A Study of Occupational Stress and Smoking Among Hospital Nurses

by

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Committee Chairperson: Douglas R. Southard

(ABSTRACT)

Three-hundred and thirty-three surveys were distributed to male and female nurses employed at the Veterans Administration Medical Center in Salem, Virginia. The survey was designed to determine if nurses who smoke perceive more stress from their jobs.

Of the 124 nurses who responded to the survey, there were no significant differences in ratings of perceived stress between nurses who reported that they were current smokers and those who reported that they were non-smokers. Overall, the mean rating of perceived stress for both smokers and non-smokers were rated low to average on a six-point Likert-type Scale. Although the relationship between the smoking and perceived stress items on the survey did not reach statistical significance, over fifty percent of the respondents reported that they would be interested in participating in a stress management program; and a higher percentage of smokers reported an interest in stress management than non-smokers. No significant differences were found in the coping methods between smokers and non-smokers in reporting how they would cope with two specific stressful work situations. The results of this study indicate that, for this particular population, those who smoke do not perceive significantly higher levels of stress from their jobs than non-smokers.
Acknowledgements

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Chapter 1

Introduction

In 1964, the first report of the Advisory Committee to the Surgeon General stated that cigarette smoking was a cause of illness and premature death [U.S. Dept. of Health, Education and Welfare (USDHEW), 1964]. Since that time it has been determined that smoking is the single greatest preventable cause of premature death and disability in the United States [U.S. Dept. of Health and Human Services (USDHHS), 1989]. The adverse consequences of smoking are of particular concern for women. Women who smoke are as subject to the adverse health effects of smoking as men and are at increased risk for certain diseases (USDHHS, 1980). Of the ten leading causes of death for females in the U.S., five are related to or exacerbated by smoking. (Table 1.1)

Statement of the Problem

This study is an assessment tool which can be used in the health education process to examine stress and smoking behavior. Self-reports of perceived stress and smoking behavior will be compared to determine the relationship between stress and smoking behavior. Awareness and understanding of occupational factors that can cause stress among employees are important tools that can be used by employers to improve working conditions and, where applicable, help employers develop effective smoking cessation and stress reduction programs. The workplace can play a significant role in determining smoking behavior and cessation. Gritz, et al. (1988) found
### Table 1.1

The Relationship of Smoking to the Ten Leading Causes of Death for Females in the United States (1985)

*Diseases to which smoking is causally related are indicated by capitalization; diseases that smoking exacerbates are indicated by an asterisk.*

1. *CARDIOVASCULAR DISEASE*
2. *CANCER*
3. *CEREBROVASCULAR DISEASE*
4. *pneumonia and influenza*
5. *ACCIDENTS*
6. *CHRONIC OBSTRUCTIVE LUNG DISEASE*
7. diabetes mellitus
8. *ATHEROSCLEROSIS*
9. nephritis and nephrosis
10. chronic liver disease, cirrhosis

*Source of leading causes of death: USDHHS, National Center for Health Statistics. Public Health Service.*
that smoking cessation programs that are supplemented by strong support and promotion from employers have been more successful than those without the worksite component.

**Smoking Among Nurses**

The paradox of smoking among nurses has generated research surrounding the reasons nurses smoke. Sorenson, et al., (1992) states that "The relatively high prevalence of smoking among nurses is of particular concern since their knowledge of the health risks of smoking and their exemplar role with patients would seem to reduce their likelihood of smoking" (p.208). The prevalence of smoking among nurses has declined since the 1970's, however, smoking among nurses remains higher than that of any of the other health professions (Becker, et al., 1986 and Sorenson, et al., 1992). Although many nurses smoked before entering the field of nursing, some studies have suggested that, due to the stressful nature of many nursing jobs, nurses continue to smoke after entering the field and have found difficulty in quitting (Tagliacozzo & Vaughn, 1982; Dalton & Swenson, 1983).

Smoking is not only a health issue for smokers, but it is rapidly becoming socially unacceptable because of the threat it poses to non-smokers [U.S. Environmental Protection Agency (EPA), 1993]. With favorable support from non-smokers, smoking is prohibited at some places of employment, restaurants, retail stores, athletic facilities, as well as other public places. Many public places that have not completely banned smoking have been required to
allow smoking only in proscribed areas.

Although smoking has negative connotations from health, social, and financial perspectives, millions of people worldwide still smoke. In the United States smoking has declined significantly since 1965. The overall prevalence of smoking in the U.S. in 1990 was 25.5 percent, or a total of 45.8 million smokers (Guba & McDonald, 1993). The incidence of smoking among women has increased sharply in the last 25 years, and female nurses, despite their knowledge of the health risks of smoking, have reported smoking rates similar to the rest of the female population (Dalton & Swenson, 1983). Swenson (1989) describes nurses who smoke as a special population because “their smoking behavior is not congruent with their expected roles as health providers, role models for healthy lifestyles, and health educators” (p.46).

Cigarette smoking among nurses has been associated with occupational stress. Taglacozzo and Vaughn (1982) found that nurses who perceived their job as stressful are more likely to smoke than nurses who do not have such perceptions. Staffing of nurses in hospitals and nursing homes has not kept pace with growing workloads due to the increase in the aging population, chronic conditions such as AIDS, and the increase in new sophisticated medical technology (The Nation’s Health, 1993). Although there has been an increase in health care employment in the past decade, three-quarters of the jobs added went to increasing numbers of administrative and technical staff, rather than patient care staff. As a result of increased patient load and lack of workplace support, nurses report depression rates more than twice that of the
general female population and increased rates of stress related disease such as colitis, ulcers, heart attacks, and strokes (The Nation's Health, 1993).

Research Hypotheses

In this investigation, the following hypotheses will be tested:

H$_1$: Nurses who smoke will report less perceived control in their jobs.

H$_2$: Nurses who smoke will perceive more stress and greater psychological demands from their jobs.

H$_3$: Nurses who smoke will perceive more stressful patient contact on their jobs.

Significance of the Study

Among adults, the smoking prevalence has decreased from 40 percent in 1965 to 29 percent in 1987, and almost half of all adults who have ever smoked have quit (USDHHS, 1989). Prevalence of smoking among men has almost halved (Warner, 1989), while cessation among women smokers has been significantly lower (USDHHS, 1989). In the predominantly female field of nursing, it is reported that 27.2 percent of registered nurses and 40 percent of practical nurses smoke cigarettes (USDHHS, 1985).

Cigarette smoking is a dangerous health behavior that is costly to smokers, their families, the health care system, and employers. Employers spend an estimated $65 billion annually for disease and loss of productivity due to smoking (Sloan, Gruman, & Allegante, 1987). Individuals who work spend a large percentage of their lifetime on the job, therefore, the workplace has strong
potential for fostering smoking cessation, as well as promoting other positive health behaviors to their employees.

Summary

Although smoking has declined since the Surgeon General’s first warning in 1964, smoking is still a major risk factor for many chronic diseases that can lead to disability and death. In the past decades men in the U.S. have had a higher smoking prevalence than women, but women are gradually approaching equality with men in their rates of smoking.

In the predominately female field of nursing, occupational stress can be a factor in smoking and can contribute to the inability to quit smoking (Tagliacozzo & Vaughn, 1982). Identifying stressors specifically related to the job can assist hospital administrators in decreasing occupational stress and in developing work site smoking cessation and stress reduction programs for hospital nurses.

Chapter Two, which follows, will contain a review of pertinent literature on smoking and its effect on health, including the health effects of smoking that are of particular concern to women, smoking among nurses, occupational stress, a conceptual model of smoking and its association with occupational stress, measurement of smoking behavior, and smoking cessation. Chapter Three describes the methodology of the study. Results of the data analysis will be discussed in Chapter Four, and Chapter Five will provide a discussion of
results of the study and recommendations for further health education research and practice.
CHAPTER II

LITERATURE REVIEW

Introduction

This chapter focuses on the literature concerning cigarette smoking. It specifically addresses the issues of smoking and health, the health effects of smoking for women, smoking among nurses, measurement of smoking behavior, occupational stress, and how work stress relates to smoking behavior, particularly the smoking behavior and smoking cessation of nurses. The conceptual framework for the study will also be discussed.

Smoking and Health

Tobacco smoke contains many chemical compounds that are harmful to smokers and individuals who are exposed to passive cigarette smoke. Of the chemical compounds found in cigarette smoke, the most hazardous are tar, nicotine, carbon monoxide, cadmium, nitrogen dioxide, ammonia, benzene, formaldehyde, and hydrogen sulfide (American Lung Association, 1991). Researchers at the University of California, Berkeley (1991) explain that of these compounds, carbon monoxide, tar, and nicotine are most harmful to the human body. When carbon monoxide is inhaled it is passed into the bloodstream where it interferes with the transport of oxygen by red blood cells. Inhalation of carbon monoxide through cigarette smoke may account for breathlessness of some smokers, and is also known to cause problems with
vision, hearing, and judgment.

The function of the respiratory system becomes impaired when tiny microscopic particles from tobacco, known as tars, form sticky, resin-like substances in the lungs. Some of the chemicals in tars are known to be carcinogenic. The third element, nicotine, is a powerful stimulant to the central nervous system. Nicotine is highly addictive, a leading reason that smoking cessation is difficult for many. Blood pressure, heart rate, skin temperature, hormone production, muscle tension, and pain sensitivity are all affected by nicotine. This component of cigarette smoke is also implicated in heart attacks and the onset of cancer (USDHHS, 1987).

Smoking is a known cause of numerous chronic degenerative diseases and a complicating factor for many other health conditions. It is a risk factor for coronary heart disease, atherosclerotic peripheral vascular disease, oral cancer, esophageal cancer, cerebrovascular disease, and chronic obstructive lung disease (COLD); (Guba & McDonald, 1993; USDHHS, 1984; Delarue, 1973; Dicken, 1978). An estimated 18 percent of all deaths (400,000 per year) in the United States are related to smoking (McGinnis & Foege, 1993).

Of the top ten leading causes of death in the United States, six have cigarette smoking as a major risk factor (Table 2.1).
### Table 2.1 Smoking and Leading Causes of Death in the U.S.

<table>
<thead>
<tr>
<th>Cause of Death</th>
<th>Percent of Total Deaths in US</th>
<th>Risk Factors</th>
<th>Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart Disease</td>
<td>38.1</td>
<td>Smoking, (30% of deaths from coronary heart disease attributable to smoking), hypertension, lack of exercise, hypercholesterolemia, diabetes mellitus, obesity.</td>
<td>USDHHS, 1987</td>
</tr>
<tr>
<td>Cancer</td>
<td>21.9</td>
<td>Smoking (cause of 80-90% of lung cancer deaths), diet, alcohol abuse, environmental carcinogens, obesity.</td>
<td>NCHS, 1991 ACS, 1986</td>
</tr>
<tr>
<td>Stroke</td>
<td>7.8</td>
<td>Smoking, hypertension, hypercholesterolemia, stress.</td>
<td>NCHS, 1991</td>
</tr>
<tr>
<td>Chronic Obstructive Lung Disease (COLD)</td>
<td>3.3</td>
<td>Smoking (Between 80-90% of all deaths from COLD attributable to smoking).</td>
<td>NCHS, 1991 USDHHS, 1987</td>
</tr>
<tr>
<td>Pneumonia and Influenza</td>
<td>2.7</td>
<td>Smoking (24% of all deaths attributable to smoking), alcohol abuse.</td>
<td>NCHS, 1991</td>
</tr>
<tr>
<td>Atherosclerosis</td>
<td>1.3</td>
<td>Smoking, hypercholesterolemia.</td>
<td>NCHS, 1991</td>
</tr>
</tbody>
</table>
Smoking is a costly habit for the smokers, employers, and the health care system. Smokers who are now ages 25 years or older will incur lifetime medical costs in excess of $501 billion over their non-smoking counterparts (USDHHS, 1992). It is not only the smoker who bears monetary responsibility for cigarette smoking. Employers in the United States lose approximately $65 billion annually due to disease and lost productivity caused by smoking (Sloan, Gruman, & Allegrante, 1987). In 1985, The American Cancer Society (ACS) reported that smokers have a 30 to 40 percent higher job absentee rate than non-smokers and lose 146 million workdays per year due to smoking related diseases.

Although smoke released into the atmosphere is rapidly diffused, in some settings it leaves markedly elevated levels of carbon monoxide and other products of combustion (Warner, 1986). Automobiles, restaurants, bars, workplaces with a significant number of smokers, and homes of heavy smokers are all prime settings in which non-smokers come into contact with passive smoke. While smokers bear the consequences of most smoking-related illness, involuntary or passive smoking has become an issue of concern throughout the world. It has been found that nonsmokers who are exposed to tobacco smoke have levels of nicotine in their blood and urine that would be produced by smoking one to two cigarettes per day (Greenburg, et al., 1984; Matusukua, et al., 1984). In a study of nonsmoking wives of smoking husbands Hirayama (1981) a two-fold increase in the risk of lung cancer was found. The U. S. Environmental Protection Agency (EPA), 1993 estimates that approximately
increase in the risk of lung cancer was found. The U.S. Environmental Protection Agency (EPA), 1993 estimates that approximately 3,000 lung cancer deaths in non-smoking persons age 35 and over are attributable to environmental tobacco smoke. Of the 3,000 lung cancer deaths, approximately 1,500 were female never-smokers, 500 male never-smokers, and 1,000 former smokers of both sexes (EPA, 1993).

