

COPING DIFFERENCES BETWEEN SMOKERS,
FORMER SMOKERS, AND NEVER SMOKERS

By

CHRISTOPHER A. NEUMANN

Bachelor of Arts

Benedictine University

Lisle, Illinois

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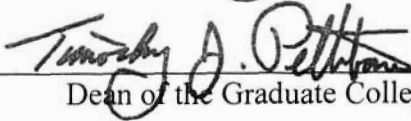
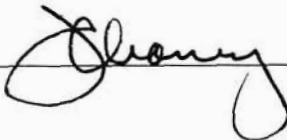
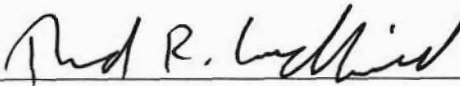
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INTRODUCTION

Background

Tobacco use is one of the most preventable causes of illness and death in the world. It is responsible for 430,000 deaths in the United States annually, resulting in more than 1,000 deaths per day and killing more people than AIDS, car accidents, alcohol, illegal drugs, homicides, suicides, and fires combined (Frank & Jaen, 1993; Sounding Board, 1995). Even more concerning, an additional 3,000 children and adolescents a day become regular tobacco users (Gilpin, Choi, Berry, & Pierce, 1999). In order to improve prevention as well as cessation efforts, it is imperative that researchers attempt to gain a better understanding of the factors that influence smoking behavior.

Many factors contribute to the maintenance of cigarette smoking. The social learning model (Bandura, 1977) states that smoking is acquired under conditions of social reinforcement. Peer pressure is one such type of influence. Eventually, the positive properties associated with nicotine provide sufficient positive reinforcement to maintain the habit. Over time, situational variables become conditioned stimuli that increase the likelihood of smoking. A social gathering is one type of activity in which positive reinforcement can be obtained from smoking cigarettes.

Emotional regulation is also an important aspect of smoking. According to Pomerleau (1980), the desire to avoid/escape aversive withdrawal states as well as negative moods is a powerful reinforcer for smoking. Viewed in this way, smoking is maintained through negative reinforcement. Therefore, the two primary motivational factors involved in the maintenance of smoking are positive and negative reinforcement.

One factor that may have a considerable influence over smoking is coping style. Two types of coping responses can be used, problem focused coping and emotion focused coping (Folkman & Lazarus, 1991). Of the two, emotion focused coping is associated with a greater degree of problems. For example, emotion focused coping is associated with poorer overall functioning, increased psychopathology, and poorer outcomes for those who abuse drugs (Billings, Cronkite, & Moos, 1983; Billings & Moos, 1984; Craske, Sanderson, & Barlow, 1987). Moos, Finney, and Chan (1981) also found that alcoholics who primarily engage in avoidant coping strategies have poorer overall functioning than alcoholics who do not rely primarily on avoidant coping.

The Problem

There have been few published studies looking at coping strategies and smoking. Naquin & Gilbert (1996) found that college smokers engage in more emotion-focused coping than non-smokers. Furthermore, former smokers engaged in significantly less emotion-focused coping than current smokers. These results suggest coping strategies are important in the initiation, maintenance, and cessation of cigarette smoking. This relationship, however, has not been examined in an older adult population with greater smoking experience.

The Purpose

The purpose of this study is to gain a better understanding of the reasons associated with cigarette use as well as the difficulties associated with cessation by examining differences in coping styles between never-smokers, former smokers, and current smokers from an older adult population. Specifically, the negative reinforcement aspect in the maintenance of cigarette use will be examined. The logic for the study is as

follows: a primary reason for smoking as well as relapse is to gain relief from negative affect (Copeland, Brandon, & Quinn, 1995; Marlatt & Gordon, 1980). This is evident even in a college population (Brandon & Baker, 1991). Therefore, smoking can be seen as a coping strategy aimed at avoiding the stimulus of one's negative affect. If this were not the case, then smokers would attempt to alleviate their negative affect in a healthier way. What remains unclear, however, is if individuals who tend to use avoidant coping strategies in general are more likely to become smokers. It is possible that smoking is just one of the many avoidant coping strategies that smokers engage in. However, it is also possible that non-smokers engage in an equal amount of avoidant coping. If using avoidant coping strategies is a risk factor for smoking, prevention programs designed to help individuals understand and cope with negative emotions becomes even more important. In addition, a better understanding of possible changes in coping strategies when an individual attempts to quit may prove useful in cessation programs. Information gained by examining the coping strategies of former-smokers may be especially useful in this endeavor.

Outline of Work

First, I will review the relationship between stress and coping. I will then provide a review of the transactional model of coping proposed by Lazarus and colleagues. Problem/action-focused coping and emotion/avoidant-focused coping will be discussed in great detail. In addition, I will discuss a specific type of avoidant coping, thought suppression. Next I will review the literature on the reasons for the initiation, maintenance, and relapse of cigarette smoking. Finally, I will relate coping strategies to substance abuse, specifically with cigarette use.

LITERATURE REVIEW

What is Stress?

The concept of stress has received a great deal of attention by a number of researchers. Historically, stress has been viewed as a stimulus-response relationship in which an external factor (stressor) elicits a response (stress response) (Selye, 1991). However, this model does not account for individual differences in the quality, intensity, and duration of reaction to the same environmental event. A situation may be reacted to as a threat by one person, a challenge by another, and irrelevant by a third. As cited in Selye (1991), Glass and Singer found that the effects of noise depend on how it is evaluated and the extent to which an individual believes it can be controlled. Since humans are not passive responders to the environment, it would be erroneous to conclude that the stress response is a sole function of external events.

Additional research has emphasized the importance of appraisal in determining what constitutes a stressful situation. Appraisal is defined by Lazarus and Launier (1978) as “a continuously changing set of judgements about the significance of the flow of events for the person’s well being.” By influencing the appraisal process, the level of stress response can be altered. This was demonstrated in a study conducted by Speisman (cited in Lazarus and Launier, 1978) in which participants watched a videotape of Australian aborigines performing a series of crude operations on one another. Both subjective and autonomic stress reactions were influenced by the explanation given to the participants as to why the operations were taking place.

Lazarus and Launier (1978) have defined stress as “any event in which environmental or internal demands tax or exceed the adaptive resources of an individual.”

An environmental demand is any external event that requires the individual to adapt, while an internal demand refers to any goals, values, or commitments that, if hindered, would require the individual to adapt. Adaptive resources consist of any properties of the system that have the potential capacity to help meet demands and hence to prevent the negative consequences that failure of a suitable action would entail. The extent to which a demand produces a stress-response depends heavily on how the situation is appraised (Lazarus & Launier, 1978). Appraisal and its relationship to stress and coping are important topics that will be presented in later sections of the paper. For a review on alternate models of stress, see Lazarus & Launier (1978) and Roskies & Lazarus (1981).

While the variables associated with stress are unique for each individual, the biochemical reactions produced during a stressful episode are not. When a person becomes involved in a stressful transaction, a particular set of physiological reactions occur. These reactions are known as the general adaptation syndrome (GAS) and are separated into 3 stages. Initially a state of alarm occurs in which glucocoids and adrenaline are released to provide the body with energy. Prolonged exposure to stress, however, will deplete the body of these chemicals at which time the second phase of resistance occurs. The resistance phase is characterized by increased immune function. Eventually, even the immune system will become overwhelmed and the individual will enter the exhaustion stage. During this stage the individual is extremely susceptible to illness and disease, which, in extreme cases, may even result in death (Seyle; as cited in Kaplan, Sallis, and Patterson, 1993).

Although many factors contribute to an individuals level of stress, coping responses appear to be particularly important. Methods used to cope can add to the risk

of major health problems and ultimately death. For example, people who use avoidant coping strategies such as smoking and drinking increase their risk for developing problems such as emphysema, lung cancer, or liver disease. Ineffective coping also contributes to the maintenance of the physiological stress response described above. This results in elevated hormonal activity, which in turn is related to hypertension and other diseases (Roskies & Lazarus, 1981).

In addition, ineffective coping may interfere with behaviors associated with an individual's well being. For example, Katz, Weiner, Gallagher, & Hellman (cited in Roskies and Lazarus, 1981) found that by denying that a suspicious breast lump might signal cancer may reduce immediate emotional distress. However, the long-term consequences of denial may result in more distress and possibly even death if left untreated. In contrast to ineffective coping, effective coping may positively influence health. Weisman and Worden (cited in Roskies and Lazarus, 1981) found that cancer patients who survived longer than expected were more likely to engage in active and mutually responsive relationships than cancer patients who died sooner than expected. Clearly, coping responses even have the potential to influence survival itself.

The Relationship between Stress and Coping

Coping can be described by a variety of different perspectives. Central to all models of coping, however, is the idea that coping is used to alleviate stress. While other models have been reviewed elsewhere (Folkman & Lazarus, 1980; Roskies & Lazarus, 1981), the transactional model introduced by Lazarus and colleagues will be the focus of this review. This model emphasizes the important relationship between stress and cognitive appraisal and coping. Stress is not viewed as a fixed relationship between the

organism and environment, but rather a continuous interaction between the two. The main tenet of the transactional model is that appraisals determine the level of stress an event evokes. Therefore, as previously stated, stress is defined as any situation in which harm, threat, or challenge is presented in a manner that taxes or exceeds an organisms adaptive capacities (Roskies and Lazarus, 1981). In order for an event to result in stress, the event must be appraised as harmful, threatening, or challenging and taxing or exceeding the resources available to handle these demands. Coping consists of cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of a system. Appraisals describe cognitions associated with an event. For example, an individual who receives a poor grade on an exam will ask why and what can be done about it. The answers attained are the appraisal of that situation. Coping is the result of appraisals. While coping can be seen as a reaction to stress, it can also have a significant impact on stress. The relationship between stress, appraisal, and coping is one in which each factor poses an influence on the other (Roskies and Lazarus, 1981).

Appraisal is divided into two main categories: primary and secondary. In primary appraisal the person asks, "What do I have at stake in this encounter?" Secondary appraisal is concerned with "What can I do? What are my coping options? And how will the environment respond to my actions?" The answer to these questions determines the type of coping effort the individual engages in. Primary appraisal is the extent to which an event is considered irrelevant, benign-positive, or harmful (stressful). An irrelevant event is one that has no implication for well being in its present form. For example, a student taking an exam that has no influence on the overall grade is not likely to induce a

stress response or require coping. A benign-positive event is one in which no adaptive or coping response is required, but in addition, the person experiences pleasant emotions (Folkman & Lazarus, 1991).

Stressful appraisal can be further broken down into three more types: harm-loss, threat, and challenge. Harm-loss pertains to damage that has already occurred. Losing a loved one in a car accident is an example. Threat consists of anticipated harm-loss. An example of threat is when an individual is tried by a court of law and awaits a verdict. Challenge is similar to threat in that harm-loss may occur. However, challenge is seen in a positive light as a chance for mastery or gain. Harm-loss, threat, and challenge can also be broken down into a variety of subtypes. For example, a loss could be anything from a loss of social status to the loss of a loved one. Therefore, to understand the complex relationship between appraisal and emotional states, it may be necessary to differentiate between very specific sub-categories (Folkman, 1984; Lazarus and Launier, 1978).

The essential difference between primary and secondary appraisal lies in what is being evaluated. While primary appraisal focuses on the relationship of an event to the individual, secondary appraisal deals with coping resources and options. Secondary appraisal does not mean that it occurs after or is less important than primary appraisal. In fact, cognitions about coping options and resources can be present well before primary appraisals take place. For example, chemists are aware of the procedures necessary to protect themselves from harm if hydrochloric acid is spilled, even if there is no imminent danger. Secondary appraisal can also influence primary appraisal and vice versa. In the preceding example, chemists are less likely to appraise the spilling of hydrochloric acid as a threat (primary appraisal) than individuals who are unsure of how to deal with such a

potential danger. The importance of secondary appraisal is two-fold, it is important in determining the coping style used in stressful situations, as well as exerting influence on the primary appraisal process. The inter-relationship between primary and secondary appraisal is found in the definition of psychological stress itself. If a potential harm is not appraised as threatening or something that can be mastered or dealt with easily, it is not harmful. Stress responses are heavily determined by a persons beliefs about the resources available. This relationship can be seen as a feedback system in which cognitive appraisals are constantly changing as the individual interacts with the environment (Folkman, 1984; Folkman & Lazarus, 1980; Folkman & Lazarus, 1991).

