City, OK 73104-5066

Dear Dr. McCaffree:

RE: Future Physicians' Attitudes and Beliefs about Smoking Cessation Interventions

The Chair of the Institutional Review Board (IRB) has reviewed the above-referenced research project and determined that it meets the criteria in 45 CFR 46 or 21 CFR 50 and 56, as amended, for exemption from IRB review. You may proceed with the research as proposed. Please note that the IRB Chair will need to review any changes in the protocol as changes could affect this determination of exempt status. Also note that you should notify the IRB office when this project is completed, so we can remove it from our files.

If you have any questions or need additional information, please do not hesitate to call the IRB office at (405) 271-2045 or send an email to irb@ouhsc.edu.

Sincerely yours,

Kathy Buchanan

for Martina Jelley, M.D.
Chair, Institutional Review Board

Ltr_Prot_Fappv_X

Post Office Box 26901 • 1000 S.L. Young Blvd., Room 176
Oklahoma City, Oklahoma 73190 • (405) 271-2045 • FAX: (405) 271-1677

VITA

Alison C. Babitzke

PERSONAL HISTORY

•Address: 310 S. Knoblock #5
Stillwater, OK 74074
•Phone: 405-743-9204
•Email: acbabitzke@hotmail.com

EDUCATIONAL HISTORY

•Westark College at Fort Smith, Arkansas
Major: Liberal arts
Degree: AA
8/96 – 7/99

•East Central University at Ada, Oklahoma
Double major: Psychology and sociology
Degree: BS with honors
8/99 – 7/00

•Oklahoma State University
Graduate school: Clinical psychology doctoral program
Degree: MS, May, 2004
8/01 – present

OCCUPATIONAL HISTORY

•2001 – 2002 OSU Psychology Diversified Students Program graduate assistant
•2002 – 2003 OSU Introductory Psychology Graduate Instructor
•2003 – 2004 Smoke Free Homes project at University of Oklahoma Health Sciences Center (OUHSC) coordinator

HONORS AND AWARDS

•Westark College honors scholarship recipient
•Westark College honors program student
•East Central University outstanding psychology student nominee
•East Central University departmental honors degree recipient

ORGANIZATION MEMBERSHIP

•American Psychological Association (APA)
•Association for the Advancement of Behavior Therapy (AABT)
•AABT Addictive Behaviors Special Interest Group (SIG)
•OSU Graduate Professional Student Association (GPSA)
•Oklahoma Psychological Association (OPA)

SERVICE ACTIVITIES

•1997 – 1999 WallBash! Fort Smith DIY Collective member: Organized community help events and edited monthly newsletter

•1998 – 1999 Food Not Bombs member: Organized food recycling program to benefit people in need
•2001 – 2002 OSU Psychology Department Graduate Student Association (GSA) representative
•2001 – 2002 OSU Research Symposium committee member
•2001 – 2002 OSU Undergraduate Psychology Student Mentor
•2001 – 2002 OSU Psychology Department fundraising volunteer
•2001 – 2003 Americorps: Smart Start program volunteer
•2003 Summer Science Academy: Exploring Quantitative Analysis counselor
•2003 Research Experience for Undergraduates program mentor
•2003 – 2004 OSU Psychology Graduate Student Association (GPSA) secretary/treasurer

PAPERS AND PRESENTATIONS

Babitzke, A. C. (2000, May). Gender differences in heterosexual attitudes toward lesbians, gay men, bisexual women, and bisexual men. Poster presented at the 17th Annual Oklahoma Psychological Society Spring Research Conference, Oklahoma City, Oklahoma.

Leffingwell, T. R. & Babitzke, A. C. (2002, November). Psychologists' use of clinical practice guidelines for smoking cessation. Poster presented at the 36th meeting of the Association for the Advancement of Behavior Therapy (AABT), Reno, NV.

Babitzke, A. C. & Leffingwell, T. R. (2003, March). Oklahoma psychologists and tobacco use interventions. Symposium conducted at the 14th Annual Graduate College Research Symposium, Oklahoma State University, Stillwater, OK.

Boczar, M. J. & Babitzke, A. C., & Leffingwell, T. R. (2003, August). Cognitive and affective ambivalence and smoking stages of change. Poster presented at the American Psychological Association (APA), Toronto, Canada.

Leffingwell, T. R., Neumann, C., Babitzke, A. C., & Boczar, M. J. (2003, November). Defensively biased responding to risk information among alcohol-using college students. Poster presented at the 37th meeting of the Association for the Advancement of Behavior Therapy (AABT), Boston, MS.

Boczar, M. J., Babitzke, A. C., & Leffingwell, T. R. (2004, March). Cognitive and affective ambivalence, decisional balance, self-efficacy, and smoking stages of change. Symposium conducted at the 15th Annual Graduate College Research Symposium, Oklahoma State University, Stillwater, OK.

Jennings, E., Haala, K., Babitzke, A. C., Collins, F., Leffingwell, T. R. (2004, April). Smoke-free families program. Poster presented at the 1st meeting of the Applications of Psychology to Health and Safety: Behavioral Medicine, Texas Tech University, Lubbock, TX.

Boczar, M. J., Babitzke, A. C., & Leffingwell, T. R. (2004, April). Cognitive-affective ambivalence and smoking stages of change. Poster presented at the 1st meeting of the Applications of Psychology to Health and Safety: Behavioral Medicine, Texas Tech University, Lubbock, TX. *Poster previously presented in August, 2003.

Neumann, C. A., Leffingwell, T. R., Babitzke, A. C., & Boczar, M. A. (2004, April). Defensively biased responding to risk information among alcohol-using college students. Poster presented at the 1st meeting of the Applications of Psychology to Health and Safety: Behavioral Medicine, Texas Tech University, Lubbock, TX. *Contains information additional to that previously presented in November, 2003.