**Women and Smoking**

In the U.S. men rapidly took up smoking in the early years of the twentieth century and the number of women smokers increased with the onset of WW I (USDHHS, 1980). Recent statistics reflect that women are approaching equality in smoking rates compared to men and experience more difficulty in quitting smoking than males (Sorenson & Pechacek, 1986). It is predicted that by the year 2000, women will have higher smoking rates than men, with women predicted to be at 22.7 percent and men at 19.9 percent (UDHHS, 1990b). From 1965 to 1992, the prevalence of smoking among men declined from 52.1 percent to 28.7 percent, a 23.4 percent decrease. The prevalence of smoking among women for the same period declined only 8.7 percent, from 34.2 to 25.5 percent [U.S. Bureau of Census (USBC), 1992]. The rate of onset smoking among adolescent women is greater than that of adolescent men, and the percentage of adolescent women who smoke continues to increase (Sorenson & Pechacek, 1986).

The top three leading causes of death for females are cardiovascular
disease, cancer, and cerebrovascular disease, all of which are related to smoking. The Framingham Heart Study reported dose-related correlation between the incidence of atherothrombotic stroke and cigarette smoking in men but not in women (Richmond, 1980). In contrast, Baric and Macauthur (1977) report a positive correlation between women's smoking and mortality from cerebrovascular disease. A study of 446,000 women recorded 1,905 deaths from cerebrovascular disease in a six year period, with smoking as a positive correlate for mortality. Among men and women, mortality ratios for cerebrovascular disease increased approximately 2 to 2.5 times for smokers compared to non-smokers (Delarue, 1973; Dicken, 1978). Female deaths from COLD are ranked sixth and atherosclerosis is ranked eighth. Cigarette smoking is known to exacerbate pneumonia which is the fourth leading cause of death for females. (USDHHS, 1986a). Recent studies have also revealed that women who smoke have an increased risk for diabetes. Rimm, et al., (1993) concluded that for women who smoked 25 or more cigarettes per day the relative risk of diabetes, when adjusted for obesity and other risk factors, was 1.42 compared to the relative risk for non-smoking women.

Women who smoke and use oral contraceptives also have a greater risk of myocardial infarction than nonsmokers and nonusers. Smokers who use oral contraceptives have ten times the risk of myocardial infarction than non-smokers, while women who smoke heavily and use oral contraceptives increase their risk 20 to 30 times that of non-smokers (USDHHS, 1980).
smoke (American College of Obstetricians and Gynecologists (ACOG), 1993). Pregnant women who smoke are at risk for spontaneous abortion, fetal growth retardation, low birthweight babies, premature delivery, and maternal complications such as placenta previa and vaginal bleeding (USDHHS, 1980; Simons-Morton, 1991). Exposure to passive smoke has also been determined to be a cause of smoking-related health problems among children whose mothers smoke. Infants of smokers have more respiratory problems and hospitalizations than infants of nonsmokers (USDHHS, 1980; USDHHS, 1986b; Committee of Environmental Hazards, 1986.)

Demographic variables may be correlated with predicting smoking status. More men smoke than women, although men and women have experienced similar rates of smoking in recent years. The decline of smoking has been greatest among individuals who have a higher level of education and higher income. Fewer college graduates smoke than those with less education. More blue collar workers smoke than white collar workers, and fewer whites smoke than blacks (NCHS, 1985). In 1985, the highest smoking rates for women in specific occupations were reported by waitresses (51.1 percent), cashiers (44.2 percent), assemblers (42.9 percent), nurses aides, orderlies, and attendants (41.0 percent), machine operators (41.0 percent), and practical nurses (40.3 percent) (USDHHS, 1985b).
Smoking Among Nurses

Despite the well known consequences of smoking, many women, including women health professionals, still smoke. A national survey of smoking among health professionals in the mid-1970's showed that smoking prevalence in the predominantly female field of nursing was 39 percent compared to 25 percent in the other predominantly male health professions of physicians, dentists and pharmacists. The smoking prevalence for all adult women for that time period was 32 percent (USDHEW, 1976).

Swenson (1989) describes nurses who smoke as a special population because "their smoking behavior is not congruent with their expected roles as health providers, role models for healthy lifestyles, and health educators" (p. 46). The prevalence of smoking among nurses has generated interest in studies of smoking behavior and smoking cessation issues that are specific to the nursing population. In general, smoking rates among health professionals has dropped more rapidly than for the general population, however, prevalence of smoking among nurses in the United States is higher than any other predominantly female profession. In addition, nurses' smoking cessation rates still fall behind that of any other group of health care professionals.

Nelson, et al., 1994) compared trends in cigarettes smoking prevalence among physicians, registered nurses and practical nurses (Table 2.2). Their study revealed that since 1974, cigarettes smoking has declined most rapidly among physicians and at lower rates among nurses. Conducted in 1990 and
1991, the study found that the smoking prevalence was 3.3% for physicians, while the prevalence was significantly higher for registered nurses (18.3%) and practical nurses (27.2%).
### Table 2.2


<table>
<thead>
<tr>
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<tbody>
<tr>
<td><strong>Physicians</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current smokers, %†</td>
<td>18.8±7.0</td>
<td>3.3±2.1</td>
</tr>
<tr>
<td>Former smokers, %</td>
<td>32.0±8.5</td>
<td>27.8±6.2</td>
</tr>
<tr>
<td>Quit ratio‡</td>
<td>63.0±12.6</td>
<td>89.3±6.4</td>
</tr>
<tr>
<td>Population</td>
<td>275,000</td>
<td>527,000</td>
</tr>
<tr>
<td>No. of current smokers</td>
<td>32,000</td>
<td>18,000</td>
</tr>
<tr>
<td>Range for current smokers, No.§</td>
<td>32,000-71,000</td>
<td>6,000-28,000</td>
</tr>
<tr>
<td><strong>Registered nurses</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current smokers, %</td>
<td>31.7±4.2</td>
<td>18.3±2.8</td>
</tr>
<tr>
<td>Former smokers, %</td>
<td>18.7±3.2</td>
<td>21.4±2.8</td>
</tr>
<tr>
<td>Quit ratio§</td>
<td>37.1±5.8</td>
<td>54.0±5.3</td>
</tr>
<tr>
<td>Population</td>
<td>1,011,000</td>
<td>1,762,000</td>
</tr>
<tr>
<td>No. of current smokers</td>
<td>321,000</td>
<td>322,000</td>
</tr>
<tr>
<td>Range for current smokers, No.</td>
<td>278,000-363,000</td>
<td>273,000-372,000</td>
</tr>
<tr>
<td><strong>Licensed practical nurses</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current smokers, %</td>
<td>37.1±6.1</td>
<td>27.2±6.0</td>
</tr>
<tr>
<td>Former smokers, %</td>
<td>14.6±5.4</td>
<td>24.8±5.7</td>
</tr>
<tr>
<td>Quit ratio§</td>
<td>28.5±3.3</td>
<td>47.7±9.1</td>
</tr>
<tr>
<td>Population</td>
<td>380,000</td>
<td>471,000</td>
</tr>
<tr>
<td>No. of current smokers</td>
<td>141,000</td>
<td>128,000</td>
</tr>
<tr>
<td>Range for current smokers, No.</td>
<td>118,000-164,000</td>
<td>100,000-156,000</td>
</tr>
</tbody>
</table>

*Employment and number of current smokers are annual estimates. Data from National Health Interview Surveys. †Numbers adjacent to ± indicate 95% confidence interval. ‡Defined as the number of former smokers divided by the number of ever smokers. §Based on 95% confidence intervals for current smoking prevalence.

Overall, the lowest rates of smoking are found among the branches of nursing that are connected to education and community involvement. These include nursing education, public health nursing, working in the community, elementary or high school nursing, and working in a doctor's office (Richmond, 1980). Higher rates of smoking are found among hospital nurses. A study of smoking prevalence among nurses at Johns Hopkins Hospital in 1984 concluded that nurses employed in the emergency rooms, psychiatric settings, and administrative positions were most likely to be smokers, while those employed in pediatric settings were least likely to be smokers (Becker, et al., 1986). Although oncology nurses deal with the consequences of smoking on a daily basis, Gritz and Kanim (1986) found that smoking prevalence for oncology nurses was still higher than some male health professionals, but lower than for other RNs in general. In Great Britain, Elkind (1979) found a lower percentage (26 percent) of maternity nurses smoked, compared to 37 percent of those in general nursing. Another study revealed the nurses who worked day shifts had a lower prevalence of smoking than those who worked night duty. In his study of community, hospital, and student nurses (N=171), Spencer (1982) found that 77 percent of the non-smokers worked during the day, while only 61 percent of the smokers worked the day shift.

From survey research conducted on a sample of nurses (N=307; response rate= 97.5 percent) employed in a large military hospital, Alexander and Beck (1990) found that nurses who were current smokers reported significantly more job stress, job dissatisfaction, and less social support than
more job stress, job dissatisfaction, and less social support than either former smokers or those who had never smoked. These variables were found to be more important in predicting smoking status in general, but less important in predicting the amount of cigarettes smoked. Smoking prevalence rates for this sample of nurses was 21.8 percent.

Swenson (1987) conducted survey research on the smoking habits and cessation, and attitudes about smoking among North Carolina nurses. The purpose of her survey was to determine if smoking trends had changed since an earlier study in 1981 and to utilize the results of both studies to promote smoking cessation among nurses in the state. A 1% random sample (n=356) of all registered nurses in North Carolina were selected to receive the questionnaire. Questionnaires included items about smoking status, situations that influenced smoking habits, smoking cessation, effects of smoking, opinions of smoking in public, as well as the antismoking activities of nurses.

The results of her study revealed that 19 percent of the nurses were current smokers, compared to 32 percent in 1981. Of the nurses who smoked, 24.1 percent smoked more than one pack per day and 24.2 percent smoked one-half to one pack per day. Over half of the sample (51.7 percent) smoked less than 1 pack per day. Nurses reported that situations that encouraged smoking were feelings of anxiety, stress, and boredom. When ranking types of stress, the nurses rated job stress and job boredom as feelings that most often encouraged smoking. Among activities and events that were most likely to trigger smoking, mealtimes, being around people who smoke,
and social gatherings were reported most often.

Nurses’ attitudes about smoking were also measured in the study. Concern about the adverse effects of smoking was the most important personal factor influencing smoking cessation and/or reduction. Encouragement from family and friends to stop smoking was the most significant external factor for the nurses surveyed. Former and never smokers were significantly more in agreement than current smokers that smoking should be prohibited in public places. While current, former, and never smokers agreed that as role models nurses should not smoke in front of patients, current smokers showed more approval for smoking while in uniform. Former or never smokers were more likely than current smokers to counsel patients and family members against smoking. All three groups were more likely to advise against smoking than to educate them about the adverse consequences of smoking.

Becker, et al., (1986) also surveyed nurses’ attitudes about smoking. Their research revealed that nurses who smoked were more likely than former or never smokers to agree that nurses have a right to smoke in the nursing units of hospitals. Nurses who smoked held a more negative view of counseling patients against smoking and were more likely to believe that smoking patients had priority over nonsmoking patients in their rights to smoke in hospital rooms. The researchers concluded that “medical knowledge and socialization to the helping role do not override personal behavior in determining attitudes toward smoking in health care settings” (p. 1450).
Interested in the factors that influenced nurses to smoke, Dalton and Swenson (1983) surveyed 1,300 nurses from a random sample of North Carolina nurses. The nurses responded that one reason they started smoking was because advertising made it appealing and that they had been curious about what smoking would be like. The subjects in the study felt that advertising and curiosity influenced their initial smoking behavior more than having family members who smoked. Current smokers reported being most influenced to smoke by habit, by being around others who smoke (especially at social occasions), and by their belief that smoking is relaxing. When asked about current reasons why they smoked, over half of the nurses stated that they smoked because they liked the taste. Only 24 percent said they smoked because they “liked the effects” and 28 percent stated they did not know why they smoked.

When asked why they smoked at work, a larger proportion of nurses stated that they smoked there more out of “habit” than because of “boring meetings” or “a bad day”. More nurses who smoked said that shift change made no difference in their smoking habits. Of those who said shift change did make a difference in their smoking habits, twice as many smoked on the night shift as those who worked day and evening shifts. There was a strong association between eating and smoking in the study. Of the nurses who smoked, 88.5 percent indicated that they needed a cigarette after eating.
Measurement of Smoking Behavior

A longitudinal study of smoking behavior by Elkind (1988) provides insight on the problems of obtaining accurate measurement of smoking behavior. In a study of smoking behavior of student nurses and student teachers Elkind researched the "editing" of smoking behavior by the participants. The researcher hypothesized that in a retrospective study, certain information will be altered or reinterpreted by the subject.

"Editing" behavior was defined as a subject's refusal to participate in parts of the study, discrepancies in accounts relating to the researcher's definition of being a smoker compared to that of the subjects, and the giving of contradictory information by the subjects.

The research sample consisted of 43 female undergraduate student teachers from a university and 69 female student nurses from a school of nursing. A baseline questionnaire on smoking behavior was given to the participants at the beginning of their first term of training. Each subject was then interviewed once during the same term, with subsequent questionnaires given at 5, 8, and 12 months after entry to their training programs. A second interview closed the study after approximately 15 months.

The questionnaires revealed that student nurses were twice as likely as student teachers to be smokers at the time of entry to training. Student teachers had a higher rate of refusal in completing the questionnaires and interviews. Comparisons of observed behavior and information obtained from
questionnaires revealed that some who had reached a level of regular cigarette consumption still considered themselves as either occasional smokers, or did not consider themselves smokers at all. Subjects also redefined their behavior by reinterpreting it or giving "just cause" for smoking in certain social or stressful situations. The personal interviews yielded contradictory information and observed evasiveness in response to questions about smoking habits. Elkinds concludes that this type of study can serve as an important reminder that the health educator's interpretation and perception of health, self-care, and appropriate behavior may not always be in accord with the perceptions and self-reports of the targeted population.