Two important determinants of primary appraisals of threat, challenge, and harm/loss are commitments and situational factors. Commitments determine what is at stake for the individual. For example, a low score on the GRE will be appraised as much less stressful for a person who does not have high aspirations for attending graduate school versus someone who has a strong commitment to continuing his or her education. In addition to commitments, factors such as the nature of the threat, novelty of the event, and clarity of the expected outcome all influence the appraisal of and hence the coping response to a stressful situation (Folkman, 1984).

Secondary appraisal is also influenced by many factors including physical, social, psychological and material assets. Health is a good example of a physical resource. For example, a man who is in poor health and needs to find a job may be limited in the type of work he can do, hours he can work, etc. He is more likely to appraise the situation as stressful than someone who was in good physical health without such restrictions. Social resources involve the social support system of the individual and can be an important

source of emotional support. Psychological resources, like self-esteem, are seen as beliefs drawn upon to sustain hope. A person with poor self-esteem is much more likely to appraise not being involved in a relationship as stressful than a person with high self-esteem. Material resources such as money, tools, and equipment significant impact the appraisal process. A wealthy person is much less likely to view a situation requiring a lot of money as stressful than a person who is struggling to make ends meet (Folkman, 1984).

Problem/Action-Focused Coping versus Emotion/Avoidance-Focused Coping

Coping efforts fall into two main categories, problem-focused and emotion-focused. Problem-focused coping involves employing efforts to change a stressful person-environment relationship. This can involve seeking out information about a specific problem, or purposely inhibiting one's actions to prevent creating an even more stressful person-environment relationship. Emotion-focused coping involves the manipulation of thoughts or actions with the goal of reducing the emotional impact of stress. Included in this category is relief of the physiological symptoms of stress as well as the negative emotional states. Emotion-focused coping differs from problem-focused in that using such strategies will not alter the stressful person-environment relationship but merely make the person feel better. Not thinking about a stressful relationship or smoking cigarettes to reduce negative affect are both examples of emotion-focused coping. These two distinct styles of coping are rarely practiced exclusively but rather are used simultaneously in dealing with the same problem (Folkman & Lazarus, 1991; Folkman & Lazarus, 1980; Lazarus & Launier, 1978).

Both problem-focused and emotion-focused coping contain four modes by which coping can be accomplished: information seeking, direct action, inhibition of action, and intrapsychic modes. All four modes may be used in both main functions; all four can deal with past, present and future, and self and environment. Information seeking provides a basis for action to change the transaction. In addition, the transaction may seem more under control and can therefore make the person feel better. Direct action can be seen in activities such as buying flowers to try to save a troubled relationship or smoking to alleviate anxiety. The individual engages in activities to directly change the stressful transaction. Inhibition of action involves a purposeful effort not to engage in activities with the purpose of altering the stressful transaction. Intrapsychic modes of coping involve cognitive processes designed to prepare the individual for action or regulate an emotion by making the person feel better. Examples can be focused on the self (“I am a good person; I know I can succeed”) or on the environment (“I have a lot of friends; My friends will help me stop smoking”) (Lazarus and Launier, 1978).

Another distinction among coping strategies that loosely overlaps problem and emotion focused coping is active and avoidant coping strategies. Active coping strategies involve the use of cognitive or behavioral efforts to influence a stressful relationship. Active-cognitive coping includes attempts to manage one’s appraisal of the stressfulness of the event, such as “didn’t let the situation bring me down.” Active-behavioral coping refers to behavioral attempts such as finding out more information to change the stressful situation. Avoidant coping attempts to reduce tension by avoiding dealing with the problem through the use of escapist behaviors. Although emotion-focused or avoidant coping can be active, such as pursuing avenues to regulate negative affect, such coping

often does not address the sources of the stress (Billings & Moos, 1981; Holahan & Moos, 1987; Moos, 1977). In summary, active/problem focused coping seeks to influence a stressful relationship through cognitive or behavioral actions. The goal for avoidant/emotion focused coping is to reduce unpleasant physiological sensations or emotional states.

Influential Factors on Coping

The determinants of coping are contingent on a multitude of factors. Each stressful transaction is associated with a unique set of features and possible actions. Environmental factors certainly play a role in coping strategy, however, different individuals respond in different ways to the same or similar environmental configurations. Lazarus and Launier (1978) suggest that the four modes of coping (information seeking, direct action, inhibition of action, and intrapsychic) may be influenced by an additional four factors. These factors are: degree of uncertainty, degree of threat, the presence of conflict, and degree of helplessness.

A high degree of uncertainty will likely result in a greater degree of information seeking and less direct action. Failure with this strategy may encourage intrapsychic modes of coping. An individual who is diagnosed with Parkinson's disease may seek out as much information about the disease without engaging in any type of treatment. As information is gained and stress is not reduced, coping may focus on thoughts such as "A cure will soon be found" or "It won't be that bad." The next factor is degree of threat, and as it increases, primitive modes of coping may result. Rage, panic, and confused thinking are all examples of primitive coping. The third factor, conflict, is unique in that a non-damaging solution is impossible. When faced with conflict, intrapsychic modes of

coping are most likely to be used. The last factor, helplessness, occurs when a past, present or future harm has taken place and the only options available are acceptance, tolerance, or reinterpretation. Direct action is determined by the individual's secondary appraisal of whether or not something can be done to influence the stressful transaction (Lazarus and Launier, 1978).

Also influential in the coping process is the degree to which a threat or harm appraisal generates negative emotions. The greater the emotions involved in situations, the more time that will need to be spent focusing coping efforts on emotional regulation. A person who appraises a situation as a challenge can devote more of his or her efforts in problem-focused coping rather than emotional regulation. In contrast, a person who appraises the situation as threatening experiences more negative emotions that will need to be regulated before problem-focused coping can be used (Folkman, 1984).

As with problem-focused and emotion-focused coping several factors may influence active or avoidant coping strategies. For example, individuals with more personal and environmental resources tend to rely on active coping rather than avoidant coping. As research has uncovered the multiple ways in which individuals cope, it has also looked at the effectiveness of different kinds of coping strategies. Avoidant coping can be effective in managing stress initially, however, active coping may be more useful in the long run (Folkman & Lazarus, 1991). A more detailed review of avoidant coping will be presented in subsequent sections.

In addition to the preceding factors, a multitude of other factors have also been shown to influence coping strategies. These factors include sociodemographic, personality dispositions, social support, mood regulations expectancies, and attributional

style. Sociodemographic factors have been shown to influence coping strategies. High socioeconomic status is associated with more adaptive forms of coping involving flexibility, logical choice, and an adherence to consensual reality, and less likely to rely on defensive strategies involving rigidity and irrationality (Hann, 1977). Higher education is also related to more problem-focused coping and less avoidant types of coping (Billings & Moos, 1981; Holahan & Moos, 1987).

Personality dispositions also play an important role in choice of coping strategy. Tanck & Robbins (1979) found that an internal rather than an external locus of control has been associated with more effective coping strategies in dealing with a wide range of everyday stressors. Holahan and Moos (1985) found that individuals with an easygoing disposition were more likely to rely on active coping strategies rather than avoidant coping strategies. Furthermore, those with an easygoing disposition were psychologically healthier than those without an easygoing disposition.

Another factor influencing coping strategies is social resources. An abundance of literature has demonstrated that individuals with more social resources engage in more problem-focused coping and less avoidance coping strategies (Heller & Swindle, 1983; Billings & Moos, 1982; Holahan & Moos, 1987). For example, Cronkite and Moos (1984) found that women who lack family support are more prone to engage in avoidant coping. These studies also found that individuals with more social resources have better physical and mental health than those with less social resources. In addition, Taylor (1991) found that those with social support adjust better psychologically to stressful events, recover more quickly from an already diagnosed illness, and reduce their risk of mortality from specific diseases.

Although research has shown conflicting results, attributional style may be another factor that influences secondary appraisal, coping responses, and depression. When people experience bad events they ask why. Their answer affects how they react to the events. Attribution theory categorizes the way in which individuals view stressful situations into three dimensions: stable vs. unstable, global vs. specific, and internal vs. external.

First, internal explanations view the cause of bad events as something to do with the person, while external explanations view the cause of bad events as dependent on the situation or circumstances. Second, stable explanations see the cause of bad events as stable across time, while unstable explanations see them as temporary. Third, bad events may be caused by a variety of outcomes (global explanation), or limited to a specific event (specific explanation). The extent to which these factors are used to explain negative events influences mood, appraisal, and coping strategies (Abramson, Seligman, & Teasdale, 1978).

Explanations involving global causes often result in expectations that the situation is uncontrollable. Stable explanations lead to the expectation that the negative event will be present for an extended period of time. Lowered self-esteem is usually the result of an internal explanation for bad events. These three types of attributions are associated with symptoms of learned helplessness and depression. Learned helplessness theory states that symptoms of helplessness will be produced when outcomes are appraised as uncontrollable. Because these three explanations predict depression, they have been termed a depressive attributionary style. Peterson & Seligman (1984) report the result of

a variety of studies which all indicate that a depressive attributionary style precedes depressive symptoms.

Related to the concept of secondary appraisals is mood-regulation expectancy. Catanzaro & Mearns (1987) define mood-regulation expectancy as “a belief about one’s ability to alleviate negative mood.” Mood-regulation expectancy refers to the degree to which an individual believes an outcome is controllable. Two reasons suggest these expectancies influence coping responses. The first is based on social learning theory, while the second, on response expectancy theory.

Social learning theory states that expectancies of particular outcomes predict behavior (Rotter; as cited in Catanzaro and Greenwood, 1994). Beliefs about the effectiveness of various coping strategies will influence the methods of coping used. Kirsch (1985) states that response expectancies are anticipations of one’s own natural reaction to events. These expectancies tend to produce the expected response. Past research has demonstrated the importance these theories have in predicting coping strategies, dysphoria, and somatic symptoms. Negative-mood regulation expectancies were found to be positively associated with active coping responses and negatively associated with avoidant coping responses, dysphoria, and somatic symptoms (Catanzaro & Greenwood, 1994; Kirsch, Mearns, & Catanzaro, 1990). This is especially important because active coping strategies were not found to influence dysphoric mood. Therefore, expectancies of effective coping strategies may be more important than the coping strategies themselves.

A controversial issue related to coping is the effect of gender on coping. Within the clinical population, evidence suggests that gender differences in the expression of

behaviors exist with women being more emotionally expressive than men (Achenbach & Edelbrock, 1981; Beller & Newhauer, 1963; LaPouse & Monk, 1964). However, the behavior of psychiatric patients is not representative of normal behavior and studies conducted on a non-psychiatric population have produced evidence to the contrary. For example, Tanck and Robbins (1979) found that regardless of gender, most college students cope with stress by analyzing the source of stress, taking direct action, and seeking company. Folkman and Lazarus (1980) used an adult population and found no gender differences in the extent to which problem-focused and emotion-focused coping were used. Differences were found in sources of stress between males and females. Women were more likely to experience health related problems in which the main coping strategy used is emotion focused. However, when coping with health related problems with men were examined, they used emotion focused coping to the same extent that women did. Hamilton and Fagot (1988) found similar results in a college population.

Billings and Moos (1981) however, found that women were more likely to use avoidant coping styles, which was associated with greater impairment of functioning. Using a college population, Hovanitz (1986) also found that the use of emotion-focused coping was related to greater dysfunction for females. Endler & Parker (1990) found that women scored significantly higher than men on emotion and avoidance coping scales. However, both men and women engaged in more task-oriented coping rather than emotion or avoidance-oriented coping. A negative correlation was also found between Task coping and depression for women. Clearly, gender and its influence on coping responses is an unresolved issue.

To review, Lazarus and colleagues have developed a transactional model to explain the relationship between stress and coping. This model proclaims that individuals use problem/action focused coping and/or emotion/avoidance focused coping in dealing with stress. A variety of interpersonal as well as environmental factors play a role in an individual's choice of coping strategy. I will now further review the effectiveness of both problem/action-focused coping and emotion/avoidance-focused coping.

Effectiveness of Coping Strategies

Research suggests that problem-focused coping seems to be more appropriate for situations in which the desired outcome of the situation is within the person's control while emotion focused coping is more effective in situations in which the individual lacks control of the desired outcome. Temporal ordering of coping strategies also influences the outcome of stressful situations. The degree to which the situation is controllable may not be evident at the outset. Problem-focused coping such as information search can help elucidate the controllability of the situation. However, if avoidant or denial-like coping strategies are used from the onset, it may prevent a realistic appraisal of available coping options. On the other hand, these coping strategies may be more useful after information search reveals that personal control of the stressful situation is not possible, hence and appraises the situation as a challenge (Folkman & Lazarus, 1991).

Problem-focused coping strategies have been found to moderate the adverse influence of negative life events on psychological functioning (Billings & Moos, 1981). The proportion of problem-focused coping relative to total coping efforts has also been associated with reduced depression (Mitchell, Cronkite, & Moos, 1983). Avoidance coping strategies have been shown to be positively associated with psychological distress.

Furthermore, active attempts to deal with stressful events and fewer attempts to avoid dealing with the event are associated with less stress (Billings & Moos, 1981).

Symptoms of anxiety and depression have also been linked to coping strategies. Craske et al. (1987) found that fear associated with a phobia was positively related to the degree of avoidance the subjects reported. Studies have also found that individuals with depressive symptoms tend to use fewer problem-solving and more avoidant or emotional-discharge coping strategies than individuals lacking depressive symptoms (Billings et al. 1983; Rosenberg, Peterson, & Hayes, 1987). Furthermore, active coping strategies among depressed patients are associated with less severe dysfunction. Avoidant coping strategies, on the other hand, are associated with more severe dysfunction (Billings & Moos, 1984). Folkman and Lazarus (1986) have also found that individuals high in depressive symptoms used significantly more confrontive coping than those who reported low depressive symptoms. On the other hand, Dunkel-Schetter, Folkman, and Lazarus (1987) found that people who engage in planful problem solving were more likely to receive significantly more emotional and tangible support than people who engaged in confrontive coping. As previously stated, social support is associated with more adaptive coping strategies.

While emotion focused coping has been traditionally viewed as maladaptive, this is not always the case. Situations involving the emotion focused coping method of denial may prove harmful for a woman with a lump in her breast. In other situations, for example, contracting the HIV virus, problem focused coping would be of little use. Generally speaking, emotion focused coping can be damaging when it prevents direct actions that may be extremely useful from taking place but can be useful for maintaining

a sense of well-being under conditions in which problem focused coping would be of little use (Folkman & Lazarus, 1991).

Not only are avoidant strategies less effective in dealing with problems in which something can be done about them, the process of avoidance itself is associated with a plethora of its own problems. Many times, an individual's thoughts and emotions become classically conditioned. For example, a couple's five year relationship ends after a huge fight at their favorite restaurant that also happens to be in between the man's home and his place of employment. The restaurant has now become a conditioned stimulus and every day the man passes it, negative emotions occur despite his attempt to control his emotions. In circumstances such as this, avoidant strategies may prove to be an ineffective way of dealing with negative emotions because they are beyond the person's control (Hayes, Wilson, Gifford, Follette, and Strosahl, 1996).

Hayes et al. (1996) also suggests that avoidance can restrict needed change. Enduring the negative emotions associated with change can be difficult. Many times individuals avoid change because of the negative emotions involved. However, if change is needed and an individual uses avoidant coping strategies, these strategies may prolong an unpleasant situation.

Another hypothesis that may explain why avoidant strategies are ineffective is that avoidance does not allow processing or habituation to stimuli and will therefore produce more dysfunction. Rachman (1980) suggests that emotional disturbances need to be processed by the brain or dysfunction may result. One way in which processing can occur is by the repeated discussion of or exposure to emotionally disturbing stimuli. Ramsay's study (as cited in Rachman, 1980) supports this hypothesis. He found that by

repeatedly exposing individuals who had abnormal grief reactions to upsetting material, a reduction in dysfunction occurred. Adding to this hypothesis, Horowitz (1975) suggested that memories that produce stress return to an individuals awareness because they have not been fully processed. Efforts to suppress thoughts only prolong the processing that may be necessary for individuals to handle stress.

Why Use Avoidant Coping Strategies?

As previously stated, avoidant coping strategies involve efforts to reduce tension by not addressing or dealing with the problem. In general, thoughts or actions are avoided because of the emotional content that may result by not avoiding them. Hayes et al. (1996) refer to this as emotional or experiential avoidance. Hayes et al. (1996) define emotional avoidance as “the phenomenon that occurs when a person is unwilling to remain in contact with particular private experiences (e.g., bodily sensation, emotions, thoughts, memories, behavioral predispositions) and takes steps to alter the form or frequency of these events and the contexts that occasion them.”

There are several reasons why many people engage in emotionally avoidant strategies. One reason is that purposeful control strategies can be extremely helpful in certain aspects of life. Engaging in a healthy lifestyle can result in fewer colds, quicker recovery time, and increased self-esteem. Working hard in school can result in better job opportunities in the future. Because deliberate control strategies are effective in so many contexts, it is of no surprise that individuals use the same type of control strategies when dealing with private events such as thoughts and emotions. Avoiding certain thoughts or emotions can be viewed as a strategy to control emotions.

Another reason emotional avoidance occurs is that the avoidance of emotional expression is socially reinforced. Parents often tell children to not to be sad or stop crying about situations that naturally bring sadness. Common advice after the ending of relationships is to keep oneself busy or try not to think about it. It's important to point out that regulating emotional displays is different than regulating the emotions themselves. For example, a child who losses a pet and stops crying at her parents request does not necessarily stop being sad.

Third, a persons behavior is often seen as valid when it is based on emotions and cognitions. Regardless of whether the reason for a behavior is known, people are often asked to give verbal explanations of why they do what they do. Emotions and cognitions responsible for bad behavior should be avoided. If a man is verbally abusive because he is angry all the time, he is told to take anger management classes. Unfortunately, this same process excuses destructive forms of experiential avoidance itself. For example, a client with depression might use the symptom of anhedonia as a socially valid reason for sitting at home and watching television all day (Hayes et al. 1996).

Finally, short-term outcomes are often positive when individuals engage in avoidant behaviors. A person who is depressed will often experience a relief in her symptoms after smoking a cigarette, even though in the long run she is elevating her risk of experiencing a host of medical problems that may even result in death. For these reasons, avoidant coping strategies are a common solution to the everyday problems individuals experience. I will now discuss a particular type of avoidance, thought suppression.

Thought Suppression

Thought suppression is the deliberate attempt to avoid thinking about a specific thought. There are many reasons why people try to suppress thoughts. One reason is to inhibit the external expression of a thought. Action inhibition, communication inhibition or emotional expressions all fall into this category. Behavioral self-control can often lead to thought suppression. For example, an individual trying to abstain from alcohol may try to avoid thinking about how much he enjoys the taste of a beer or how much fun he had getting drunk with his friends. With respect to communication inhibition, thought suppression occurs in order to prevent the verbal and nonverbal expression of thoughts to others. Emotional inhibition is similar to communication inhibition with the focus on purposely eliminating emotional expression (Wegner, 1992).

Social learning dictates that the expression of certain emotions are inappropriate at times and individuals learn to suppress thoughts that are associated with those emotions during times in which it would be inappropriate to express the emotions. For example, emotional stability is valued in American culture and when people expect to interact with others, they may try to deliberately avoid certain thoughts in order to give the appearance of emotional stability. This type of avoidance was found in a study conducted by Erber and Wegner (1991). Participants in the study listened to music that would either induce a pleasant mood or a bad mood. In addition, subjects were either told they would spend some time alone afterward or interact with another person. To measure participants mood control strategies, they were given the choice to read a variety of different newspaper articles that were either pleasant or negative. For participants expecting to be alone, they chose mood-congruent articles. Those who expected to

interact with another person chose articles that differed from their induced mood.

Viewed in this way, thought suppression has the potential to become a habitual response in social settings in which the expression of certain emotions are inappropriate (Wegner, 1992).

The process of suppressing a thought can be viewed as a cycle. The first process in this cycle is a controlled distracter search. In other words, once an unwanted thought is recognized, the person consciously attempts to find an unrelated thought. This requires a significant degree of cognitive resources. After this occurs, the person moves in to the second process, automatic target search. During this phase, the person searches for any signs of the unwanted thought. The automatic target search detects whether the controlled distracter search is necessary. As soon as one intends to suppress a thought, both processes are initialized. The automatic target search indicates that the unwanted thought is in consciousness, which in turn activates the controlled distracted search. Once the thought is no longer in consciousness, the controlled distracter search is no longer functioning and for an unspecified length of time suppression is successful. The automatic target search, however, is still looking for signs of the thought and when it is found, the individual begins the cycle over again (Wegner, 1992).

The controlled distracter search can be influenced by a variety of factors. A person's environment has been shown to be influential. For example, distracters reported during suppression are often drawn from an individuals immediate surrounding environment (Wegner, Schneider, Knutson, & McMahon, 1991). It is no surprise that Knutson (1990) found that people had an easier time suppressing thoughts when they kept their eyes open versus shut. In addition, mood-relevant thoughts, whether good or

bad, are also used as distracters (Wenzlaff, Wegner, & Klien, 1991). Third, when searching for distracters, people do not generally focus on a single distracter. Wegner, Schneider, Carter, & White (1987) found that each time an individual goes through the thought suppression cycle, a new distracter is used. It therefore appears that natural self-distraction is unfocused rather than focused.

Automatic target search can be broken down into two separate domains, the cognitive hyperaccessibility of suppressed thoughts and psychophysiological dishabituation to suppressed thoughts. Hyperaccessibility of suppressed thoughts indicate that a suppressed thought becomes more rather than less accessible to consciousness when cognitive loads are imposed during suppression. Examples of cognitive loads may be time pressure or stress. The effect of this is that people do the very thing they are trying not to do, attend to unwanted thoughts. See Wegner (1992) for an excellent review.

Another domain of the automatic target search is psychophysiological reactivity to an unwanted thought during suppression. Wegner, Shortt, Blake, & Page (1990) found that repeated exposure to an exciting thought normally results in habituation. What this means physiologically is that an individual skin conductance level (SCL) initially become elevated upon thinking about an exciting thought. Through time, however, the person becomes habituated to that thought so that additional thoughts will no longer increase the person's SCL. However, when an individual attempts to suppress an exciting thought, habituation does not occur and SCL levels remain high after a prolonged period of time.

After the suppression process is over and the individual no longer attempts to avoid the thought, a post-suppression rebound of the thought occurs. This rebound effect

was initially observed by Wegner et al. (1987). One group of subjects were asked to suppress the thought of a white bear for 5 minutes. They then were asked to think of a white bear for 5 minutes. Each time they thought of a white bear they were to ring a bell. The other group of subjects were asked to do the same thing but in reverse order. Results showed that individuals who were asked to suppress first, thought of the white bear more during the expression period than those who were asked to express thoughts of a white bear first.