**Occupational Stress**

Most Americans in the workforce spend over half of their waking hours on the job. Thus, the work environment has a significant impact on the overall health and lifestyle of employees (Sloan, Gruman, & Allegrante, 1987). Anger, fear, strain, workload, and fatigue are all positively related to stress and safety at work (Karasek & Theorell, 1990). The influence of occupational stress on employee health has become the basis of many studies.

Occupational stress involves complicated interactions between a person and his or her environment. Beehr and Newman (1978) define job stress as "situations wherein job-related factors interact with a worker to change (i.e., disrupt or enhance) his or her psychological and / or physiological conditions such that the person (i.e. mind-body) is forced to deviate from normal
functioning" (p. 669-670). Levi, Frankenhaeuser, and Gardell (1982) defined four major properties of the work environment that lead to job dissatisfaction and poor health. The four properties are:

- **Quantitative Overload**- too much work, short deadlines, and repetition;
- **Qualitative Underload**- narrow and one-sided job content, lack of stimulus variation, and lack of opportunities for meaningful social interaction of creativity;
- **Lack of Control**- an inability to influence pace and other working conditions; and
- **Lack of Social Support**- inadequate social networks both at home and at work.

Antecedents of stress, often called "stressors", come from many sources. Ivanich and Matteson (1980) developed a Model of Organizational Stress (Figure 2.1) which identifies the relationships between stressors, perceived stress, outcomes of stress, and the consequences of those outcomes.

An early study by Kahn, Wolfe, Quinn, and Snoek (1964) found that role conflict and ambiguity comprised a major source of job tension. From their studies they have identified various types of occupational role conflicts. Among these are inter-sender conflicts, intraorganizational conflicts, role overload, and person-role conflicts. Using the Job-Related Tension Index, Kahn, et al. (1964) surveyed a national sample of male salaried workers. Results of the survey revealed that 48 percent of the workers were confronted with inter-sender conflicts such as being caught in the middle between two sets of people who
Antecedents (Stressors) → Stress → Outcomes → Consequences

Intraorganizational
Physical environment
Light, noise, temperature, vibration, and motion, polluted air

Individual level
Work overload, role conflict, role ambiguity, career goal discrepancy, responsibility for people

Group level
Lack of cohesiveness, intragroup conflict, status incongruence, group dissatisfaction

Organizational level
Organizational climate, technology, management styles, control systems, organizational design, job design, job characteristics

Extraorganizational
Family relations, economic problems, race and class, residential

Job, career, and life stress
As perceived by: self, subordinate, supervisor

Job, career, and life stress
As measured by: physicians, behavioral scientists

Physiological
Serum cholesterol, triglycerides, blood pressure (systolic, diastolic), blood glucose, catechoamines

Behavioral
Satisfaction (job, career, life), performance, absenteeism, turnover

Individual differences: cognitive-affective
Personality type, locus of control, tolerance of ambiguity, need for security, self-esteem

Individual differences: demographics and behavior
Age, sex, education, occupation, income, hours worked, health status

Diseases of adaptation
Coronary heart disease, rheumatic fever, anemia, ulcers, allergies, headaches, anxiety, depression, apathy, nervous exhaustion

Moderator set


Figure 2.1
A Model for Organizational Stress Research
expected different tasks from them. Thirty-nine percent of the respondents expressed feelings of anxiety about being able to satisfy the conflicting demands of their supervisors. Managers and supervisors were most often cited as the cause of role conflicts among workers. Co-workers, union representatives, family, and friends, played a less significant part in role conflict.

Job pressures that stem from within the organization were defined as intraorganizational conflicts. These conflicts, a subset of inter-sender role conflicts, revolve around conflicting messages from management and/or other departments within the workplace that are not in agreement with each other. An employee who is required to fulfill the conflicting demands of two or more departments again becomes confused and caught in the middle. In Kahn’s study intraorganizational conflicts accounted for 41 percent of inter-sender conflicts that were reported.

Forty-five percent of the workers in the study indicated that they were disturbed about feelings that they “have too heavy a workload, one that they can’t possibly finish during an ordinary work day” (p.59). Another 43 percent felt that thinking about the amount of work they had to do would interfere with how well the job gets done. Conflicts such as these are classified as role overload and are common throughout the labor force.
Person-role conflicts involve divergent demands of job role and personal needs, values, and personal abilities. It was found that 45 percent of the men in the sample felt that they were required to do things on their jobs that were against their better judgment. Another 22 percent were concerned by the feeling that they were not fully qualified to handle their jobs. Kahn, et al. (1964) also found similar patterns in women who were required to be pleasant to people who made degrading advances towards them while on the job, and in women whose professional experience was not respected by younger co-workers.

Role ambiguity is defined by Kahn et al. (1964) as "a direct function of the discrepancy between the information available to the person and that which is required for adequate performance of his role" (p.73). This source of job stress comes from uncertainty about specifically what is to be done and/or how tasks are to be carried out. Of the workers in the sample, 35 percent said they were disturbed by lack of clarity about the scope and responsibilities of their jobs. Concern surrounding the ambiguity about what their co-workers expect of them affected 29 percent of the sample. Another 38 percent of the sample said they were distressed because they lacked information required to perform their jobs adequately. Uncertainty about superiors' evaluation of them was a concern for 32 percent of the sample.

Recent research has focused on how psychological health is affected by social-support relations on the job. Social support at work as defined by
interaction available on the job from both co-workers and supervisors" (pg. 69). Karasek and Theorell (1990) discuss four ways in which social relations at work may affect the health and overall well-being of an employee. First, social support may act as a buffering mechanism between psychological stressors and adverse health outcomes. Second, as in all higher animals, basic physiological processes important to long-term health maintenance and acquisition of new knowledge in humans are affected by social contact and social structure. Third, active coping patterns and productive behavior can be facilitated by social support. Fourth, a positive sense of identity is based on the socially confirmed value of an individual's contribution to the collective goals and well-being of the social structure.

**Occupational Stress and Smoking**

Previous studies have presented a positive association between stress and smoking. Individuals exposed to stress smoke more than those not exposed to stress, and smokers tend to withstand longer and more intensified stress when smoking (Surgeon General's Advisory Committee, 1964; Nesbit, 1973). Various studies suggest that, in stressful situations, people smoke to lessen or cope with the feelings of stress or to calm down in upsetting situations (Karasek & Theorell, 1990). Women report using cigarettes to reduce tension more than men; and women smoke more than men during stressful tasks (Schilling, Gilcrest, & Schinke, 1985).
For those who smoke, stress in the workplace has been reported to increase smoking behavior. Many smokers perceive cigarettes to be a means of reducing stress on the job (Schilling, Gilcrest & Schinke, 1985). Jarvik (1977), and McMorrow and Foxx (1983) found that the physiological responses of the cravings for the preferred level of nicotine can cause unpleasant feelings and impair work performance and concentration. Some investigators suggest that smoking is a necessary means of adapting to the work setting and work-induced stress (Crutchfield & Gove, 1984; Gupta & Jenkins, 1984). On-the-job stressors such as anger, strain, workload, fatigue, and fear are all positively associated with tobacco use (Conway, Vickers, Ward, & Rahe, 1981).

**Smoking Cessation**

The Surgeon General has stated that smoking cessation carries immediate, major health benefits for both men and women, regardless of age. These benefits apply to all persons who quit, with or without smoking related disease (USDHHS, 1990a). For those who are addicted to cigarettes, smoking cessation is a often a difficult step. Between 30 and 40 percent of smokers do not believe that smoking increases the risks of disease and/or do not believe that quitting smoking reduces these risks (USDHHS, 1990a). More than 38 million Americans have quit smoking. Recent polls have shown that two-thirds of smokers say they would like to quit, and each year about 1.3 million smokers do quit successfully (USDHHS, 1990a). Most ex-smokers go through cycles of
quitting and starting again before becoming long term quitters. At least one-third of smokers who stay off cigarettes for more than one year may eventually relapse, but this becomes less likely as ex-smokers stay off of cigarettes for longer periods of time (USDHHS, 1990a).

An evaluation of a worksite self-help smoking cessation program for registered nurses was conducted by Gritz, et al. (1988). The study was designed to increase knowledge of nurses’ smoking and to measure the effectiveness of the self-help program. The self-help method was chosen for this particular setting due to the varying work shifts of nurses and general preference for the convenience of this method. In addition to the self-help program, the administration of the participating hospitals sponsored worksite activities to show support for smoking cessation efforts.

Registered nurses (N=149) from hospitals in the Los Angeles area were recruited to take part in the program. The nature and components of the program were reviewed for participants at an initial enrollment meeting where enrollees received the American Lung Association's (ALA) Freedom of Smoking in Twenty Days (cessation manual) and A Lifetime of Freedom From Smoking (maintenance manual). Enrollees also received three manuals specifically targeted for nurses. The manuals included tips on weight control, use of break time at work, and use of the “buddy” system. Before leaving the meeting, the enrollees were asked to complete a baseline questionnaire. Evaluation of program effectiveness was made through a mailed questionnaire,
and supplemental telephone interviews at 1, 6, and 12 months post-intervention.

The self-help program was strongly supported by the administration of the participating hospitals. Intervention activities included posters, buttons, newsletters, and a “Great Nurses Smokeout Day”. A booth featuring stop smoking brochures, posters, breath CO testing, and a videotape (Up in Smoke-Woman to Woman) was provided at each hospital site.

At the end of the 12-month program the evaluation showed point prevalence abstinence to be 22.5 percent (1 month), 21.5 percent (6 months), and 19.5 percent at 12 months. Continuous abstinence was 12.7 percent, and ever quit (i.e., quit for at least 48 hours) was 57 percent. These prevalence rates compare favorably to population quit rates and rates reported for similar self-help programs.

Prominent predictors of short-term cessation included concern regarding the health hazards of smoking, work in a critical care setting, and use of the targeted weight control manual. Predictors of long-term cessation included use of standard ALA maintenance manual and working with dying patients (Gritz, et al., 1988).

Gritz, Berman, Read, Marcus, and Siau (1990) researched weight-related beliefs, attitudes, and patterns of weight change for 144 of the registered nurses of Los Angeles who participated in the self-help cessation program mentioned
above. Using an uncontrolled pretest/post-test design, they hypothesized that for the predominantly female field of nurses, concern about weight gain is a factor which increases the likelihood of continuing smoking behavior or of impeding cessation. Their second hypothesis was that continuous abstainers are more likely to gain weight and to gain more weight than noncontinuous abstainers.

Baseline questionnaires completed at initial enrollee’s meeting were used as pre-test instruments. Specific variables from the baseline questionnaire included age, cigarettes smoked per day, self-reported height and weight, body mass index, preferred weight, weight changes in previous quit attempts, use of eating as a coping mechanism for stress, and fear of weight gain as a barrier to stopping smoking. Follow-up questionnaires and telephone interview were administered at the 6 and 12 month points after the beginning of the self-help program. Questionnaire items addressed the variables of self-reported current weight, weight changes associated with a quit attempt (and relapse, if applicable), concern about actual weight gained, use of eating as a coping mechanism for stress, and appetite changes during withdrawal.

Chi-square tests and Pearson correlations yielded three predictors of subjects’ weight gain. These predictors were continuous abstainer status, lower body mass index, and greater fear of weight gain. The continuous abstainers were more likely to gain weight (88.2 percent) than noncontinuous abstainers (50 percent) and never quitters (35.9 percent). The average difference between
current weight change and subjects' "preferred" weight gain was 14.8 pounds. This is nearly three times the reported national average weight gain of 5 pounds after smoking cessation (USDHHS, 1990a). Weight change for most subjects did not differ significantly at 6 and 12 months.

It is evident that weight control strategies should be a part of any smoking cessation program, especially for women. Use of these strategies as part of a cessation program may act as an incentive in getting smokers to begin a program and encourage more smokers to become continuous abstainers.

Summary

Despite their knowledge of the health risks of smoking, many nurses still smoke. Nurses' smoking behavior has been described as being incongruent with their expected roles as health providers, role models for healthy lifestyles, and health educators (Swenson, 1989). Cigarette smoking among nurses has been associated with occupational stress. It is suggested that nurses who perceive their job as stressful are more likely to smoke than those who do not have such perceptions (Taglacozzo & Vaughn, 1982).

Review of the literature on smoking cessation and smoking behavior among nurses shows creative and significant methods for studying this special population. Although the prevalence of smoking is decreasing among the nursing population, there is a need for additional education and workplace support for smoking cessation, particularly for nurses who work in a hospital setting. Survey and interview methods of research seem to be most efficient in
evaluating nurses’ smoking behavior or assessing appropriate smoking cessation techniques for the population. Because of a varying work schedule, self-help intervention accompanied by worksite support activities may be the most appropriate method of smoking cessation for hospital nurses. If attention to the smoking prevalence in the field of nursing is to continue, additional, updated research is needed in the fields of health education and health behavior.
Chapter III

METHODOLOGY

Study Design

Setting

The Salem Veterans Administration Medical Center is a 529 bed medical care facility with nurses employed in the areas of outpatient care, intensive care, intermediate medicine, psychiatry, and other specialty areas. Nurses are also employed in the areas of research, administration, and nursing education

Subject Selection

Study subjects of the study were practical and registered nurses employed full-time at the Veterans Administration Medical Center in Salem, Virginia. Currently, the Medical Center employs a total of 230 registered nurses and 103 licensed practical nurses. Overall, 16 (5%) of the nurses at the Medical Center are males and 317 (95%) are females.