This rebound effect has serious implications in substance use. For instance, Marlatt and Parks (1982) observed that relapse to an addictive behavior can be triggered by a single, seemingly minor violation of trying to remain abstinent. This is consistent with the idea that if you try to suppress a thought, be it about a former lover or your favorite cocktail, initial attempts to suppress may be followed by a rebound of the thought in which the individual seems to become preoccupied with that thought. Furthermore, relapse or thought expression in general may be triggered by a single occurrence of the unwanted thought. The implications of thought suppression and avoidant coping strategies as they relate to substance abuse will be addressed in the next section.

The rebound effect has also been observed in the psychophysiological research by Gold and Wegner (1991). This study measured skin conductance levels (SCL) and asked individuals to think about an old flame. People showed a prolonged increase in SCL's only if the old flame was still desired and if they had previously attempted to suppress thoughts of that person. These results suggest during post-suppression the person become preoccupied with the suppressed thought.

The suppression of emotions has also demonstrated a rebound effect. When an individual experiences a negative event such as the death of a loved one or rape, the suppression of thoughts associated with those events are a common occurrence. When this happens, however, intense emotions signaled by cognitive and physiological distress often occurs (Stiles, 1987). Pennebaker (1990) also observed that long-term suppression could result in both impaired physical health and psychological disorders.

Research has shown that the way in which an individual attempts to suppress a thought can influence the rebound effect. As stated previously, during thought suppression people tend to focus on their immediate environment. Also, each time the unwanted thought comes into consciousness, a new distracter is used. These distracters later serve as reminders of the unwanted thought. If one suppresses a thought by focusing on poetry or a musical instrument, these items will then serve as reminders of the unwanted thought. This explanation was demonstrated in the second experiment done by Wegner et al. (1987). Some subjects were asked to not think of a white bear but rather a red Volkswagen. Compared to subjects not given the instructions to think of a red Volkswagen, the rebound effect was greater in the later condition. By directing a person's attention to a specific item during thought suppression, an attenuation of the rebound effect was observed.

Wegner et al. (1991) also found evidence to support the notion that distracters become reminders. Subjects were asked to suppress thoughts of a white bear while being shown one of two possible filmstrips. When then shown the other filmstrip and asked to think of white bears, the rebound effect was not observed. However, when then shown the initial filmstrip and asked to think of white bears, the rebound effect occurred. These

results, along with the former study imply that the context in which thought suppression occurs is important for the rebound effect. Namely, environmental cues become reminders for thoughts one does not wish to have. Similar results have also been found concerning relapse and substance abuse.

Not only does suppression link the suppressed thought to context, Wenzlaff et al. (1991) research suggests that suppression can influence mood and vice versa. In his first experiment, subjects listened to specific music to induce them into a positive or negative mood while being instructed not to think about a white bear. Subjects were then asked to think of a white bear while either the same type or a different type of music was playing. Those who were played the same type of music in both conditions displayed a strong rebound effect. However, those who were played different music showed no such effect. This study also made sure the music was able to induce the moods it was aimed at.

Results from the second experiment indicated that when thought suppression is bounded to a mood, later expression of the thought would produce that same mood. A similar format was used for this experiment only this time subjects were asked to report their mood upon expression. As expected, subjects experienced a reinstatement of the same mood induced during suppression when they were asked to think about the white bear.

Wegner and Zanakos (1994) took this type of research one step further and examined the relationship between thought suppression and psychological symptoms such as obsession, anxiety and depression. All three symptoms were positively related to the degree in which individuals attempt to suppress thoughts. In particular, subjects who were sensitive to depressing thoughts and reported using thought suppression as a mental

control strategy were prone to depressive affect. The link between thought suppression and depression suggests that using avoidant strategies like thought suppression, even without a strong desire to avoid depression, will increase the likelihood of an individual experiencing depressive symptoms. Results are consistent with an earlier study done by Wenzlaff and Wegner (cited in Wegner and Zanakos, 1994) in which depressed individuals reported frequent attempts to suppress negative thoughts. Additionally, Wenzlaff, Wegner, and Roper (1988) found that the success of suppression efforts made by depressed individuals was short lived. Also found was that depressed individuals use negative distracters to suppress other negative thoughts. Therefore, the distracters chosen by depressed individuals may influence overall depressive symptomatology.

In summary, thought suppression is used when an individual wishes to inhibit the external expression or internal emotions that certain thoughts may accompany. When deliberate suppression of a thought is attempted, the suppression cycle is activated. This cycle involves a conscious search for thoughts that are not the unwanted thought as well as the process of searching for any signs of the unwanted thought. Multiple environmental stimuli are often used as distracters and can become bound to the unwanted thought as a result. Furthermore, the conscious avoidance of a thought increases the frequency of that thought as well as interfering with the habituation process. In other words, avoiding thoughts increases the frequency of the thought and maintains the emotional content that would otherwise decrease as habituation occurs.

Eventually a person who tries to suppress an unwanted thought will think about it. When this happens a rebound effect occurs in which the individual thinks about the thought to a greater extent than if they would not have attempted to suppress it. One

reason for this is that distracters become reminders so that environmental stimuli serve as cues to the thought. In time, the person develops multiple cues that may remind him of the unwanted thought. Furthermore, thought suppression may become bound to moods so that the two influence each other. For example, a man who tries not to think about an ex-girlfriend and is depressed while doing so may find himself thinking about her more often when he is depressed. The opposite also holds true in which thinking about his ex-girlfriend will induce depression. As can be seen, thought suppression creates a strong bond to environmental and emotional context. This may explain why psychological symptoms such as obsessions, anxiety and depression are all positively related to thought suppression. Depressed individuals are more likely to engage in thought suppression as a coping strategy, which may actually increase depressive symptoms. It seems as though trying to cope by means of avoiding or suppressing unwanted thoughts only makes a bad situation worse.

Models of Substance Use

Many theories pertaining to drug motivation and relapse exist. I will now provide a brief overview on some of the more prominent theories. In general, two main approaches have been used to explain drug use behavior: conditioning models and social learning theory. I will provide a brief review on several models associated with each theory. I will then describe the relationship between coping strategies and drug use. For a more detailed review of the conditioning models of drug motivation, see Niaura et al. (1988), Rosenhow, Niaura, Childress, Abrams & Monti (1990), and Tiffany (1990).

The conditioning models focus on the learned associations of the organism to the environmental context of drug administration as a significant factor affecting observed

drug effects, withdrawal symptoms, tolerance, and relapse. Three different conditioning models have been proposed: the conditioned withdrawal model (Wikler, 1965), conditioned compensatory response model (Siegel, 1975, 1983) and conditioned appetitive motivational model (Steward, deWit, Eikelboom, 1984). These models hypothesize that repeated pairings of drug use with a specific environment will eventually elicit a conditioned reaction. Social learning theory focuses on a variety of interpersonal and intrapersonal determinants, including modeling, affective determinants, and cognitive reactions to environmental events and to affective/physiological reactions (Abrams, 1983; Abrams and Niaura, 1987). I will now review each model in more detail.

Most drugs with addictive potential produce a physiological dependence syndrome when the drug is withdrawn. Given this observation, Wikler (1965) proposed the conditioned withdrawal model. This model states that primary and secondary pharmacological reinforcing processes influences drug use. Primary reinforcement is the rewarding pharmacological properties contained in a drug. Secondary reinforcement is the idea that withdrawal states can become a conditioned response (CR) upon presentation of conditional stimuli (CS). Conditional stimuli can refer to a variety of environmental variables, as well as internal variables such as affect. With enough pairings, a CS will elicit a CR. Therefore, this model asserts that the motivation to use drugs is to avoid conditioned withdrawal.

Related to the conditioned withdrawal model is Siegel's (1975, 1983) conditioned compensatory response model. This model also proposes that situations routinely paired with drug administration and with the pharmacologic effect of the drug can become conditioned stimuli that elicit conditioned response (withdrawal symptoms). However,

this model differs in that the CR's are thought to occur in the opposite direction of the original UR's. This is thought to occur to compensate for the anticipated pharmacological effects of the drug so that the body will maintain a homeostatic balance.

Current models of withdrawal-based urges have integrated social cognitive concepts into its model. These models suggest that urges occur as a result of an attributional process in which the physiological responses produced by conditioned withdrawal are interpreted by the addict as desires to engage in drug use (Melchior & Tabakoff, 1984; West & Schneider, 1987). Viewed this way, two components are responsible for drug urges. One, a person must experience physiological responses produced by conditioned withdrawal. Second, the person must attribute the physiological responses as desires to use the drug.

Studies testing the withdrawal based model have consistently shown that withdrawal symptoms do not play a role in relapse. For instance, Fletcher and Doll (cited in Tiffany, 1990) found that 20% of ex-smokers report experiencing desires to smoke 10-14 years after quitting, well after any withdrawal symptoms would have subsided. West, Hajek, & Belcher (cited in Rohsenow et al., 1990-1991) also showed that symptoms commonly associated with nicotine withdrawal were not associated with smoking relapse. These results suggest that withdrawal models do not adequately explain the maintenance and relapse of drug use.

The conditioned appetitive motivational model (Steward et al. 1984) hypothesizes that positive reinforcement rather than negative reinforcement is responsible for the maintenance of drug use. This model is based on evidence that drug seeking behavior occurs in the absence of withdrawal symptoms or other aversive states. Like Siegel's

(1975, 1983) model, CR's may be counterdirectional to the original UR's; however, these counter-directional responses are thought to become CS's associated with the positive effects of the drug. Negative affective or physical states can also affect drug use by altering the salience of the anticipated effects of the drug. A review of literature provided by Niaura et al. (1988) found that of the three conditioning models, the conditioned appetitive model received the best support for motivation to use cigarettes and alcohol.

In contrast to the conditioning models, social learning theories of drug motivation (Bandura, 1977; Marlatt & Gordon, 1980, 1985; Shiffman & Wills, 1985) stress the importance of cognitive factors in determining drug use and relapse. The way individuals respond to high-risk situations involving relapse is particularly important. Without effective coping responses, self-efficacy concerning abstinence is likely to be reduced. Affective state as well as low self-efficacy and drug use outcome expectancies are all predictors of drug motivation. In general, motivation to use drugs increases as a function of a negative affective state and positive expectancies about the consequences of drug use, including a reduction in negative affect.

Social learning theory suggests that individuals who lack effective alternative coping responses are more likely to abuse drugs. In time, emotional states may act as a cue for drug urges and modify an individual's self-efficacy and outcome expectations. Abrams & Niaura (1987) suggest that alcohol may be used as a general coping mechanism when other more effective coping responses are unavailable. Other studies have found that recovering alcoholics who relied on avoidant coping strategies were more likely to drink in response to stressful events. On the other hand, active/problem focused

coping did not predict alcohol use (Moos, Finney, & Chan, 1981; Moos, Finney, & Gamble, 1982).

Even if coping responses are limited, research presented in the former paragraph does little to explain why drugs are used. One reason may be that drug use, like thought suppression, can be highly effective for short-term relief from negative affect. Virtually all drugs with abuse potential alter one's state of consciousness and produce very pleasurable effects. These effects are perceived to be even greater by those who abuse the drug versus those who use it on a recreational basis. For example, Connors, O'Farrell, Cutter, and Thompson (1986) found that alcoholics have greater expectancies that alcohol will enhance pleasure and reduce stress.

In addition to avoidant coping strategies, negative affect and expectations of relief from negative affect also contribute to substance use. Research on alcohol has found that positive expectancies, which include the positive psychoactive effects of the drug as well as relief from negative affect, are associated with increased drug use (Brown, Goldmann, & Christiansen, 1985; Connors et al. 1986; Mooney, Fromme, Kivlahan, & Marlatt, 1987). Other studies reported in (Cooper, Russell, Skinner, Frone, & Mudar, 1992) have also shown that 10 to 25 percent of drinkers report drinking to cope with or regulate negative emotion. Another study found that 80% of drinking episodes were aimed at manipulating subjective experiences (Sanchez-Craig, 1984). Still other research emphasizes the importance of both avoidant coping strategies and outcome expectations (Cooper et al.1992). For example, avoidant coping strategies were related to problematic alcohol use only among individuals who also had high outcome expectancies. In

addition, stressors were related to alcohol use only among individuals who were high in avoidance coping and had strong positive expectancies.