Dr. Kim Ragsdale, Psychologist, of the VAMC Psychology Division, Ms. Jane Tabb, Registered Nurse of the VAMC Cardiology Department, and Dr. Shelvey Bratcher-Porter of VAMC Nursing Services assisted in the approval process to conduct this study. The implementation of the original survey (Appendix A) was proposed by Dr. Kim Ragsdale to the Employee Union, and by Angela Gunther in separate meetings to the Nursing Research Committee (Appendix B) the Human Subjects Committee (Appendix C), the Design and Review Committee, and the Research and Development Committee. The original survey was amended according to recommendations by the Nursing
Research Committee and the Employee Union (Appendix D). Upon approval of these committees, surveys were distributed to all nurses and response data was entered onto the computer for all respondents.

**Questionnaire Development**

The questionnaire focused on subjects' perceived control in their jobs, psychological demands from their jobs, amount of stressful patient contact experienced by the subjects, methods of coping with stress, smoking status, and demographic information. Permission was sought and received from Dr. Thomas Muldary to use Occupational stress items from his previous publication (Appendix E). The questionnaire was pretested on a group of hospital nurses employed at Montgomery Regional Hospital, then revised.

**Variables**

1. **Independent variables** Perceived control that nurses have in their job duties will be measured by questions concerning job responsibilities, workload, work schedule, supervisor's opinion of performance, and ambiguity (questions 14 b, c, d, e, f, and 16 c and e) (Levi, Frankenheuser, & Gardell, 1982; Kahn, Wolfe, & Quinn, 1964; Muldary, 1983). Subjects will also be asked questions to respond to questions which concern perceived stress and psychological demands associated with their jobs. These questions will address issues concerning making critical decisions about patient care, frequent emergencies, treatment errors, risk of contamination and injury, and personal conflicts (questions 5 a, c, e, f, g; 12 a, d, e, f, i, g; 14 a; and 16 a, b, d) (Muldary, 1983). Stressful patient contact will be measured by questions 5 b and d; and 12 b and c (Muldary, 1983). These questions will be measured on a 5-point Likert-type scale on which the subject will rank stressors by circling the number which best describes his or her stress from work situations (Likert, 1932).
2. Dependent Variables  Current smoking behavior (Question 8) is the dependent variable to be tested.

SMOKING BEHAVIOR

PERCEIVED CONTROL  STRESSFUL PATIENT CONTACT

STRESS/PSYCHOLOGICAL DEMANDS

Data Collection

A survey (Appendix D), cover letter (Appendix G) and an informed consent form (Appendix F) were placed in 333 individual inter-hospital envelopes addressed to each unit and distributed by the nurse managers to nurses at their work units. Permission was requested to use the VAMC Psychology Department mail stop for return of the questionnaires (Appendix H). Verbal permission was granted from Dr. James Lanter to allow the surveys to be returned to Dr. Ragsdale at the mail-stop. Follow-up notices to appeal for the return of surveys after the deadline were sent all nurses via computer network mail by Jane Tabb. Dr. Kim Ragsdale also posted a reminder notice in an employee news bulletin.
The research project took approximately three months, from initial approval to the reporting of results. Final approval from the VAMC was received on February 21. Questionnaires were mailed to subjects on February 28. Requested due date for the return of questionnaires was March 10. Reminders to appeal for the return of all surveys were posted approximately 5-7 days after the deadline.

Protection of Human Subjects

1. Confidentiality

Subjects were informed that the data would be recorded and analyzed only by the principal investigators. Subjects were informed that that data would be reported in aggregate form only, and that all individual responses will remain confidential. Respondents were asked to refrain from putting their name anywhere one the questionnaire, however, those who wished to receive a summary of the study results were be asked to request a copy by contacting Dr. Ragsdale.

2. Informed Consent

Voluntary informed consent of subjects is understood upon return of the completed questionnaire. The Veterans Administration Medical Center required an informed consent form (Appendix F). Human subjects approval was requested and approved at Virginia Tech (Appendix I) and VAMC (Appendix C).
3. Study Risks and Benefits to Subjects

This study did not place subjects at any known risk, including economic, reputational, health or other known risk. Participation in the study gave the subjects the opportunity to identify and assess their occupational stress and health risks associated with stress, as well as their smoking behavior and/or exposure to second hand smoke. If it chooses, the hospital administration can use the study results as a needs assessment for future stress reduction and/or tobacco reduction efforts for employees. Subjects have the opportunity to request a summary of the findings from Dr. Ragsdale.

Data Analysis

The investigator numbered all questionnaires prior to starting data entry. All questionnaires were checked to assure coding accuracy. The data was entered Minitab \textsuperscript{R} Statistical Package. Measures of central tendency and tallies were used to assure accuracy in coding and data entry. Descriptive statistics were processed on all variables to check for wild codes and to obtain basic information on all variables. Codes were developed for each stressor listed in 5, 12, 14, and 16. Ratings ranging from “0” (Very Little) to “5” (Very Much) for individual stressors. A “NA” designation will also be listed with each stressor to designate those items which do not apply to the respondent’s job situation. A significance level of .05 was used to determine statistical significance. Cross tabulations were used to determine how frequently various combinations of the variables occur (Ary, Jacobs, & Razavieh, 1990). A two-sample t-test will be used to compare perceived stress among smokers and non-smokers.

To test $H_1 =$ Nurses who smoke will perceive less perceived control in their jobs, independent t-tests were performed on questions 14 b,c,d,e,f; 16 c and e with question 8. To test $H_2 =$ Nurses who smoke will perceive more stress and
greater psychological demands from their jobs, independent t-tests were performed on questions 5 a, c, e, f, g; 12 a, d, e, f, g; 14 a; and 16 a, b, d with question 8. To test $H_3$ = Nurses who smoke will perceive more stressful patient contact on their jobs, independent t-tests were performed on questions 5 b, d; and 12b, c with question 8. Measures of central tendency and cross tabulations were illustrated with tables in Chapter Four.
Chapter IV

Findings

Description of the Study Population

A majority of the respondents (98%) were female, as compared to 95% in the total hospital nursing staff. Seventy-eight percent of the respondents were registered nurses, as compared to 69% in the total hospital nursing staff. Forty-one percent of the respondents reported their level of education to be a nursing diploma. The percentage having a bachelor’s degree was 23%, and 22% had an associate’s degree. Fourteen percent of the study population had an advanced degree. Over half of the respondents were in the 30-49 age group (65%). The majority of the respondents (59%) worked in the Acute Care area of the hospital, which consists of outpatient care/day hospital, surgery and medical intensive care units, surgery and medical units, and psychiatry units. An average of two days were reported in the amount of days lost due to illness in the last 6 months. Most respondents rated their health as good (57%) or excellent (37%).

Results

Of the 333 surveys distributed to the nursing staff, 128 (39%) were returned. Four surveys were not used in the study due to the lateness of their return.
Nineteen percent of respondents reported that they were current smokers. This percentage was slightly lower than the 25.5% smoking prevalence for the overall population in the U.S. (Guba & McDonald, 1993), but higher than reports of 19% and 21.8% in two similar studies among hospital nurses (Swenson, 1987; Alexander & Beck, 1990). Forty-one percent of the respondents reported that they smoked prior to the time they became nurses. The percentage of respondents reporting that other people living in their household smoked was 22%.

Table 4.1 presents a description of smoking experience among the respondents. Twenty-four percent of the respondents were former smokers. In comparison, 11% reported that they had one or more quit attempts in the past, but started smoking again, and 8% reported that they currently smoked and have not tried to quit.
Table 4.1

Description of Reported Smoking Experience

\[ n=124 \]

<table>
<thead>
<tr>
<th>Description</th>
<th>%</th>
<th>(N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I have never smoked a cigarette</td>
<td>32</td>
<td>(40)</td>
</tr>
<tr>
<td>I have tried cigarettes, but never smoked for a period of six months</td>
<td>25</td>
<td>(31)</td>
</tr>
<tr>
<td>I have smoked cigarettes in the past, but quit</td>
<td>24</td>
<td>(30)</td>
</tr>
<tr>
<td>I have had one or more quit attempts in the past, but started smoking again</td>
<td>11</td>
<td>(14)</td>
</tr>
<tr>
<td>I currently smoke, and have not tried to quit</td>
<td>8</td>
<td>(9 )</td>
</tr>
<tr>
<td></td>
<td>100</td>
<td>(124)</td>
</tr>
</tbody>
</table>
The greatest proportion (56%) of current smokers reported that they worked in the Acute Care area of the hospital, as compared to the 59% overall response rate from the Acute Care areas of the hospital. Compared to the overall response rate of 69% for RN’s, seventy-five percent of the of the reported current smokers were RN’s. Fifty-seven percent of the current smokers reported their level of education to be a nursing diploma or associate’s degree. The 30-39 and the 50-59 age groups had the highest percentages of smokers and were equivalent. Both age groups reported current smokers at 34% of the total current smokers. Twenty-five percent of the total current smokers were in the 40-49 age group. Only 7% percent were in the youngest group, age 18-29, however this group had fewer respondents (6%) overall. Sixty percent of the current smokers reported that no other individuals living in their household smoked.

Although, the highest concentration of smokers were in the age groups of 30-39 and 50-59, the highest percentage (33%) of smokers reported they had smoked for only 1-5 years. Only 3% had smoked less than 1 year. Those reporting smoking from 5-10 years was 7%, while 14% reported they had smoked for 10-20 years. Four percent reported that they had smoked for over 20 years.

More current smokers reported that they smoked between one-half and one pack of cigarettes per day. Fewer were very heavy smokers, with 15% reporting they smoked between one and one-half and 2 packs of cigarettes per day (Table 4.2).
<table>
<thead>
<tr>
<th>Packs Per Day</th>
<th>% (N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 or more</td>
<td>0</td>
</tr>
<tr>
<td>Between 1 1/2 to 2</td>
<td>15 (4)</td>
</tr>
<tr>
<td>Between 1 and 1 1/2</td>
<td>30 (8)</td>
</tr>
<tr>
<td>Between 1/2 and 1 pack</td>
<td>37 (10)</td>
</tr>
<tr>
<td>Less than 1/2 pack</td>
<td>18 (5)</td>
</tr>
</tbody>
</table>

Mean = Between 1/2 to 1 pack per day

Missing Value=1
Intention to quit smoking was reported using responses from item 11 from the survey. Three subjects who reported themselves to be current smokers did not answer this question on the survey. Of the current smokers who responded to this question, 36% reported that they do not plan to quit smoking cigarettes, and 32% reported that they planned to quit within the next six months. Twenty-four percent reported that they intended to quit very soon, and only 8% reported that they were currently trying to quit smoking. Fifty-nine percent of current smokers reported that they were interested in participating in a smoking cessation program.

A total of 56 respondents (45%) reported that they would be interested in participating in a stress management program. Although over half of the smokers reported that they would be interested in a stress management program, the difference between smokers and non-smokers was not statistically significant (p=0.6). The cross tabulation for this interest in stress management by current smoking status is in Table 4.3.
Table 4.3

Cross Tabulation of Current Smoking Status and Interest in a Stress Management Program
n=118

<table>
<thead>
<tr>
<th>Current Smoking Status % (N)</th>
<th>Yes % (N)</th>
<th>No % (N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>52 (14)</td>
<td>48 (13)</td>
</tr>
<tr>
<td>No</td>
<td>46 (42)</td>
<td>54 (49)</td>
</tr>
</tbody>
</table>

Missing Value=6

\[ \chi^2 \ (1DF)= 0.271, \ p=0.6 \]
Responses to survey questions 13 and 17 are presented in Tables 4.4 and 4.5. Question 13 was stated “If you have ever had a conflict with a physician over a patient’s care, in what ways would you have most likely coped with this incident?” The coping method expressed by the majority of respondents (53%) was “By talking with a co-worker”. A smaller percent responded with the negative health behaviors of smoking (7%) or eating (6%). Thirteen percent of the respondents reported that they would cope by other means (Table 4.4). The methods expressed by respondents for this survey item were:

- “physical activity”
- “by walking”
- “talking with the physician”
- “talking with the supervisor and physician”
- “clear it up before he (the doctor) left the area”
- “telling him/her to ‘go to hell.”

Question 17 on the survey was stated “One of your patients dies during your shift. How would you most likely cope with the stress you feel from this incident?” Again, over half of the respondents (56%) choose the response “By talking with a co-worker”. Ten percent of the respondents reported they would cope by smoking and (7%) reported other methods of coping. A lower percentage (5%) reported that their coping method would be eating. (Table 4.5).
The methods listed by respondents for this survey item were:

- "by going shopping or walking"
- "by paying respects to the patient, then moving on to the next patient"
- "depending on relationship with patient, maybe crying, or no response"
- "praying"
- "talking with God"
- "not a problem-people die"
- "by calling in sick"
- "continue to work with other patients- no time to waste on this unit"
- "review my care of the patient and be confident in doing what was right".
### Table 4.4

**Description of Reported Methods of Coping with Occupational Stressors**

*n*=107

---

**Survey Question 13:**
*If you have ever had a conflict with a physician over a patient’s care, in what way would you have most likely coped with this incident?*

<table>
<thead>
<tr>
<th>Responses to Question</th>
<th>% (N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>By spending some time alone</td>
<td>6 (6)</td>
</tr>
<tr>
<td>By eating</td>
<td>6 (6)</td>
</tr>
<tr>
<td>By talking with a co-worker</td>
<td>53 (57)</td>
</tr>
<tr>
<td>By talking with a friend or family member</td>
<td>15 (16)</td>
</tr>
<tr>
<td>By smoking</td>
<td>7 (8)</td>
</tr>
<tr>
<td>Other</td>
<td>13 (14)</td>
</tr>
</tbody>
</table>

---

Missing Values = 17

50
Table 4.5  
Description of Reported Methods of Coping with Occupational Stressors  
(n=110)

Survey Question 17:  
One of your patients dies during your shift. How would you most likely cope with the stress you feel from this incident?