Similar results have been found with smokers. Brandon and Baker (1991) found that positive and negative reinforcement underlie the maintenance of smoking in a college sample. These results are important in that college smokers with limited smoking experience engage in smoking to avoid negative affect. This suggests that negative affect regulation is a powerful reason for smoking even for smokers with relatively little smoking experience. Copeland et al. (1995) found similar results with an older adult population. They compared heavy smokers with ex-smokers and found that heavy smokers held the most positive outcome expectancies about smoking.

Negative affect and expectancies of negative affect reduction also play a crucial role in relapse. Marlatt and Gordon (1980) reviewed relapse literature on alcohol, smoking, and heroin. Thirty-seven percent of relapses were related to coping with negative emotional states. Smokers, however, had the highest rates of relapse associated with negative affect (43 percent). Other research has found that negative affective states account for half or more of smoking relapses (Baer & Lichtenstien, 1988; O'Connell & Martin, 1987; Shiffman, Read, & Jarvik, 1985). Negative affect clearly plays an important role in the initiation, maintenance, and relapse in smoking as well as other drug use.

Although research has been done confirming the adverse relationship of avoidant coping and substance abuse, particularly alcohol use, this relationship has not been examined in great deal specifically with smokers. One study that did look at this relationship, however, found significant results. Naquin & Gilbert (1996) found that a

college smoking population engaged in more emotion-coping strategies than their former smoking and nonsmoking colleagues. In addition, former smokers were found to engage in less avoidant coping strategies than both current smokers and nonsmokers.

Absent in the literature, however, is a comparison of coping strategies between current, former, and non-smokers in an adult population. These comparisons can have many implications in prevention and treatment programs. For instance, it's possible that individuals who engage in more avoidant coping strategies increase their risk of becoming smokers. If this is the case, smokers prevention programs may want to further emphasize coping skills in their program. In addition, former smokers may help shed light on the importance of coping strategies and successful cessation. For example, psychological acceptance and/or problem/action focused coping skills may be an important part in the cessation process above and beyond decreased positive expectations on cigarette use. The purpose of this study is to examine the possible differences in overall coping strategies as well as differences in the use of thought suppression and experiential avoidance between smokers, former smokers, and never smokers.

Hypothesis

- (1) Smokers will engage in more avoidant coping strategies than former-smokers and never-smokers. This will be evident in that current smokers will have significantly higher scores on the WBSI and the Escape-Avoidance scale of the WOCQ.
- (2) Smokers will experience more negative mood states. Specifically, smokers will have higher scores on the PANAS-NA and lower scores on the PANAS-PA than both never and former smokers.

- (3) Affect will be significantly correlated to coping strategies in that scores on the PANAS will be significantly correlated to scores on the WBSI and Planful Problem Solving and Avoidance scales of the WOCQ.
- (4) Expectations that smoking will reduce negative affect will be significantly correlated to avoidance coping strategies. Specifically, the Negative reinforcement scale of the SCQ-A will be significantly correlated to WBSI scores as well as the Avoidance scale on the WOCQ.

METHOD

Participants

Participants were recruited from the Stillwater, Oklahoma City, North Fort Myers, and Chicago-land communities and consisted of never smokers (N=26), former smokers (N=30) and current smokers (N=30). Sample characteristics regarding gender, age, ethnicity and social status of each group as well as the entire sample are presented in Table 1. Current smokers smoked an average of 17.8 cigarettes per day and had been smoking for an average of 21.3 years. Fagerstrom scores indicated moderated nicotine dependence (see Table 2). Former smokers had been quit for an average of 9.2 years. They had smoked an average of 22.1 cigarettes per day for an average of 17.9 years (see Table 3).

Procedure

Participants were recruited by advertisement placed throughout the Stillwater and Oklahoma City communities. A lack of participation required recruitment via asking colleagues if they knew anyone who would participate. The majority of participants were recruited in this way. A brief interview was conducted to insure that all participants meet

the criteria to partake in the study. For those who qualify, questionnaires were given in the following order: Smoking Status Form, Positive and Negative Affect Scale (PANAS), Negative Mood Regulation (NMR) Expectancies, Ways of Coping Questionnaire, and the White Bear Suppression Inventory (WBSI). Current smokers were also given the Smoking Consequences Questionnaire-Adult (SCQ-A) and the Fagerstrom Tolerance Questionnaire. Participants were entered in a \$170 raffle (\$100 – first prize; \$50 – second prize; \$20 – third prize).

Measures

Smoking status form – This form assesses participant demographics such as age, gender, ethnicity, education and income, as well as smoking experience.

Fagerstrom Tolerance Questionnaire (FTQ) - The Fagerstrom Tolerance Questionnaire (FTQ) (Fagerstrom, 1978) is an 8-item questionnaire that assesses nicotine dependence. The questionnaire has a range of 0-11 points. Higher scores on the FTQ have been significantly correlated to other proposed measures of nicotine dependence such as carbon monoxide, nicotine, and cotinine levels (Fagerstrom & Schneider, 1989).

White Bear Suppression Inventory (WBSI) – A 15-item questionnaire designed to tap into the suppression and control of thoughts and emotions. Using a 5-point Likert-type scale, participants are asked to rate the degree to which the items apply to him or her (Wegner & Zanakos, 1994). Scores range from 0, suggesting participants use little, if any, thought suppression techniques to 75, suggesting that participants frequently use thought suppression techniques.

Ways of Coping Questionnaire-Revised (WOCQ-R) – (Folkman & Lazarus, 1988). A 66-item self-report measure used to assess coping processes. Participants are asked to think

about a stressful situation that had occurred within the past week. They are then asked to complete the questionnaire by indicating what type of strategies they used to cope with the situation. This is done using a 4-point Likert-type scale. Each item belongs to one of eight possible types of coping strategies. This study will specifically examine the Escape-Avoidance and Planful Problem Solving scales. The escape-avoidance scale is composed of 8-items and ranges from 0-24 and the planful problem solving scale consists of 6-items and ranges from 0-18.

Positive and Negative Affect Scale (PANAS) – The PANAS (Watson, Clark, & Tellegen, 1988) is a 20-item self-report questionnaire that assesses participants' positive and negative affect. Positive affect (PA) reflects the extent to which a person feels enthusiastic, active, and alert. Low PA is characterized by sadness and lethargy. Negative affect (NA) measures subjective distress that may include a variety of mood states such as anger fear and nervousness. Low NA is associated with feelings of calmness and serenity. Using a 5-point rating scale, participants are asked to rate the extent that each item describes his or her mood over the past week.

Negative Mood Regulation (NMR) Expectancies – The NMR Scale (Catanzaro & Mearns, 1990) is a 30 – item questionnaire used to assess the degree to which individuals expect they will be able to alter their negative mood when they are upset. Using a 5-point Likert Scale participants are asked to rate from 1 (strongly disagree) to 5 (strongly agree) how likely they will be able to alter their mood when they are upset. All items begin with “When I’m upset, I believe that...” and scores can range from 30 to 150. The higher the score, the more regulation one expects to have over negative mood.

Attributional Style Questionnaire (ASQ) – The ASQ (Peterson, Semmel, von Baeyer, Abramson, Metalsky, & Seligman, 1982) was designed to assess what individuals attribute good and bad events to. Attributions are broken down into three components: internal (versus external), stable (versus unstable), and global (versus specific) causes. This questionnaire consists of 12 scenarios (6 good events and 6 bad events) and asks individuals to “write down the one major cause” of the event. Next, using a 7-point Likert scale, the participants are asked to rate the cause along the three attributional dimensions. Internality, stability, and globality scale scores are then attained for both good and bad events.

Smoking Consequences Questionnaire-Adult (SCQ-A) – The SCQ (Brandon & Baker, 1991) is a self-report questionnaire that asks participants to rate on a 10 point Likert-type scale the likelihood that certain items are consequences of smoking behavior. Four factors were found using a college sample (negative consequences, positive reinforcement, negative reinforcement, and appetite-weight control). Copeland, Brandon, and Quinn (1995) used the same questionnaire with adults, but found fourteen factors. This difference may be due to the idea that outcome expectancies become more specific as smokers gain experience. Two scales pertaining to the positive and negative reinforcement value of cigarettes, negative affect reduction and stimulation/state enhancement were used. Scores range from 0-81 for negative affect reduction and 0-63 for stimulation/state enhancement. This questionnaire was given only to current smokers.

RESULTS

Sample Characteristics

An initial chi-square test indicated no gender differences between smokers, former smokers, and never smokers (see Table 4). One-way ANOVA's were run to test for groups differences on age and social status. No group differences were found (see Table 4).

Total participants for each group varied on measures as a result of several incomplete questionnaire packets (see Table 5 for number of participants in each group that completed individual measures). Eight participants had missing data on the PANAS, WOCQ or WBSI. Because multivariate analysis of variance tests (MANOVA's) would have eliminated data on these eight participants from the analysis, a series of one-way analysis of variance statistics (ANOVA's) were conducted in the primary analysis.

Group Differences for Avoidant Coping and Mood

For reasons previously stated, one-way ANOVA's were run to test for group differences on the WBSI, WOCQ-EA scale, PANAS(PA) scale and PANAS(NA) scale. No group differences were observed on the WBSI, $F(2,80) = 1.25, p > .05$, or the WOCQ-EA scale, $F(2,82) = 0.27, p > .05$, indicating that all groups used avoidant coping strategies equally. No group differences were found on the PANAS(PA), $F(2,77) = 1.10, p > .05$, or the PANAS(NA), $F(2,77) = .92, p > .05$, indicating that groups did not differ in positive or

negative affect. See Table 5 for group means and Table 6 for ANOVA statistics for the WBSI, WOCQ-EA, PANAS(PA) and PANAS(NA).

Effect size and power analysis were run for each group comparison (see Table 7). Power is the ability to find differences between groups if differences do exist and effect size is related to the degree of difference between groups. Power of .80 is considered adequate and an effect size of .25 is considered moderate. Low power and effect sizes were observed with all questionnaires. An effect size of .17 and power of .26 were obtained for the WBSI. The WOCQ-EA had an effect size of .08 and power of .09. The PANAS(PA) and PANAS(NA) had effect sizes of .17 and .15 and power of .24 and .20, respectively.

Smoking Expectations and Avoidant Coping

Pearson Product Moment Correlations were used to examine the relationship between the SCQ, WBSI and WOCQ. No relationship was found between smokers' expectations and the use of avoidant coping strategies (see Table 8). It should be noted however that the correlation between SCQ(NEG) and WOCQ-EA was on the verge of significance, $p = .052$.

Relationship between Coping and Mood

The relationship between mood and coping style was tested using Pearson Product Moment Correlations and partial Pearson Product Moment Correlations. The WOCQ-EA measures behavioral and cognitive avoidance while the WBSI measures only cognitive avoidance. Because the constructs that each questionnaire measures overlap, partial correlations were run to factor the other measure out of the analysis. Significant relationships were found between the PANAS scales, WOCQ scales and WBSI (see

Table 9). Active coping was correlated with positive affect, whereas avoidant coping was correlated with negative affect.

Measures Unrelated to Hypothesis

The relationship between attributions and mood, as well as coping style was analyzed using Pearson Product Moment Correlations. For reasons presented in the discussion, gender differences on the ASQ were analyzed. Gender differences were observed on the ASQ – stable/unstable category, $F(1, 78) = 8.46, p < .01$, indicating that women attributed bad events to more stable causes than men did. Because no other gender differences were observed on ASQ subscales, correlations between the PANAS and ASQ included both men and women. The PANAS(PA) was negatively correlated with internal and global attribution for negative events and positively correlated with internal attributions for positive events (see Table 10). Coping style and attributions were also significantly correlated. Avoidant coping correlated with global and stable attributions for bad events. Problem-focused coping was not correlated with any attributions (see Table 11).

Pearson Product Moment Correlations were also conducted to examine the relationship between negative mood regulation expectancies and coping style and mood. Significant correlations were found between scores on the NMR and scores on both the WBSI and WOC-EA scale in that an increase in expectancies to control negative mood states was associated with a decrease in avoidant coping strategies (see Table 12). A significant correlation was also found between NMR expectancies and the PANAS. High scores on the NMR measure were associated with high scores on the PANAS(PA) scale and low scores on the PANAS(NA) scale (see Table 12).

Several ANOVA's were conducted to examine group differences on the ASQ subscales and the NMR questionnaire (see Table 13 for mean differences and Table 14 for ANOVA statistics). No group differences were found on the NMR, $F(2,77) = .056$, $p > .05$. No group differences were found on any of the ASQ subscales except the internal attributions for negative events subscale, $F(2,77) = 4.01$, $p < .05$. A Bonferroni post-hoc analysis indicated that current smokers had significantly higher scores than never smokers.

DISCUSSION

Coping and Smoking Status

The use of avoidant coping strategies was not related to smoking status. This finding is in contrast to the findings of Naquin and Gilbert (1996) who found that former smokers engaged in less avoidant coping than current smokers or never-smokers. Several explanations could account for the different findings. First, Naquin and Gilbert's (1996) sample size, $N=1330$, was considerably larger than the sample size of this study ($N=86$). Sample size influences both power and effect size. The sample size in this study was too small to detect any meaningful group differences. In contrast, Naquin and Gilbert (1996) had a sample size that would result in greater power and the ability to detect smaller differences between groups.

Although statistically significant differences were not found between groups on coping style measures, differences did exist in the expected direction. This can be seen especially with the WBSI in which the mean score difference between smokers and never smokers was 5.4. Mean score differences between smokers and former smokers on the WBSI was 3.1 (see Table 5). By comparison, Naquin and Gilbert (1996) found mean

differences between former smokers and current smokers on the avoidance scale of the Coping Inventory of Stressful Situations (CISS) of 3.6. Never-smokers data was more consistent with current smokers. The authors state that these differences may be due to enhanced self-efficacy experienced by the former smokers after they quit. Both measures are similar in that a 1 to 5 likert-scale is used and the range of scores between the two questionnaires differs by only 5 points (the CISS has one additional question). Assuming the standard deviations of the two questionnaires are similar, significant results would have been observed in this study had the sample size been close to Naquin and Gilbert's (1996). Specifically, current smokers would have engaged in significantly more thought suppression than former or never smokers. While this may be true, the clinical significance of these findings is questionable. It appears that while coping differences between smokers and former or never smokers may exist, the differences are small at best.

Sample differences should also be noted. Wegner and Zanakos (1994) found that the mean score on the WBSI using a college sample was 47.19; mean WBSI scores in the present study was 37.87. A mean difference of 9.32 between samples indicates that this sample may use less thought suppression than the original sample. Although no previous research has examined this, it is possible that since this study consists of an older adult population and the WBSI was developed using college students, thought suppression decreases with age. In contrast, scores on the WOCQ-EA were almost twice (6.14 versus 3.18) those reported by Folkman and Lazarus (1988) suggesting the participants in this study engaged in avoidant coping strategies twice as much as the original sample. Although it is unclear why coping differences between the two samples seem to exist, it

appears that this sample used more escape-avoidant coping strategies than the sample in Folkman and Lazarus (1988).

Mood and Smoking Status

No differences were observed between smoking status and mood. In other words, smokers did not report experiencing greater negative mood states than former or never-smokers. This finding is surprising given that past research suggests smokers experience more symptoms of depression and anxiety than non-smokers (Breslau, 1995; Patton, Carlin, Coffey, Wolfe, Hibbert & Bowes, 1998). The PANAS(NA) is correlated with symptoms and diagnosis of both depression and anxiety and the PANAS(PA) is related to symptoms and diagnosis of depression (Watson, Clark & Carey, 1988), indicating that if affective differences existed between groups, it would be detected by the PANAS. It is possible that the sample of current smokers in this study reported experiencing less negative mood states than the smoking population in general. Another possibility is that both former and never smokers reported more negative mood states than the general population. Similar scores on the PANAS were observed in this study and Watson et al. (1988b) indicating the former hypothesis to be more plausible.

Smoking Expectations and Avoidant Coping

It was hypothesized that smoking is an avoidant coping strategy and the more likely a smoker expects smoking to reduce negative affect, the more likely they engage in other avoidant coping strategies. Although a significant relationship was not observed between expectations that smoking will reduce negative affect and avoidant coping strategies, a trend was observed (see Table 8). Small sample size limits the interpretation of these findings. It is possible that a larger sample size would have produced significant

results. Another possibility is that the primary coping strategy of smokers is smoking itself. If this were the case, a strong relationship between smoking expectations and avoidant coping strategies would not be found.

Avoidant coping and mood

Positive correlations between coping strategies and mood were found in that an increase in avoidant coping strategies was correlated with an increase in negative affect. In addition, increased problem focused coping was correlated with increased positive affect (see Table 9). Bruder-Mattson and Hovanitz (1990) found similar results. Using a college sample, they found a significant relationship between avoidant coping and depression. Findings by Billings and Moos (1981) also support this relationship. They found that avoidant coping strategies were associated with greater impairment in functioning. Several other studies looking at a depressed population also found a relationship between depression severity and avoidant coping strategies (Billings & Moos, 1984; Billings & Moos, 1981; Rosenberg, Peterson, & Hayes, 1987).

This study also found that thought suppression was associated with an increase in negative affect. Similar findings were reported by Wenzlaff and Wegner (as cited in Wegner & Zanakos, 1994). They found that individuals with depression engaged in more frequent attempts to suppress negative thoughts. In addition, Wegner and Zanakos (1994) found strong correlations between the WBSI and several anxiety measures. Wegner and Zanakos offer a word of caution about the interpretation of their data and I will do the same. Although correlations between avoidance and mood have been observed in a number of studies, the direction of the relationship is unknown. For example, although a body of evidence exists suggesting that both cognitive and

behavioral avoidance is a causal factor for experiencing negative affect, it is also possible that the relationship between the two variables is in the opposite direction or influenced by another unidentified variable.

Findings from this study in combination with findings from previous studies strongly support the idea that using avoidant coping strategies results in increased negative affect. A large body of literature by Hayes addresses this finding as it pertains to psychotherapy. Hayes et al. (1996) discusses the importance of “letting go” of an emotional control strategy. Acceptance and Commitment Therapy (Hayes, 1999) attempts to teach clients the importance of emotional acceptance.

Attributions & Negative Mood Regulation Expectancies

Although the primary focus of this study was to examine the relationship between avoidant coping, smoking status and negative mood states, other variables have been shown to be related to avoidant coping. Past research has found attributional style to be related to both avoidant coping and depressed mood. Bruder-Mattson and Hovanitz (1990) found that avoidant coping was correlated with internal and global attributions for negative events. This study found similar results for both men and women. Avoidant coping was correlated with stable and global attributions for negative events. Women tended to attribute negative events with stable causes more than men suggesting that attributional differences may exist between men and women.

Bruder-Mattson and Hovanitz (1990) also found correlations between depression and attributions for women. This study found that global and internal attributions for bad events were associated with low scores on the PANAS(PA), which suggests feelings of sadness. Internal attributions for good events were associated with high scores on the

PANAS(PA), which suggests greater activity and alertness and feelings of enthusiasm. No relationship was observed between the PANAS(NA), which is characterized by feelings of anger, fear and nervousness, and the ASQ. It is possible that attributions are related to feelings of sadness and depression but not other mood states like anger and anxiety.

Attributional style was also compared between groups. No differences were found except on the internal/external scale for negative events. Smokers attributed negative events to internal causes to a greater extent compared to former and never-smokers. This finding should be interpreted with caution. Because a number of ANOVA's were conducted, significance on this variable could have occurred by chance. Mood states have been shown to be correlated with attributional style (Bruder-Mattson & Hovanitz, 1990; Peterson & Seligman, 1984). Given that past research has found affective differences between smokers and non-smokers, a logical conclusion is that attributional differences may exist between smokers and non-smokers. Affective differences between groups were not observed in this study however. Therefore, it is not surprising that attributional differences were not observed between groups.

Another variable related to both coping strategies and affect is negative mood regulation (NMR) expectancies. NMR expectancies are beliefs about one's ability to alleviate negative moods (Kirsch et al. 1990). This study found that NMR expectancies were negatively related to avoidant coping. In other words, expectancies that one could regulate negative moods were correlated with using less avoidant coping strategies. Similar results were found by Catanzaro and Greenwood (1994), and Kirsch et al. (1990). Catanzaro and Greenwood (1994) found a negative relationship between NMR

expectancies and avoidant coping strategies. In other words, the more subjects believed they could change their negative mood states, the less they engaged in avoidant coping strategies. Furthermore, negative mood regulation expectancies were negatively correlated with depression. Kirsch et al. (1990) found similar relationships. The sample consisted of college students for both of the previous studies. This study appears to be the first to find the same relationships between mood regulation expectancies, avoidant coping and mood in an adult population.

Limitations

Several limitations should be noted in this study. The biggest limitation was small sample size. This makes it very difficult to determine the accuracy of the results. As previously discussed, small sample sizes adversely affect both power and effect size. This may explain why significant differences between groups were not observed on the majority of measures.

Recruitment method was another shortcoming. Initially, recruitment was attempted by posting information in local (Stillwater and Oklahoma City) public places such as grocery stores as well as doctor/dental offices. A lack of public interest required the author to recruit via the snowball method. That is, acquaintances of the author were asked to participate and were asked if friends or family would be willing to participate. Thus, random selection for this study was not achieved. Recruitment difficulties may have been due to a lack of monetary compensation for participants' time.

Lastly, several findings suggest this sample may not be representative of the general population. Mean scores on the WBSI and WOCQ-EA were quite different than mean scores obtained by the original studies for both measures. Furthermore, scores

were in opposite directions in that WOCQ-EA scores were twice as high as the original study by Folkman and Lazarus (1988) and WBSI scores were much lower than scores published in Wegner and Zanakos (1994). Even more importantly, in contrast to a number of previous studies, smokers did not differ significantly in affective states. However, these limitations can be explained by the limitations explained in the previous two paragraphs. A small sample could explain why affective differences were not observed between groups. It is also possible that the sample characteristics of the author's social circle are different than the general population.

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

In spite of study limitations, several conclusions can be drawn. First, although a statistically significant difference was not observed it is likely that small coping differences exist between current smokers, former smokers and never smokers. In other words, it is probable that smokers use slightly more avoidant coping strategies than non-smokers. It is also possible that former smokers decrease their use of avoidant coping strategies, although evidence for the latter is limited. However, the clinical utility of this information appears rather limited in that focusing on avoidant coping strategies in prevention or cessation programs will likely do little, if anything, to enhance program efficacy.

Research findings from numerous other studies were also replicated. Consistent with Bruder-Mattson and Hovanitz (1990) this study found that attributional style was related to coping style as well as mood. Like Catanzaro and Greenwood (1994) and Kirsch et al. (1990), this study also found relationships between mood-regulation expectancies, coping and mood. Lastly, this study supports the continuing body of

evidence that suggests avoidant coping strategies are strongly related to negative affect. Despite a limited number of participants, this study found that behavioral and cognitive efforts to avoid stressful situations was associated with increased negative affect. Hayes et al. (1996) proposes that psychopathology is exacerbated when individuals actively avoid experiencing negative emotional states. Assuming that the theory in Hayes et al. (1996 & 1999) is correct, emotional acceptance may play an important role in psychotherapy.