<table>
<thead>
<tr>
<th>Responses to Question</th>
<th>% (N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>By spending some time alone</td>
<td>7 (8)</td>
</tr>
<tr>
<td>By eating</td>
<td>5 (5)</td>
</tr>
<tr>
<td>By talking with a co-worker</td>
<td>56 (61)</td>
</tr>
<tr>
<td>By talking with a friend or family member</td>
<td>15 (17)</td>
</tr>
<tr>
<td>By smoking</td>
<td>10 (11)</td>
</tr>
<tr>
<td>Other</td>
<td>7 (8)</td>
</tr>
</tbody>
</table>

Missing Value = 14
Significant differences in the methods of coping with a conflict over a patient’s care were reported between smokers and non-smokers (p = .00005). Current smokers most often reported that they would cope with stress from a conflict with a physician over a patient’s care by “talking with a co-worker” (38%) or by smoking (34%). The non-smokers most often reported that they would cope by either “talking with a co-worker” (56%) or by “talking with a friend or family member” (17%). Twenty-one responses were not usable due to the respondents choosing more than one answer for the coping question or not answering the questions regarding current smoking status. The cross tabulation for this item is in Table 4.6.

Significant differences were also found between smokers and non-smokers in their responses to the second question concerning coping with stress from the death of a patient (p = .00003). Current smokers more often reported that they would cope by either “talking with a friend or family member” (43%) or “by smoking” (35%). Non-smokers most often reported that they would cope “by talking with a co-worker” (56%) or “by talking with a friend or family member” (18%). Three respondents listed as non-smokers reported that they would cope by smoking. Nineteen responses were not usable due to the respondents choosing more than one answer for this question or not answering the question concerning current smoking status. This cross tabulation for this item is presented in Table 4.7.
Table 4.6

Cross Tabulation Table for Coping with Physician Conflicts for Smokers and Non-Smokers

n = 103

Survey Item 13:

*If you have ever had a conflict with a physician over a patient's care, in what ways would you have most likely coped with the stress you felt from this incident?*

Response Codes:

1 = By spending time alone
2 = By eating
3 = By talking with a co-worker
4 = By talking with a friend or family member
5 = By smoking
6 = Other (list in space below)

<table>
<thead>
<tr>
<th>Response Codes</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Smokers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes % (N)</td>
<td>9 (2)</td>
<td>0</td>
<td>38 (8)</td>
<td>5 (1)</td>
<td>33 (7)</td>
<td>14 (3)</td>
</tr>
<tr>
<td>No % (N)</td>
<td>5 (4)</td>
<td>7 (6)</td>
<td>56 (46)</td>
<td>17 (14)</td>
<td>1 (1)</td>
<td>13 (11)</td>
</tr>
</tbody>
</table>

Missing Values = 21

\[X^2 (5 df=27.13, p=.00005)\]
Table 4.7

Cross Tabulation Table for Coping with Death of a Patient for Smokers and Non-Smokers  
\[ n = 105 \]

Survey item 17:  
One of your patients dies during your shift. How would you cope with the stress you feel from this incident?

Response Codes:  
1= By spending time alone  
2= By eating  
3= By talking with a co-worker  
4= By talking with a friend or family member  
5= By smoking  
6= Other (list in space below)

<table>
<thead>
<tr>
<th>Response Codes</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Smokers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes % (N)</td>
<td>0</td>
<td>0</td>
<td>43 (10)</td>
<td>9 (2)</td>
<td>35 (8)</td>
<td>13 (3)</td>
</tr>
<tr>
<td>No % (N)</td>
<td>10 (8)</td>
<td>6 (5)</td>
<td>56 (46)</td>
<td>18 (15)</td>
<td>4 (3)</td>
<td>6 (5)</td>
</tr>
</tbody>
</table>

Missing Values=19  
\[ X^2 (5df = 22.95, p=.00003) \]
Overall means and results of dependent t-tests for responses to the 25 occupational stressors are presented in Tables 4.8, 4.9 and 4.10. The items on the survey were rated on a scale ranging from 0 to 5, with a rating of “0” representing very little perceived stress and “5” representing very much perceived stress. The highest overall mean for the occupational stressors was 3.4 for the item “working with difficult and demanding patients.” The means for items, “feeling that I am under stress while at work” and “making critical decisions about a patient’s care” were 3.3 and 3.1 respectively. The item, “having too much paperwork” had the fourth largest mean of 3.0. The lowest mean was for the item, “boredom”. The mean for this item was 1.2. Respondents who were non-smokers reported a higher overall mean (2.49) for the occupational stress items. The overall mean for these items for respondents who were smokers was 2.29.

Tests of Hypotheses

All occupational stress items used in the research hypotheses were tested with an Independent, two-tailed t-test. A 0.05 level of significance was used.

Hypothesis One

H1: Nurses who smoke will perceive less perceived control on their jobs.

Survey items and results used to test this hypothesis are listed in Table 4.8. The mean for nurses who reported themselves as current smokers were lower than the mean for non-smokers in each of the seven items used to test perceived control on the job. A significant difference (p=0.0011) was found
between smokers and non-smokers only in item 14f, however, the mean for non-smoking respondents was higher in this instance. The mean rating for all items in this category was higher for non-smokers (2.38) than for smokers (1.90). Based on this comparison of means for perceived control on the job for smokers and non-smokers (p=0.21), Hypothesis One is rejected.
Table 4.8

Independent \( t \)-Tests of Means for Perceived Control on the Job for Smokers and Non-Smokers
\( n = 124 \)

\( H_1 \): Nurses who smoke will perceive less perceived control on their jobs.

<table>
<thead>
<tr>
<th>Survey Items</th>
<th>Overall</th>
<th>S*</th>
<th>NS*</th>
<th>T*</th>
<th>P*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Mean Mean</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perceived Control in Job</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14b. Unclear about my job responsibilities</td>
<td>1.8</td>
<td>1.58</td>
<td>1.93</td>
<td>1.18</td>
<td>0.24</td>
</tr>
<tr>
<td>14c. Feeling that I have too heavy a workload</td>
<td>2.5</td>
<td>2.22</td>
<td>2.61</td>
<td>1.11</td>
<td>0.27</td>
</tr>
<tr>
<td>14d. Having an inflexible work schedule</td>
<td>1.9</td>
<td>1.42</td>
<td>2.08</td>
<td>-1.93</td>
<td>0.060</td>
</tr>
<tr>
<td>14e. Having too much paperwork</td>
<td>3.0</td>
<td>2.78</td>
<td>3.14</td>
<td>-1.00</td>
<td>0.32</td>
</tr>
<tr>
<td>14f. Not knowing what my supervisor thinks of my performance</td>
<td>1.8</td>
<td>1.29</td>
<td>2.00</td>
<td>-2.6</td>
<td>0.011**</td>
</tr>
<tr>
<td>16c. Lack of recognition, praise, or appreciation for work I do</td>
<td>2.3</td>
<td>2.19</td>
<td>2.47</td>
<td>-0.77</td>
<td>0.45</td>
</tr>
<tr>
<td>16e. Getting conflicting instructions from my supervisors</td>
<td>2.2</td>
<td>1.88</td>
<td>2.39</td>
<td>-1.35</td>
<td>0.18</td>
</tr>
<tr>
<td>Mean Rating for Items</td>
<td>2.2</td>
<td>1.90</td>
<td>2.38</td>
<td>-0.76</td>
<td>0.21</td>
</tr>
</tbody>
</table>

*S= Smokers; N=Non-Smokers; \( T \)=t-statistic; \( P \)=p-value

+Rated on a scale from "0" to "5" describing the amount of perceived job stress. Scale range was from "0"= Very Little to "5"=Very Much.

**Significant at 0.05 level
Hypothesis Two

H₂: Nurses who smoke will perceive more stress and greater psychological demands in their jobs.

Survey items and results used to test this hypothesis are listed in Table 4.9. Significant differences in the means for items which examined stress and psychological demands of smokers and non-smokers were found only in items 14a (p=0.031) and 16d (p=0.002); however, the mean for non-smokers was higher in both instances. The mean rating for all items in this category were similar for non-smokers (2.36) and smokers (2.33). Based on the comparison of means for stress and psychological demands for smokers and non-smokers (p=0.516), Hypothesis Two is rejected.
Table 4.9
Independent t-Test of Means for Perceived Stress and Psychological Demands for Smokers and Non-Smokers
n=124

H2: Nurses who smoke will perceive more stress and greater psychological demands in their jobs.

<table>
<thead>
<tr>
<th>Survey Items +</th>
<th>Overall Mean</th>
<th>S* Mean</th>
<th>NS* Mean</th>
<th>T*</th>
<th>P*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stress and Psychological Demands</td>
<td>Overall Mean</td>
<td>S* Mean</td>
<td>NS* Mean</td>
<td>T*</td>
<td>P*</td>
</tr>
<tr>
<td>5a. Feeling that I am under stress while at work</td>
<td>3.3</td>
<td>3.32</td>
<td>3.38</td>
<td>-0.23</td>
<td>0.82</td>
</tr>
<tr>
<td>5c. Making critical decisions about a patient’s care</td>
<td>3.1</td>
<td>3.19</td>
<td>3.13</td>
<td>-0.23</td>
<td>0.82</td>
</tr>
<tr>
<td>5e. Dealing with frequent emergencies on the unit</td>
<td>2.7</td>
<td>2.67</td>
<td>2.68</td>
<td>-0.06</td>
<td>0.96</td>
</tr>
<tr>
<td>5f. Fear of treatment errors harming patients</td>
<td>2.4</td>
<td>2.70</td>
<td>2.39</td>
<td>1.07</td>
<td>0.29</td>
</tr>
<tr>
<td>5g. Working night shift</td>
<td>2.6</td>
<td>2.26</td>
<td>2.79</td>
<td>-1.11</td>
<td>0.27</td>
</tr>
<tr>
<td>12a. Risk of contamination</td>
<td>2.6</td>
<td>2.36</td>
<td>2.65</td>
<td>-0.82</td>
<td>0.42</td>
</tr>
<tr>
<td>12d. Working rotating shifts</td>
<td>2.7</td>
<td>2.91</td>
<td>2.38</td>
<td>1.28</td>
<td>0.21</td>
</tr>
<tr>
<td>12e. Boredom</td>
<td>1.2</td>
<td>1.17</td>
<td>1.16</td>
<td>0.02</td>
<td>0.98</td>
</tr>
<tr>
<td>12f. Nurse-Doctor conflicts</td>
<td>1.8</td>
<td>1.46</td>
<td>1.89</td>
<td>-1.47</td>
<td>0.15</td>
</tr>
<tr>
<td>12g. Conflicts with co-workers</td>
<td>2.6</td>
<td>2.52</td>
<td>2.61</td>
<td>-0.30</td>
<td>0.77</td>
</tr>
<tr>
<td>14.a Conflicts with my supervisor</td>
<td>1.7</td>
<td>1.31</td>
<td>1.93</td>
<td>2.22</td>
<td>0.031**</td>
</tr>
<tr>
<td>16a. Having to work with complicated equipment</td>
<td>1.5</td>
<td>1.55</td>
<td>1.51</td>
<td>0.11</td>
<td>0.91</td>
</tr>
<tr>
<td>16b. Having to work with unreliable equipment</td>
<td>2.0</td>
<td>2.21</td>
<td>2.04</td>
<td>0.53</td>
<td>0.60</td>
</tr>
<tr>
<td>16d. Feeling that my job interferes with my family life</td>
<td>2.2</td>
<td>1.59</td>
<td>2.51</td>
<td>-3.18</td>
<td>0.002**</td>
</tr>
<tr>
<td>Mean Rating for items</td>
<td>2.3</td>
<td>2.33</td>
<td>2.36</td>
<td>-0.15</td>
<td>0.516</td>
</tr>
</tbody>
</table>

*S= Smokers; N=Non-Smokers; T=t-statistic; P=p-value
+Rated on a scale from “0” to “5” describing the amount of perceived job stress. Scale range was from “0”= Very Little to “5”=Very Much.
**Significant at 0.05 level
Hypothesis Three

H₃: Nurses who smoke will perceive more stressful patient contact on their jobs.

Survey items and test results for this hypothesis are listed in Table 4.10. The rating of overall means for items in this category was similar for smokers (2.75) and for non-smokers (2.73). Since significant differences in means between smokers and non-smokers for items pertaining to perceived stressful patient contact and were not found in any of the four items used to test this hypothesis (p=0.41), Hypothesis Three is rejected.

<table>
<thead>
<tr>
<th>Table 4.10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Independent t-Test of Means for Perceived Stressful Patient Contact for Smokers and Non-Smokers</td>
</tr>
</tbody>
</table>

H₃: Nurses who smoke will perceive more stressful patient contact on their jobs.