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APPENDICES

APPENDIX A – INFORMED CONSENT FORM

Consent Form: Coping Differences Between Smokers, Former Smokers, Never Smokers

Behavioral Health Research Lab
Frank L. Collins, Ph.D.

“I, _____, hereby authorize or direct Dr. Frank Collins or associates or assistants of his choosing to perform the following treatment or procedure.”

You are being asked to participate in a research study that will look at coping with stressful life events. This is done as part of an investigation entitled Coping Differences Between Smokers, Former Smokers, & Never Smokers.” During this study, you will be asked to complete several questionnaires related to coping with stress. You will also be asked to complete self-report measures concerning mood and smoking behavior.

The tasks should take approximately 60 minutes to complete. Because there is no direct benefit for you in participating in this study, your name will be entered in a raffle in which the grand prize is \$100. Second prize is \$50 and third prize is a \$20.

All information obtained during the study will remain confidential. Records will be coded by number and your name will not appear on any forms other than this consent form. The only individual(s) who will have access to this data are Dr. Frank Collins and the research assistants conducting the project with you.

“I understand that participation is voluntary, that there is no penalty for refusal to participate, and that I am free to withdraw my consent and participation in this project at any time without penalty after notifying the project director.”

I may contact Dr. Frank Collins at (405) 744-6027 should I wish further information about the research. I may also contact: Sharon Bacher, IRB Executive Secretary, Oklahoma State University, 203 Whitehurst, Stillwater, OK 74078.
Phone: (405) 744-5700

“I certify that I am 18 years of age or older and that I have read and fully understand the consent form. I sign it freely and voluntarily. A copy has been given to me.”

Date: _____ Time: _____ (A.M/P.M)”

Signature of Participant

“I certify that I have personally explained all elements of this form to the participant before requesting the subject to sign it.”

Project director or authorized representative

**SMOKERS, FORMER SMOKERS & NON-
SMOKERS NEEDED**

**FOR OSU STUDENT RESEARCH ON
COPING WITH STRESSFUL LIFE EVENTS**

If interested please call Chris at 286-1541
Please leave name, number, and best time to
call.

All participants will be entered in a raffle. First
prize is \$100; Second prize \$50; Third prize is
\$20

Participants will need to spend about 1 hour
filling out questionnaires related to substance
use, mood and coping with stressful life events.

Must be at least 18 years of age.

APPENDIX C – RECRUITMENT SCRIPT

You are being asked to participate in a research study that will look at coping with stressful life events. This is done as part of an investigation entitled Coping Differences Between Smokers, Former Smokers, & Never Smokers.” During this study, you will be asked to complete several questionnaires related to coping with stress. You will also be asked to complete self-report measures concerning mood and smoking behavior. The tasks should take approximately 60 minutes to complete. All information obtained during the study will remain confidential. Records will be coded by number and your name will not appear on any forms other than this consent form. The only individual(s) who will have access to this data are Dr. Frank Collins and the research assistants conducting the project with you.

APPENDIX D – QUESTIONNAIRE PACKET

Subj # _____

Demographic Information

Age _____ Years of Education _____

Gender: Male Female Ethnicity: _____

Occupation of Head of Household: _____

-IF NEVER-SMOKER, PLEASE PROCEED TO THE NEXT QUESTIONNAIRE

SMOKERS ONLY

1. How long have you been a smoker (years/months)? _____
2. How many cigarettes do you smoke a day? _____
3. What is the maximum amount of cigarettes you smoked per day? _____
4. How long did you smoke at your maximum rate (years/months)? _____

FORMER SMOKERS ONLY

1. How long have you been a non-smoker? _____
 2. How many years did you smoke for? _____
 3. How many cigarettes did you used to smoke a day? _____
 4. What is the maximum amount of cigarettes you smoked per day? _____
- How long did you smoke at your maximum rate (years/months)? _____

APPENDIX D – QUESTIONNAIRE PACKET

Subj # _____

Demographic Information

Age _____ Years of Education _____

Gender: Male Female Ethnicity: _____

Occupation of Head of Household: _____

-IF NEVER-SMOKER, PLEASE PROCEED TO THE NEXT QUESTIONNAIRE

SMOKERS ONLY

1. How long have you been a smoker (years/months)? _____
2. How many cigarettes do you smoke a day? _____
3. What is the maximum amount of cigarettes you smoked per day? _____
4. How long did you smoke at your maximum rate (years/months)? _____

FORMER SMOKERS ONLY

1. How long have you been a non-smoker? _____
 2. How many years did you smoke for? _____
 3. How many cigarettes did you used to smoke a day? _____
 4. What is the maximum amount of cigarettes you smoked per day? _____
- How long did you smoke at your maximum rate (years/months)? _____

Fagerstrom Test for Nicotine Dependence

1. How soon after you wake up do you smoke your first cigarette?
 - a. Within 30 minutes
 - b. After 30 minutes
2. Do you find it difficult to refrain from smoking in places where it is forbidden (e.g., in church, at the library, in cinema, etc.)?
 - a. yes
 - b. no
3. Which cigarette would you hate most to give up?
 - a. The first one in the morning
 - b. Any other
4. How many cigarettes per day do you smoke?
 - a. 15 or less
 - b. 16-25
 - c. 26 or more
5. Do you smoke more frequently during the first hours after awakening than during the rest of the day?
 - a. Yes
 - b. No
6. Do you smoke if you are so ill that you are in bed most of the day?
 - a. Yes
 - b. No
7. What is the nicotine level of your usual brand of cigarettes?
 - a. 0.9 mg or less
 - b. 1.0 – 1.2 mg
 - c. 1.3 mg or more
8. Do you inhale?
 - a. Never
 - b. Sometimes
 - c. Always

PANAS

This scale consists of a number of words that describe different feelings and emotions. Read each item and then mark the answer that indicates how you've felt **WITHIN THE LAST 30 DAYS** in the space next to that word. Use the following scale to record your answers.

1	2	3	4	5
Very slightly	a little	moderately	quite a bit	extremely
Or not at all				

_____ interested

_____ irritable

_____ distressed

_____ alert

_____ excited

_____ ashamed

_____ upset

_____ inspired

_____ strong

_____ nervous

_____ guilty

_____ determined

_____ scared

_____ attentive

_____ hostile

_____ jittery

_____ enthusiastic

_____ active

_____ proud

_____ afraid

The Attitudes Toward Feelings Scale

This is a questionnaire to find out what people believe they can do about upsetting emotions or feelings. Please answer the statements by giving as true a picture of your own beliefs as possible. Of course, there are no right or wrong answers. Remember, the questionnaire is about what you believe you can do, not about what you actually or usually do. Be sure to read each item carefully and show your beliefs by circling the appropriate number on your sheet.

If you strongly disagree with an item, circle the number 1. Circle the number 2 if you mildly disagree with the item. That is, circle the number 2 if you think the item is more generally untrue than true according to your beliefs. Circle the number 3 if you feel the item is about equally true as untrue. Circle the number 4 if you mildly agree with the item. That is, circle the number 4 if you think the item is more true than untrue. If you strongly agree with an item, circle the number 5.

1. Strongly disagree
2. Mildly disagree
3. Agree and disagree equally
4. Mildly agree
5. Strongly agree

Please be sure to complete all items and circle only one number. Turn over page and begin.

WHEN I'M UPSET I BELIEVE THAT.....

(circle one)

	Strongly Disagree	Mildly Disagree	Agree & Disagree	Mildly Agree	Strongly Agree
1. I can usually find a way to cheer myself up	1	2	3	4	5
2. I can do something to feel better	1	2	3	4	5
3. Wallowing in it is all I can do	1	2	3	4	5
4. I'll feel okay if I think about more pleasant times	1	2	3	4	5
5. Being with other people will be a drag	1	2	3	4	5
6. I can feel better by treating myself to something I like	1	2	3	4	5
7. I'll feel better when I understand why I feel bad	1	2	3	4	5
8. I won't be able to get myself to do anything about it	1	2	3	4	5
9. I won't feel much better by trying to find some good in the situation	1	2	3	4	5
10. It won't be long before I can calm myself down	1	2	3	4	5
11. It will be hard to find someone who really understands	1	2	3	4	5
12. Telling myself it will pass will help me calm down	1	2	3	4	5
13. Doing something nice for someone will help cheer me up	1	2	3	4	5
14. I'll end up feeling really depressed	1	2	3	4	5
15. Planning how I'll deal with things will help	1	2	3	4	5
16. I can forget about what 's upsetting me pretty easily	1	2	3	4	5
17. Catching up with my work will help me calm down	1	2	3	4	5
18. The advice friends give me won't help me feel better	1	2	3	4	5
19. I won't be able to enjoy the things I usually enjoy	1	2	3	4	5
20. I can find a way to relax	1	2	3	4	5
21. Trying to work the problem out in my head will only make it seem worse	1	2	3	4	5
22. Seeing a movie won't help me feel better	1	2	3	4	5
23. Going out to dinner with friends will help	1	2	3	4	5
24. I'll be upset for a long time	1	2	3	4	5
25. I won't be able to put it out of my mind	1	2	3	4	5
26. I can feel better by doing something creative	1	2	3	4	5
27. I'll start to feel really down about myself	1	2	3	4	5
28. Thinking that things will eventually be better wont help me feel any better	1	2	3	4	5
29. I can find some humor in the situation and feel better	1	2	3	4	5
30. If I'm with a group of people, I'll feel "alone in the crowd"	1	2	3	4	5

Attributional Style Questionnaire

Please try to vividly imagine yourself in the situations that follow. If such a situation happened to you, what would you feel would have caused it? While events may have many causes, we want you to pick only one – the major cause if this event happened to you. Please write this cause in the blank provided after each event. Next we want you to answer some questions about the cause and a final question about the situation. To summarize, we want you to:

1. Read each situation and vividly imagine it happening to you.
2. Decide what you feel would be the *major* cause of the situation if it happened to you.
3. Write on cause in the blank provided.
4. Answer three questions about the *cause*.
5. Answer one question about the *situation*.
6. Go on to the next situation.

You meet a friend who compliments you on your appearance.

1. Write down the *one* major cause _____.

2. Is the cause of friend complimenting you due to something about you or to something about other people or circumstances (circle one number)

Totally due to other people
or circumstances

1 2 3 4 5 6 7

Totally due to me

3. In the future if a friend compliments me, will this cause again be present? (circle one)

Will never again be
present

1 2 3 4 5 6 7

Will always be
present

4. Is the cause something that just influences your friend complimenting you or does it also influence other areas of your life? (circle one number)

Influences just this
particular situation

1 2 3 4 5 6 7

Influences all situations
in my life

You have been looking for a job unsuccessfully for some time.

5. Write down the *one* major cause _____.
6. Is the cause of your unsuccessful job search due to something about you or to something about other people or circumstances (circle one number)
- | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|--|--|-------------------|
| Totally due to other people
or circumstances | | | | | | | | | | Totally due to me |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | | | |
7. In the future when you look for a job, will this cause again be present? (circle one)
- | | | | | | | | | | | |
|--------------------------------|---|---|---|---|---|---|---|--|--|---------------------------|
| Will never again be
present | | | | | | | | | | Will always be
present |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | | | |
8. Is the cause something that just influences looking for a job, or does it also influence other areas of your life? (circle one number)
- | | | | | | | | | | | |
|--|---|---|---|---|---|---|---|--|--|---|
| Influences just this
particular situation | | | | | | | | | | Influences all situations
in my life |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | | | |

You become very rich.

9. Write down the *one* major cause _____.
10. Is the cause of your becoming rich due to something about you or to something about other people or circumstances (circle one number)
- | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|--|--|-------------------|
| Totally due to other people
or circumstances | | | | | | | | | | Totally due to me |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | | | |
11. In your financial future, will this cause again be present? (circle one)
- | | | | | | | | | | | |
|--------------------------------|---|---|---|---|---|---|---|--|--|---------------------------|
| Will never again be
present | | | | | | | | | | Will always be
present |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | | | |
12. Is the cause something that just influences your friend complimenting you or does it also influence other areas of your life? (circle one number)
- | | | | | | | | | | | |
|--|---|---|---|---|---|---|---|--|--|---|
| Influences just this
particular situation | | | | | | | | | | Influences all situations
in my life |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | | | |

A friend comes to you with a problem and you don't try to help him/her.