<table>
<thead>
<tr>
<th>Survey Items</th>
<th>Overall Mean</th>
<th>S* Mean</th>
<th>NS* Mean</th>
<th>T*</th>
<th>P*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stressful patient contact</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5b. Dealing with critically ill or dying patients</td>
<td>2.8</td>
<td>2.88</td>
<td>2.68</td>
<td>0.68</td>
<td>0.50</td>
</tr>
<tr>
<td>5d. Dealing with difficult or demanding patients</td>
<td>3.4</td>
<td>3.67</td>
<td>3.36</td>
<td>1.11</td>
<td>0.27</td>
</tr>
<tr>
<td>12b. Risk of injury</td>
<td>2.4</td>
<td>2.27</td>
<td>2.55</td>
<td>-1.02</td>
<td>0.32</td>
</tr>
<tr>
<td>12c. Patients wanting support I cannot give</td>
<td>2.3</td>
<td>2.19</td>
<td>2.36</td>
<td>0.59</td>
<td>0.56</td>
</tr>
<tr>
<td>Mean Rating for Items</td>
<td>2.7</td>
<td>2.75</td>
<td>2.73</td>
<td>0.34</td>
<td>0.41</td>
</tr>
</tbody>
</table>

*S= Smokers; N=Non-Smokers; T=t-statistic; P=p-value

+Rated on a scale from "0" to "5" describing the amount of perceived job stress. Scale range was from "0"=Very Little to "5"=Very Much.
Chapter V
Discussion, Limitations, and Recommendations

Summary

Approximately 400,000 deaths per year in the United States are related to cigarette smoking (McGinnis & Foerge, 1993). Smoking has been determined to be the greatest preventable cause of premature death and disability in the United States (USDHHS, 1989). The prevalence of smoking among health professionals is of particular concern since most health professionals are looked upon as role models and health educators for their patients and their knowledge of the health risks of smoking exceeds that of the general public (Sorenson, et al., 1992). The prevalence of smoking among nurses is higher than in any of the other health care professions and is similar to that of the overall prevalence for the U.S. (Becker, et al., 1986; Guba & McDonald, 1993). Previous studies have shown that due to the stressful nature of many nursing jobs, nurses find difficulty in quitting and that nurses who perceive their job as stressful are more likely to smoke than those who do not have such perceptions (Tagliacozzo & Vaughn, 1982).

The objective of this study was to make an assessment of stress factors related to the field of nursing and to determine if there is a difference in the perception of stress and coping mechanisms between nurses who smoke and those who were non-smokers in this particular sample. Results of this study
indicate that there were no significant differences in reported perceptions of occupational stress and coping mechanisms between nurses who smoked and those who did not. Fewer than one-third of the reported smokers indicated that they would cope with stressful situations at work by smoking. Overall, occupational stress factors were rated relatively low by both smokers and non-smokers; however, a large percentage of all respondents indicated that they would be interested in participating in a stress management program. This suggests, that for this population, the most stress may be caused from influences outside of the work environment. Also, a majority of smokers indicated that they intended to quit smoking and reported that they would be interested in participating in a smoking cessation program.

The results indicate that stress management and smoking cessation programs would be appropriate for this population.

Limitations of the Study

To the knowledge of the researchers who coordinated this study, all nurses employed at the Medical Center received and had an equal opportunity to complete the survey, however, the response rate was only 39%. Statistical power was limited due to the small effect size of the study. Therefore, the results should be applied with caution in any future studies of occupational stress and smoking behavior.

Changes in the original survey which was approved by the student’s
thesis committee at Virginia Tech were requested by the VAMC Employee’s Union and the Nursing Research Committee. Questions which were requested to be removed by these groups concerned caffeine and alcohol consumption, race, amount of exercise, and current living arrangements. The Nursing Research Committee also requested that the exact title of the study be placed on the survey, hence, the title placed on the final survey was changed from “A Study of Occupation Stress and Lifestyle Among Hospital Nurses” to “A Study of Occupational Stress and Smoking Among Hospital Nurses”. The removal of these questions and the change of title may have created bias since it was obvious to the study population what the instrument was trying to measure. By stating the exact title of the study on the survey, potential respondents may have refrained from completing the survey because they felt it did no apply to them; or it may have caused respondents to edit their responses toward social desirability of being a non-smoker (Elkind, 1988).

In compliance with VAMC requirements, respondents who completed a survey were also required to sign an informed consent form which was mailed to the nurses with the survey. Although this form was to be returned in a separate envelope, this may have created bias and/or lack of response because the subjects may have felt that the surveys could have been identified.

Subjects received the survey and consent form at their work units and were required to complete and return them to a researcher at VAMC via inter-office mail service. Since the survey partially pertained stressful situations on
the job, the response rate and type of responses may have been different if mailed to a location outside of the work environment.

Recommendations

The following recommendations are made for future investigation:

1. Surveys used in this type of research should consist not only of questions regarding stress and smoking, but should also include basic lifestyle questions. This may help to resolve problems of bias and editing due to the subjects' knowledge of what the instrument is trying to measure.

2. Surveys should be totally anonymous. Informed consent for this type of research should be assumed with the voluntary return of a completed survey.

3. A larger representative sample should be sought for this type of study to have greater statistical power. State or national mailing lists of nurses is recommended for the largest potential sample.

4. In the study of smoking, both internal and external factors must be considered. One cannot draw conclusions about smoking behavior without studying addiction, peer group influence, stress from all sources, and perceived susceptibility to smoking related disease.

5. In the study of stress, both internal and external factors must be considered. This includes stress from personal life as well as from occupation.

6. The design of the survey did not provide a strong assessment of the relationship between smoking and stress. Additional development of tests used for the measurement of stress are needed in any instrument used in future studies. The instrument should also be thoroughly examined for content-validity. A within-subject design may be preferable.

7. Since occupational stress was not shown to be significantly related to smoking for this sample, this suggests that other factors which may have a possible relationship with smoking should be tested in any instruments used in future studies of the factors involved in smoking behavior.
REFERENCES


The Nation's Health (1993). U.S. nurses overworked, overstressed, but help may be on the way. 23 (2).


Appendix A

Original Survey
A STUDY OF OCCUPATIONAL STRESS AND LIFESTYLE AMONG HOSPITAL NURSES

Please answer the following questions by placing an “X” by the answer that best describes you. In order for the information on your survey to remain anonymous, do not write your name anywhere on this survey.

1. Would you rate your overall health as,
   ____ Excellent (4)  ____ Good (3)  ____ Fair (2)  ____ Poor (1)

2. What is your level of nursing?   ____ LPN (1)  ____ RN (2)

3. What is your level of training / education? (Check all that apply)
   ____ Nursing Diploma (1)  ____ Associate Degree (2)  ____ Bachelor’s (3)  ____ Master’s (4)  ____ PhD. (5)

4. How long have you worked in the nursing profession?

5. Which one of the following best describes you?
   ____ I have never smoked a cigarette. (1)
   ____ I have tried cigarettes, but never smoked for a period of 6 months. (2)
   ____ I have smoked cigarettes in the past, but quit. (3)
   ____ I have had one or more quit attempts in the past, but started smoking again. (4)
   ____ I currently smoke, and have not tried to quit. (5)

6. Did you smoke cigarettes at the time you were pursuing your nursing degree?
   ____ Yes (1)  ____ No (2)

7. Do you currently smoke cigarettes?  ____ Yes (1)  If yes, go to question # 8.
   ____ No (2)  If no, go to question # 11.

8. How many years have you smoked cigarettes?
   ____ Over 20 yrs. (5)  ____ Between 10-20 yrs. (4)  ____ Between 5-10 yrs. (3)
   ____ Between 1-5 yrs. (2)  ____ Less than 1 year (1)
9. How many cigarettes do you usually smoke per day?
   ___ 1 1/2 pack or more (5) ___ 1 to 1 1/2 pack (3)
   ___ 1 1/2 to 1 pack (4) ___ 1/2 to 1 pack (2) ___ Less than 1/2 a pack (1)

10. Which one of the following best describes you?
    ___ I am currently trying to quit smoking cigarettes. (1)
    ___ I am making plans to quit very soon. (2)
    ___ I am thinking of quitting within the next 6 months (3)
    ___ I do not plan to quit smoking cigarettes (4)

11. Many factors may contribute to stress in a hospital setting. Each of the following questions deals with a stressor that may pertain to hospital nursing. For stressors that apply to your work situation, please circle one number which best describes the amount of stress you feel from your work. For stressors that do not apply to your work situation at all, please circle “0”.

<table>
<thead>
<tr>
<th>Very Much</th>
<th>Very Little</th>
</tr>
</thead>
</table>
   a. Feeling that I am under stress when I am at work | 5 4 3 2 1 0 |
   b. Dealing with critically ill or dying patients | 5 4 3 2 1 |
   c. Making critical decisions about a patient's care | 5 4 3 2 1 0 |
   d. Dealing with difficult and/or demanding patients | 5 4 3 2 1 0 |
   e. Dealing with frequent emergencies on the unit | 5 4 3 2 1 0 |
   l. Fear of treatment errors harming patients | 5 4 3 2 1 0 |

12. How many cups of caffeinated coffee or tea do you normally drink per day?
    ___ 0 ___ 1-2 ___ 3-4 ___ 5 or more

13. How many soft drinks with caffeine do you normally drink per day?
    ___ 0 ___ 1-2 ___ 3-4 ___ 5 or more
14. For the following stressors, please circle the number which best describes the amount of stress you feel from your work:

<table>
<thead>
<tr>
<th>Stressor</th>
<th>Very Much</th>
<th>Very Little</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Risk of contamination</td>
<td>5 4 3 2 1 0</td>
<td></td>
</tr>
<tr>
<td>b. Risk of injury</td>
<td>5 4 3 2 1 0</td>
<td></td>
</tr>
<tr>
<td>c. Patients wanting support I cannot give</td>
<td>5 4 3 2 1 0</td>
<td></td>
</tr>
<tr>
<td>d. Working rotating shifts</td>
<td>5 4 3 2 1 0</td>
<td></td>
</tr>
<tr>
<td>e. Boredom</td>
<td>5 4 3 2 1 0</td>
<td></td>
</tr>
<tr>
<td>f. Nurse-Doctor conflicts</td>
<td>5 4 3 2 1 0</td>
<td></td>
</tr>
<tr>
<td>g. Conflicts with other co-workers</td>
<td>5 4 3 2 1 0</td>
<td></td>
</tr>
</tbody>
</table>

15. If you have ever had a conflict with a physician over a patient’s care, in what ways would you have most likely coped with the stress you felt from this incident?

____ By spending some time alone (1) ___ By talking with a friend or family member (4)
____ By eating (2) ___ By smoking (5)
____ By talking with a co-worker (3) ___ Other (List in space below):

16. In your free time, do you do some type of physical activity on a regular basis?

____ Yes (1) ___ No (2)

If yes, what types of physical activity do you do?

17. In the past six months, how many days would you estimate that you have missed work due to illness?

<table>
<thead>
<tr>
<th>Days</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10 or more</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
18. For each of the following stressors, please circle the number which best describes the amount of stress you feel from your work:

<table>
<thead>
<tr>
<th>Stressor</th>
<th>Very Much</th>
<th>Very Little</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Conflicts with my supervisor</td>
<td>5  4  3  2  1  0</td>
<td></td>
</tr>
<tr>
<td>b. Unclear about the scope of my job responsibilities</td>
<td>5  4  3  2  1  0</td>
<td></td>
</tr>
<tr>
<td>c. Feeling that I have too heavy a work load</td>
<td>5  4  3  2  1  0</td>
<td></td>
</tr>
<tr>
<td>d. Having an inflexible work schedule</td>
<td>5  4  3  2  1  0</td>
<td></td>
</tr>
<tr>
<td>e. Having too much paperwork</td>
<td>5  4  3  2  1  0</td>
<td></td>
</tr>
<tr>
<td>f. Not knowing what my supervisor thinks of my performance</td>
<td>5  4  3  2  1  0</td>
<td></td>
</tr>
</tbody>
</table>

19. Do you drink alcoholic beverages (beer, wine, or mixed drinks)?

- [ ] Yes (1)   - [ ] No (2)

If yes,

a. Have you ever felt that you should cut down on your drinking?

- [ ] Yes (1)   - [ ] No (2)

b. Do people ever criticize your drinking?

- [ ] Yes (1)   - [ ] No (2)

c. Have you ever felt bad or guilty about your drinking?

- [ ] Yes (1)   - [ ] No (2)

d. Have you ever had a drink first thing in the morning to steady your nerves or to get rid of a hangover?

- [ ] Yes (1)   - [ ] No (2)
20. For each of the following stressors, please circle the number which best describes the stress you feel from your work:

   a. Having to work with complicated equipment
      Very much: 5, 4, 3, 2, 1, 0
   b. Having to work with unreliable equipment
      Very much: 5, 4, 3, 2, 1, 0
   c. Lack of recognition, praise, or appreciation for the work I do
      Very much: 5, 4, 3, 2, 1, 0
   d. Feeling that my job interferes with my family life
      Very much: 5, 4, 3, 2, 1, 0
   e. Getting conflicting instructions from my superiors
      Very much: 5, 4, 3, 2, 1, 0

21. One of your patients dies during your shift. How would you most likely cope with the stress you feel from this incident?

   ___ By spending some time alone (1)
   ___ By talking with a friend or family member (4)
   ___ By eating (2)
   ___ By smoking (5)
   ___ By talking with a co-worker (3)
   ___ Other (List in space below):

22. In which area of the hospital do you work?

   ___ Acute (1)
   ___ Intermediate (2)
   ___ Other: Research Administration, Nursing Education, Administration (3)

23. What is your sex? ___ Female (1) ___ Male (2)

24. What is your age?

   ___ 18-29 (1) ___ 30-39 (2) ___ 40-49 (3)
   ___ 50-59 (4) ___ 60-65+ (5)

25. What is your height and current weight? Height: ___ Ft. ___ In. Weight: ___ Lbs.

26. What is your current household living arrangement?

   ___ I am the only adult living in my household. (1)
   ___ I live with another adult (2)
27. Do you have children under the age of 18 living with you? ___ Yes (1) ___ No (2)

28. Do other people living in your household smoke cigarettes? ___ Yes (1) ___ No (2)

Thank you for taking the time to complete this survey. Please use the attached envelope to return your response by __________.
Appendix B

Nursing Research Committee Proposal
A STUDY OF OCCUPATIONAL STRESS AND SMOKING AMONG HOSPITAL NURSES

Principal Investigator: Kim Ragsdale, Ph.D., VAMC:Salem, VA

Co-Investigators: Angela Gunther, CHES, M.S. Candidate, Virginia Tech

Jane Tabb, RN, VAMC: Salem, VA

Location of Study: VA Medical Center, Salem, VA.

Date of Implementation: March 1, 1994

I. Introduction and Rationale

Using a survey for assessment, this study will examine the relationship between occupational stress, smoking, and other lifestyle behaviors among a sample of hospital nurses. Responses from the survey will be cross-tabulated to analyze and report associations between variables.

Although the consequences of smoking are well known, the incidence of smoking among all women has increased sharply in the last 25 years. Female nurses, despite their knowledge of the health risks of smoking, have reported smoking rates that are similar to the rest of the female population and are higher than that of any of the other health professions (Becker, et al., 1986 and Sorenson, et al., 1992). Smoking among nurses has been associated with occupational stress. Tagliacozzo & Vaughn (1982) found that nurses who perceived their jobs as stressful are more likely to smoke than nurses who do not have a strong perception of occupational stress. As a result of increased patient load and lack of workplace support, nurses report depression rates more than twice that of the general female population and also report increased rates of stress related disease such as colitis, ulcers, heart attacks, and strokes (Nation' Health, 1993).

Other studies have also presented a positive association between occupational stress and smoking. Schilling, Gilcrest, & Schinke (1985) found that individuals who smoke perceive cigarettes to be a means of reducing stress on the job. On-the-job stressors such as anger, strain, workload, fatigue, and fear are all positively associated with tobacco use (Conway, Vickers, Ward & Rahe, 1981).
STUDY OF OCCUPATIONAL STRESS AND LIFESTYLE AMONG HOSPITAL NURSES

A. Significance of the Study
Cigarette smoking is the single greatest preventable cause of premature death and disease in the United States (USDHHS, 1989). This damaging health behavior is costly to smokers, their families, the health care system, and employers. Employers spend an estimated $65 annually for disease and loss of productivity due to smoking (Sloan, Gruman, & Allegante, 1987). Individuals who work spend a large percentage of their lifetime on the job, therefore, the workplace has a strong potential for fostering smoking cessation, stress management, as well as other positive health behaviors to their employees.

B. Purpose of the Study
The purposes of conducting a survey among nurses at the Salem Veterans Administration Medical Center are:

1) to examine the relationship between occupational stress and smoking among hospital nurses.

2) to support the design of stress reduction and/or smoking cessation programs which can be employed by hospitals as part of a worksite health promotion programs.

The Salem Veterans Administration Medical Center employs approximately 333 registered and practical nurses. Surveying the nurses employed at this comprehensive medical facility will allow the investigators the opportunity to analyze data which could be used to design health promotion programs in medical care settings.

C. Hypotheses
The following research hypotheses will be tested:

\( H_1: \) Significantly higher rates of smoking will be found among nurses who report less perceived control in their job.

\( H_2: \) Significantly higher rates of smoking will be found among nurses who
A STUDY OF OCCUPATIONAL STRESS AND LIFESTYLE AMONG HOSPITAL NURSES

report more stress and greater psychological demands from their jobs.

H3: Significantly higher rates of smoking will be found among nurses who report experiencing more stressful patient contact on their jobs.

II. Objectives

Objective 1: The Salem Veterans Administration Medical Center, if it so chooses, will use the results of the study to design and implement smoking cessation programs for employees.

Objective 2: The Salem Veterans Administration Medical Center, if it so chooses, will use the results of this study to design and implement stress management programs for employees.

III. Design

A. Setting

The setting for the study will be the Veterans Administration Medical Center, Salem, Virginia.

B. Time Frame

The time period for the study will take approximately two weeks. Respondents will be requested to return surveys within 10 days after distribution. Two weeks after distribution, a reminder will be sent to nurses to appeal for the return of any surveys which have not been completed and returned.
IV. Selection

A. Inclusion Criteria
   All registered and practical nurses with current liscensure with informed consent form who are employed under Nursing Services at the Medical Center.

B. Exclusion Criteria
   Anyone who is not employed as a registered or practical nurse in Nursing Service at the Medical Center.

C. Consent Form
   See attachment A.

V. Procedure

A. Randomization
   All nurses employed in Nursing Service at the Medical Center will receive a survey and be given an equal opportunity to participate in the study.

B. Data Collection
   Nurses who choose to participate in the study will return the completed survey and consent form in separate envelopes which will be pre-addressed to Dr. Ragsdale of the Psychology Department. Permission to use the Psychology Department mail stop has been requested of Dr. Jim Lanter, Chief of Psychology Service (Attachment B). Surveys will be taken to VirginiaTech by Angela Gunther for statistical analysis.

C. Instrument
   The cover letter and survey are in attachment C. Occupational stress questions have been adapted from a stress scale developed by Thomas W. Muldary, Ph.D. The permission request to use this adaptation is included in attachment D.
A STUDY OF OCCUPATIONAL STRESS AND LIFESTYLE AMONG HOSPITAL NURSES

D. Data Analysis Methods

A Chi-square test will be used to test the significance of observed frequencies in the data. Measures of central tendency will be used to determine the frequency and averages of responses. Cross-tabulations will be used to determine how frequently various combinations of the variables occur.

VI. TIMETABLE

Activity | MAR 1 | MAR 5 | MAR 15
--- | --- | --- | ---
Surveys mailed | | | X
Begin entering data as received | X | | 
Follow-up notices sent | | | X

VII. FUNDING

This is a non-funded project
REFERENCES


Appendix C
Dr. Penny Finn
Psychology Services
116-B
Veterans Administration Medical Center
Salem, VA  24153

Dear Dr. Finn:

Thank you for allowing me to present my proposal to the Human Subjects Committee on February 2.

To update you on the progress of our upcoming research, I have enclosed a copy of the survey and consent form which will be distributed to the nursing staff at VAMC. I am also sending the protocol for Nursing Research and the VAMC Research Committees.

Based on recommendations and approval from the Nursing Research and the Design and Review Committees, modifications have been made to the original survey. There are no modifications on the consent form or Research protocol.

Please contact me at (703) 231-8131 if you have any questions on this research.

Sincerely,

[Signature]

Enclosures

Angela P. Gunther,
M.S. Candidate,
Virginia Tech
A STUDY OF OCCUPATIONAL STRESS AND LIFESTYLE AMONG HOSPITAL NURSES

Principal Investigator: Kim Ragsdale, Ph.D.

Co-Investigators: Jane Tabb, RN
Angela Gunther, M.S. Candidate
ABSTRACT

Previous studies have found that female nurses, despite their knowledge of the health risks of smoking, have reported smoking rates that are similar to the rest of the female population, and higher than any of the other health care professions. Higher smoking rates among nurses has been associated with occupational stress. Nurses who perceive their jobs as stressful are more likely to smoke than those who do not report a strong perception of job-related stress. The purpose of this study is to examine the relationship between occupational stress, smoking, and other lifestyle behaviors among hospital nurses and to support the design of stress reduction and/or smoking cessation programs which may be employed by hospitals as part of a worksite health promotion program.
A STUDY OF OCCUPATIONAL STRESS AND SMOKING AMONG HOSPITAL NURSES

Principal Investigator: Kim Ragsdale, Ph.D., VAMC:Salem, VA

Co-Investigators: Jane Tabb, RN, VAMC: Salem, VA
Angela Gunther, CHES, M.S. Candidate, Virginia Tech

Period of Study: Approximately 2 months from distribution of surveys to final analysis of responses.

Sponsor: Non-funded

Location of Study: VA Medical Center
Salem, Virginia

Introduction:

Using a survey for assessment, this study will examine the relationship between occupational stress, smoking, and other lifestyle behaviors among a sample of hospital nurses. Responses from the survey will be cross-tabulated to analyze and report associations between variables.

Although the consequences of smoking are well known, the incidence of smoking among all women has increased sharply in the last 25 years. Female nurses, despite their knowledge of the health risks of smoking, have reported smoking rates that are similar to the rest of the female population and are higher than that of any of the other health professions (Becker, et al., 1986 and Sorenson, et al., 1992). Smoking among nurses has been associated with occupational stress. Tagliacozzo & Vaughn (1982) found that nurses who perceived their jobs as stressful are more likely to smoke than nurses who do not have a strong perception of occupational stress. As a result of increased patient load and lack of workplace support, nurses report depression rates more than twice that of the general female population and also report increased rates of stress related disease such as colitis, ulcers, heart attacks, and strokes (Nation’s Health, 1993).

Other studies have also presented a positive association between
A STUDY OF OCCUPATIONAL STRESS AND LIFESTYLE AMONG HOSPITAL NURSES

occupational stress and smoking. Schilling, Gilcrest, & Schinke (1985) found that individuals who smoke perceive cigarettes to be a means of reducing stress on the job. On-the-job stressors such as anger, strain, workload, fatigue, and fear are all positively associated with tobacco use (Conway, Vickers, Ward & Rahe, 1981).

Purpose: The purpose of conducting a survey among nurses at the Salem Veterans Administration Medical center are:

1) to examine the relationship between occupational stress and smoking among hospital nurses.

2) to support the design of stress reduction and/or smoking cessation programs which can be employed by hospitals as part of a worksite health promotion program.

The Salem Veterans Administration Medical Center employs approximately 333 registered and practical nurses. Surveying the nurses employed at this comprehensive medical facility will allow the investigators the opportunity to receive information from nurses who work in a variety of medical care settings.

The following research hypotheses will be tested:

H1: Significantly higher rates of smoking will be found among nurses who report less perceived control in their jobs.

H2: Significantly higher rates of smoking will be found among nurses who report more stress and greater psychological demands from their jobs.

H3: Significantly higher rates of smoking will be found among nurses who report experiencing more stressful patient contact on their jobs.

Human Subjects: All respondents of a survey which will be distributed to 333 registered and practical nurses employed at the Medical Center.

Inclusion Criteria: All registered and practical nurses employed at the
Medical Center with informed consent form.

**Exclusion Criteria:** Anyone who is not employed as a registered or practical nurses at the Medical Center.

**Restrictions on Other Treatment:** NONE

**Experimental Design:** The survey will focus on the subjects’ perceived control in their jobs, psychological demands from their jobs, amount of stressful patient contact experienced by the subjects, methods of coping with stress, smoking status and other health behaviors and demographic information. Questions which examine perceived control in the job, perceived stress and psychological demands from the job, and stressful patient contact on the job will be the independent variables for this study. Questions which examine smoking behavior will be the dependent variables for this study.

The questionnaire has been pretested on 6 registered and practical nurses at Montgomery Regional Hospital in Blacksburg, Virginia.

**Statistical Analysis:** A Chi-square test will be used to test the significance of observed frequencies in the data. Measures of Central Tendency will be used to determine the frequency and averages of responses. Cross-tabulations will be used to determine how frequently various combinations of the variables occur.

**What Will Be Done To The Subjects?**

Nurses will receive a survey, cover letter, and consent form (attached) through the hospital mail service. Those who choose to participate will return the consent form and completed survey in separate pre-addressed envelopes.

**What Are The Potential Benefits To The Subject?**

Participation in the study gives the subjects the opportunity to express and rate their personal levels of occupational stressors, smoking, and other health behaviors. If it chooses, the hospital administration can use the study results as an assessment tool for future tobacco control and stress reduction efforts for employees. Smoking cessation and stress reduction efforts by employees may improve health status for employees.
What Are The Risks To The Subject?

This study does not place subjects at any know risk, including economic, reputational, health, or other known risk.

Principal Investigator: ____________________________

DATE: ____________________________
REFERENCES


APPENDIX D

Amended Survey
A STUDY OF OCCUPATIONAL STRESS AND SMOKING AMONG HOSPITAL NURSES

Please answer the following questions by placing an “X” by the answer that best describes you. In order for the information on your survey to remain anonymous, do not write your name anywhere on this survey.

1. Would you rate your overall health as,
   ___ Excellent (4) ___ Good (3) ___ Fair (2) ___ Poor (1)

2. What is your level of nursing? ___ LPN (1) ___ RN (2)

3. What is your level of training / education? (Check all that apply)
   ___ Nursing Diploma (1) ___ Associate’s Degree (2) ___ Bachelor’s Degree (3)
   ___ Other (Advanced Degree) (4)

4. How long have you worked in the nursing profession? ___ Year(s)

5. Many factors may contribute to stress in a hospital setting. Each of the following questions deals with a stressor that may pertain to hospital nursing. For stressors that apply to your work situation, please circle one number which best describes the amount of stress you feel from your work. For stressors which do not apply to your work situation, please circle “N/A”.

<table>
<thead>
<tr>
<th>Stressor</th>
<th>Very</th>
<th>Much</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>0</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feeling that I am under stress when I am at work</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>N/A</td>
</tr>
<tr>
<td>Dealing with critically ill or dying patients</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>N/A</td>
</tr>
<tr>
<td>Making critical decisions about a patient’s care</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>N/A</td>
</tr>
<tr>
<td>Dealing with difficult and/or demanding patients</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>N/A</td>
</tr>
<tr>
<td>Dealing with frequent emergencies on the unit</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>N/A</td>
</tr>
<tr>
<td>Fear of treatment errors harming patients</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>N/A</td>
</tr>
<tr>
<td>Working night shift</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>N/A</td>
</tr>
</tbody>
</table>

96
6. Which one of the following best describes you?
   ___ I have never smoked a cigarette. (1)
   ___ I have tried cigarettes, but never smoked for a period of 6 months. (2)
   ___ I have smoked cigarettes in the past, but quit . (3)
   ___ I have had one or more quit attempts in the past, but started smoking again . (4)
   ___ I currently smoke, and have not tried to quit. (5)

7. Did you smoke cigarettes prior to the time you became a nurse?
   ___ Yes (1) ___ No (2)

8. Do you currently smoke cigarettes? ___ Yes (1) If yes, go to question # 9.
   ___ No (2) If no, go to question # 12.

9. How many years have you smoked cigarettes?
   ___ Over 20 yrs. (5) ___ Between10-20 yrs. (4) ___ Between 5-10 yrs. (3)
   ___ Between 1-5 yrs. (2) ___ Less than 1 year (1)

10. How many cigarettes do you usually smoke per day?
    ___ 2 packs or more (5) ___ Between 1 1/2 and 2 packs (4)
        ___ Between 1 and 1 1/2 packs (3) ___ Between 1/2 and 1 pack (2)
        ___ Less than 1/2 a pack (1)

11. Which one of the following best describes you?
    ___ I am currently trying to quit smoking cigarettes. (1)
    ___ I am making plans to quit very soon. (2)
    ___ I am thinking of quitting within the next 6 months (3)
    ___ I do not plan to quit smoking cigarettes (4)
12. For the following stressors, please circle the number which best describes the amount of stress you feel from your work. For stressors which do not apply to your work situation, please circle “N/A”.

<table>
<thead>
<tr>
<th>Stressor</th>
<th>Very</th>
<th>Much</th>
<th>Very</th>
<th>Little</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Risk of contamination</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>b. Risk of injury</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>c. Patients wanting support I cannot give</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>d. Working rotating shifts</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>e. Boredom</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>f. Nurse-Doctor conflicts</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>g. Conflicts with other co-workers</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

13. If you have ever had a conflict with a physician over a patient’s care, in what ways would you have most likely coped with the stress you felt from this incident?

   ____ By spending some time alone (1)
   ____ By talking with a friend or family member (4)
   ____ By eating (2)
   ____ By smoking (5)
   ____ By talking with a co-worker (3)
   ____ Other (List in space below):

14. For the following stressors, please circle the number which best describes the amount of stress you feel from your work. For stressors which do not apply to your work situation, please circle “N/A”.

<table>
<thead>
<tr>
<th>Stressor</th>
<th>Very</th>
<th>Much</th>
<th>Very</th>
<th>Little</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Conflicts with my supervisor</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>b. Unclear about the scope of my job responsibilities</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>c. Feeling that I have too heavy a work load</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>d. Having an inflexible work schedule</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>e. Having too much paperwork</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>
15. In the past six months, how many days would you estimate that you have you missed work due to illness?  
   ---0   ---6
   ---1   ---7
   ---2   ---8
   ---3   ---9
   ---4   ---10 or more
   ---5

16. For the following stressors, please circle the number which best describes the amount of stress you feel from your work. For stressors which do not apply to your work situation, please circle "N/A".

   Very much  | Very  | Little
   --------  | ------|------

a. Having to work with complicated equipment  | 5 4 3 2 1 0 N/A
b. Having to work with unreliable equipment   | 5 4 3 2 1 0 N/A
c. Lack of recognition, praise, or appreciation for the work I do | 5 4 3 2 1 0 N/A
d. Feeling that my job interferes with my family life | 5 4 3 2 1 0 N/A
e. Getting conflicting instructions from my superiors | 5 4 3 2 1 0 N/A

17. One of your patients dies during your shift. How would you most likely cope with the stress you feel from this incident?

   ---By spending some time alone (1)   ---By talking with a friend or family member (4)
   ---By eating (2)                     ---By smoking (5)
   ---By talking with a co-worker (3)   ---Other (List in space below):
18. In which area of the hospital do you work?
   ____ Acute (1)
   ____ Intermediate (2)
   ____ Other (Research Administration, Nursing Education, Administration) (3)

19. What is your sex? ____ Female (1) ____ Male (2)

20. What is your age?
   ____ 18-29 (1) ____ 30-39 (2) ____ 40-49 (3)
   ____ 50-59 (4) ____ 60-65+ (5)

21. Do other people living in your household smoke cigarettes? ____ Yes (1) ____ No (2)

22. Are you interested in participating in a smoking cessation program? ____ Yes (1) ____ No (2)

23. Are you interested in participating in a stress management program? ____ Yes (1) ____ No (2)

Thank you for taking the time to complete this survey. Please use the attached envelope to return your response by **THURSDAY, MARCH 10.**

This survey was developed by Angela P. Gunther. Occupational stress questions were adapted from a scale developed by Thomas W. Muldary, P.hD.
Appendix E

Permission to Use Occupational Stress Items
Thomas W. Muldary, Ph.D.
Psychology Department
February 7, 1994

Ms. Angela Gunther
P.O. Box 718
Blacksburg, VA. 24063-0718

Dear Ms. Gunther,

In response to your letter of January 31, 1994, you have my permission to use the requested materials from Burnout and Health Professionals for the purpose of conducting research for your master's thesis in the Community Health Education Program at Virginia Tech.

Sincerely,

Thomas W. Muldary, Ph.D.

TWM/bms
Appendix F

Consent Form
VA Research Consent Form

Subject Name: ___________________________  Date _________

TITLE OF STUDY:  A STUDY OF OCCUPATIONAL STRESS AND SMOKING AMONG HOSPITAL NURSES

PRINCIPAL INVESTIGATOR:  KIM G. RAGSDALE, PH.D
VAMC: SALEM, VA.

CO-INVESTIGATORS:  JANE TABB, RN.  VAMC: SALEM, VA
ANGELA GUNThER, CHES,
M.S.CANDIDATE, VIRGINIA POLYTECHNIC INSTITUTE & STATE UNIVERSITY

DESCRIPTION OF RESEARCH BY INVESTIGATOR:

1. Purpose of study and how long it will last:

   The purpose of this study is to find out how an individual's level of occupational stress affects health behavior.

2. Description of the study including procedures to be used:

   I will be asked to complete a survey asking about demographic information, occupational stress, and health behaviors. To insure confidentiality, I will not write my name anywhere on the survey. I will be asked to return the survey and consent form in the pre-addressed envelopes. To assure anonymity, I understand that the consent form and survey are to be mailed in separate envelopes. I understand that by completing and returning the survey, my responses will become a part of the study. I understand that I can choose not to participate in this study.
3. **Description of any procedures that may result in discomfort or inconvenience:**

The completion of the survey should take no longer than 15 minutes. No other inconvenience or discomfort is known.

4. **Expected Risks of the Study:** None

5. **Expected Benefits of the Study:** Enhanced understanding of occupational stress and its relationship to smoking.

6. **Other treatment available:** None

7. **Use of research results:** The results may be used to support the design of stress reduction and/or smoking cessation programs. The results may be presented at scientific meetings and/or professional publications without declaring the identity of individual participants.

8. **Special Circumstances:** None

   My decision to complete or not to complete this survey is totally voluntary. My decision in no way affects my employment at the Salem Veterans Administration Medical Center.

   I may call Dr. Ragsdale at 982-2463, Extension 1369 or 2960 or Jane Tabb at Extension 2657 if I have questions regarding this study. If I have questions or concerns about research areas, I may call Dr. Finn, Chair of the Human Subjects Committee at Extension 1016.

**SUBJECT CONSENT:**

I AGREE TO PARTICIPATE IN THIS STUDY AS DESCRIBED ABOVE:

__________________________________

**SIGNATURE**
Appendix G

Permission to use VAMC Mail Service
February 28, 1994

Dear Nursing Professional:

As a health care professional I am sure that you are increasingly aware that many factors contribute to one's health and well being or susceptibility to illness. Identification of these factors is critical in designing effective treatments or prevention strategies. To complete my Master's thesis for the Community Health Education Program at Virginia Tech, I have chosen to study occupational stress and how this type of stress may affect health behavior.

Together with Jane Tabb of Cardiac Rehabilitation, and Dr. Kim Ragsdale of Psychology Services, I am conducting a study about occupational stress and smoking among nurses. This data, collectively, may assist in the development of health promotion programs tailored to the workplace. We ask that you take about 15 minutes to complete the enclosed questionnaire and consent form. Upon completion, please enclose the consent form in the pre-addressed envelope marked "Consent Form", and enclose the questionnaire in the pre-addressed envelope marked "Survey". Return both envelopes through the V.A. Mail Service by Thursday, March 10. As requested on the questionnaire, please do not sign your name anywhere on the questionnaire booklet. Be assured that all information that you report in the questionnaire will be totally anonymous.

If you have any questions or concerns about the questionnaire or study, please contact the Primary Site Investigator, Dr. Kim Ragsdale, at Ext. 1369 or 2930 or Co-Investigator, Jane Tabb, at Ext. 2657. I, Angela Gunther, can be reached at (703) 231-8131 between the hours of 8 AM and 5 PM, Monday-Friday.

Results of the study will be available through Dr. Kim Ragsdale of the Psychology Department. If you would like a copy of the results, please contact him at the extension number listed above and leave your name, work extension, and work unit.

Sincerely,

Angela Gunther
Angela Gunther, CHES, M.S. Candidate

Dr. Kim Ragsdale, Clinical Psychologist

Jane Tabb, RN

Enclosure
Appendix G

Permission to use VAMC Mail Service
Dr. Jim Lanter,
Chief of Psychology Services
V.A. Medical Center
Salem, VA 24153

Dear Dr. Lanter:

This is to confirm my phone conversation with Dr. Kim Ragsdale on January 25, 1994 in which permission was granted to use the Psychology Services mail stop for receiving questionnaires for our study.

Thank you for approving this request.

Sincerely,

Angela Price Gunther
(703) 231-8131 (W)
(703) 951-4008 (H)
Appendix H

Virginia Tech Research Approval
A Study of Occupational Stress and Lifestyle Among Hospital Nurses

Application for Approval of Research Involving Human Subjects

Submitted by:
Douglas R. Southard, Ph.D., Assoc. Professor, Community Health Education, Principal Investigator
Angela Price Gurnier, Master's Degree Candidate, Community Health Education, Principal Investigator

December 21, 1993

Outline of Protocol to Accompany IRB Request

Justification of the Project

The purposes of conducting a survey among nurses at the Salem Veterans Administration Medical Center are:

1) to examine the relationship between occupational stress, smoking, and other lifestyle behaviors among hospital nurses.

2) to support the design of stress reduction and/or smoking cessation programs which can be employed by hospitals or other work settings as part of a worksite health promotion program.

Nurses have a higher prevalence of smoking than that of any of the other health care professions. Cigarette smoking among nurses has been associated with occupational stress; and it has been found that nurses who perceived their jobs as stressful were more likely to smoke.

The Salem Veterans Administration Hospital employs approximately 330 registered and practical nurses. Surveying the nurses employed in this comprehensive medical facility will allow the investigators the opportunity to receive information from nurses who work in a variety of medical care units.

Procedures

Questionnaires have been pretested on a group of hospital nurses employed at a community hospital. The questionnaire has been revised according to appropriate feedback from the pilot study subjects. Subjects employed at the VA Medical Center will receive the revised questionnaire and cover letter (attached) through departmental mailings to their work units. Subjects receiving the questionnaire must be employed full-time as either a registered or practical nurse.

Risks and Benefits

This study does not place subjects at any known risk, including economic, reputational, health, or other known risk. Participation in the study gives the subjects the opportunity to identify and rate levels of occupational stressors and smoking behavior. If it chooses, the hospital administration can use the population results as a needs assessment for future tobacco control and stress reduction efforts for employees. Smoking cessation and stress reduction efforts by employers, may improve health status for employees, as well as reduce the risks from smoking and/or stress-related disease and reduce the effects
of second hand smoke for non-smoking employees.

Confidentiality

Questionnaires will be anonymous. Subjects will be informed that all data will be reported in aggregate form only, and individual responses will remain anonymous. Subjects will be informed that data will be recorded and analyzed only by the principal investigators. Respondents will be asked to refrain from putting their name anywhere on the questionnaire.

Informed Consent

Voluntary informed consent of subjects is understood upon return of the completed informed consent form (attached). Consent forms will be returned in a separate envelope to the VA Medical Center and will not be returned with the questionnaire. Also see attached cover letter which describes the subject protection provided by the researchers.
Vita

Angela Price Gunther was born April 19, 1957 in Radford, Virginia, the second of two daughters of Peggy and Ellison Price. After attending elementary and high school in Blacksburg, she graduated with a B.S. in Recreation Administration from Radford University in 1980. She has worked in the fields of recreational therapy and college advising. She has earned certification as a Certified Health Education Specialist (CHES) and is employed by the New River Health District as a health educator and coordinator for the Breast and Cervical Cancer Early Detection Program. She and her husband, Michael reside in Blacksburg.

Angela P. Gunther