13. Write down the *one* major cause _____.

14. Is the cause of your not helping your friend due to something about you or to something about other people or circumstances (circle one number)

Totally due to other people
or circumstances

Totally due to me

1 2 3 4 5 6 7

15. In the future when a friend come to you with a problem, will this cause again be present? (circle one)

Will never again be
present

Will always be
present

1 2 3 4 5 6 7

16. Is the cause something that just affects what happens when a friend come to you with a problem, or does it also influence other areas of your life? (circle one number)

Influences just this
particular situation

Influences all situations
in my life

1 2 3 4 5 6 7

You give an important talk in front of a group and the audience reacts negatively.

17. Write down the *one* major cause _____.

18. Is the cause of the audience reaction due to something about you or to something about other people or circumstances (circle one number)

Totally due to other people
or circumstances

Totally due to me

1 2 3 4 5 6 7

19. In the future when you give talks, will this cause again be present? (circle one)

Will never again be
present

Will always be
present

1 2 3 4 5 6 7

20. Is the cause something that just influences giving talks or does it also influence other areas of your life? (circle one number)

Influences just this
particular situation

Influences all situations
in my life

1 2 3 4 5 6 7

You do a project which is highly praised.

21. Write down the *one* major cause _____.

22. Is the cause of your being praised due to something about you or to something about other people or circumstances (circle one number)

Totally due to other people
or circumstances

Totally due to me

1 2 3 4 5 6 7

23. In the future when you do a project, will this cause again be present? (circle one)
Will never again be present

Will always be present

1 2 3 4 5 6 7

24. Is the cause something that just affects doing projects, or does it also influence other areas of your life? (circle one number)

Influences just this
particular situation

Influences all situations
in my life

1 2 3 4 5 6 7

You meet a friend that acts hostilely towards you.

25. Write down the *one* major cause _____.

26. Is the cause of your friends hostility due to something about you or to something about other people or circumstances (circle one number)

Totally due to other people
or circumstances

Totally due to me

1 2 3 4 5 6 7

27. In the future when interacting with friends, will this cause again be present?
(circle one)

Will never again be present

Will always be present

1 2 3 4 5 6 7

28. Is the cause something that just influences interacting with friends, or does it also influence other areas of your life? (circle one number)

Influences just this
particular situation

Influences all situations
in my life

1 2 3 4 5 6 7

You can't get all the work done that others expect of you.

29. Write down the *one* major cause _____.

30. Is the cause of your not getting the work done due to something about you or to something about other people or circumstances (circle one number)

Totally due to other people
or circumstances

Totally due to me

1 2 3 4 5 6 7

31. In the future when doing work that others expect, will this cause again be present?
(circle one)

Will never again be
present

Will always be
present

1 2 3 4 5 6 7

32. Is the cause something that just affects doing work that others expect of you or does it also influence other areas of your life? (circle one number)

Influences just this
particular situation

Influences all situations
in my life

1 2 3 4 5 6 7

Your spouse (boyfriend/girlfriend) has been treating you more lovingly.

33. Write down the *one* major cause _____.

34. Is the cause of your spouse (boyfriend/girlfriend) treating you more lovingly due to something about you or to something about other people or circumstances
(circle one number)

Totally due to other people
or circumstances

Totally due to me

1 2 3 4 5 6 7

35. In the future with your spouse (boyfriend/girlfriend), will this cause again be present? (circle one)

Will never again be
present

Will always be
present

1 2 3 4 5 6 7

36. Is the cause something that just affects how your spouse (boyfriend/girlfriend) treats you or does it also influence other areas of your life? (circle one number)

Influences just this
particular situation

Influences all situations
in my life

1 2 3 4 5 6 7

You apply for a position that you want very badly (e.g., important job, graduate school admission, etc.) and you get in.

37. Write down the *one* major cause _____.

38. Is the cause of your getting the position due to something about you or to something about other people or circumstances (circle one number)

Totally due to other people or circumstances

Totally due to me

1 2 3 4 5 6 7

39. In the future when you apply for a position, will this cause again be present? (circle one)

Will never again be present

Will always be present

1 2 3 4 5 6 7

40. Is the cause something that just influences applying for a position or does it also influence other areas of your life? (circle one number)

Influences just this particular situation

Influences all situations in my life

1 2 3 4 5 6 7

You go out on a date and it goes badly.

41. Write down the *one* major cause _____.

42. Is the cause of the date going badly due to something about you or to something about other people or circumstances (circle one number)

Totally due to other people or circumstances

Totally due to me

1 2 3 4 5 6 7

43. In the future when you are dating, will this cause again be present? (circle one)

Will never again be present

Will always be present

1 2 3 4 5 6 7

44. Is the cause something that just influences dating or does it also influence other areas of your life? (circle one number)

Influences just this particular situation

Influences all situations in my life

1 2 3 4 5 6 7

You get a raise.

45. Write down the *one* major cause _____.

46. Is the cause of your getting a raise due to something about you or to something about other people or circumstances (circle one number)

Totally due to other people
or circumstances

Totally due to me

1 2 3 4 5 6 7

47. In the future on your job, will this cause again be present? (circle one)

Will never again be
present

Will always be
present

1 2 3 4 5 6 7

48. Is the cause something that just affects getting a raise or does it also influence other areas of your life? (circle one number)

Influences just this
particular situation

Influences all situations
in my life

1 2 3 4 5 6 7

Table 1
Participant Characteristics

	<u>Smokers</u>	<u>Former Smokers</u>	<u>Never Smokers</u>	<u>Total Sample</u>
<u>Gender</u>				
Male	11 (37%)	11 (42%)	11 (37%)	33 (38%)
Female	19 (63%)	15 (58%)	19 (63%)	53 (62%)
<u>Mean Age (yrs)</u>	38.5	46.3	40.5	41.6
<u>Ethnicity</u>				
Caucasian	19 (70%)	22 (96%)	24 (83%)	65 (82%)
African American	5 (19%)	0 (0%)	3 (10%)	8 (10%)
Native American	2 (7%)	0 (0%)	2 (7%)	4 (5%)
Hispanic	1 (4%)	1 (4%)	0 (0%)	2 (3%)
<u>Hollingshead Index</u>	8.77	9.23	5.36	7.64

Table 2
Current Smokers' Demographics

	N	Minimum	Maximum	Mean
Number of years smoking	30	5.0	50.0	21.350
Number of cigarettes per day	30	10.0	60.0	17.817
Fagerstrom Score	23	2.0	9.0	4.913

Table 3
Former Smokers Demographics

	N	Minimum	Maximum	Mean
Number of years quit	26	1.0	27.0	9.254
Number of years smoked	26	4.0	43.0	17.846
Number of cigarettes smoked per day	26	10.0	60.0	22.135

Table 4
Tests for Group Differences for Gender, Age, and Social Status

GENDER * GROUP Crosstabulation

		GROUP			Total
		Smoker	Former Smoker	Never Smoker	
GENDER	Male	11	11	11	33
	Female	19	15	19	53
Total		30	26	30	86

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.244	2	.885
Likelihood Ratio	.243	2	.886
Linear-by-Linear Association	.000	1	1.000
N of Valid Cases	86		

a 0 cells (.0%) have expected count less than 5. The minimum expected count is 9.98.

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
AGE	Between Groups	902.809	2	451.404	2.601	.080
	Within Groups	14404.505	83	173.548		
	Total	15307.314	85			
SOCIAL	Between Groups	234.500	2	117.250	2.818	.066
	Within Groups	3036.908	73	41.601		
	Total	3271.408	75			

Table 5
Group Means on the WBSI, WOC-EA, PANAS(PA), and PANAS(NA)

		N	Mean	Std. Deviation	Std. Error	Minimum	Maximum
WBSITOT	Smoker	29	40.724	16.197	3.008	18.0	73.0
	Former Smoker	24	37.625	12.883	2.630	19.0	66.0
	Never Smoker	30	35.300	9.862	1.800	17.0	50.0
	Total	83	37.867	13.261	1.456	17.0	73.0
WOCEA	Smoker	30	6.533	4.783	.873	.0	16.0
	Former Smoker	25	6.280	5.152	1.030	1.0	20.0
	Never Smoker	30	5.633	4.752	.868	.0	20.0
	Total	85	6.141	4.841	.525	.0	20.0
PANASPA	Smoker	29	35.414	6.801	1.263	19.0	50.0
	Former Smoker	24	35.292	5.827	1.189	26.0	49.0
	Never Smoker	27	37.407	4.668	.898	26.0	47.0
	Total	80	36.050	5.865	.656	19.0	50.0
PANASNA	Smoker	29	19.379	8.817	1.637	10.0	39.0
	Former Smoker	24	19.958	7.810	1.594	10.0	42.0
	Never Smoker	27	17.185	6.552	1.261	11.0	36.0
	Total	80	18.813	7.801	.872	10.0	42.0

Table 6

ANOVA's for Group Differences on WBSI, WOC-EA, PANAS(PA), and PANAS(NA)

		Sum of Squares	df	Mean Square	F	Sig.
WBSITOT	Between Groups	435.824	2	217.912	1.247	.293
	Within Groups	13983.718	80	174.796		
	Total	14419.542	82			
WOCEA	Between Groups	12.833	2	6.416	.269	.765
	Within Groups	1955.473	82	23.847		
	Total	1968.306	84			
PANASPA	Between Groups	75.289	2	37.644	1.097	.339
	Within Groups	2642.511	77	34.318		
	Total	2717.800	79			
PANASNA	Between Groups	112.328	2	56.164	.921	.402
	Within Groups	4695.860	77	60.985		
	Total	4808.188	79			

Table 7
Effect Size and Power Comparisons

<u>Measure</u>	<u>Effect Size</u>	<u>Power</u>
WBSI	0.17	0.26
WOCEA	0.08	0.09
PANAS(PA)	0.17	0.15
PANAS(NA)	0.24	0.2

Table 8
Zero-order Correlations Among Smoking Expectations and Coping Variables

	<u>WBSI</u>	<u>WOC-EA</u>	<u>WOC-PPS</u>
<u>SCQ - POS</u>	0.05	0.11	-0.05
<u>SCQ - NEG</u>	0.27	0.36	0.12

All p's = n.s.

Table 9
Correlations Among Affect and Coping Variables

	<u>WBSI</u>	<u>WOC-EA</u>	<u>WOC-PPS</u>
<u>PANAS(PA)</u>	-0.09	-0.17	.26*
<u>PANAS(NA)</u>	.32**	.43**	-0.03

*p < .05. **p < .01.

Table 10
Zero-order Correlations Among Attributions and Affect Variables

	<u>PANAS(PA)</u>	<u>PANAS(NA)</u>
<u>Negative Events</u>		
Internal	(-) .36**	0.04
Stable	-0.17	0.14
Global	(-) .29**	0.21
<u>Positive Events</u>		
Internal	0.28*	-0.17
Stable	0.16	0.12
Global	0.18	-0.02

*p < .05. **p < .01.

Table 11
Zero-order Correlations Among Attributions and Coping Variables

	<u>WBSI</u>	<u>WOC-EA</u>	<u>WOC-PPS</u>
<u>Negative Events</u>			
Internal	0.02	0.05	0.01
Stable	0.34*	0.21	-0.05
Global	0.30**	0.28*	-0.09
<u>Positive Events</u>			
Internal	-0.18	-0.2	0.19
Stable	0.13	0	-0.02
Global	-0.04	0.04	0.1

*p < .05. **p < .01.

Table 12

Zero-order Correlations Among NMR Expectancies, Affect, and Coping Variables

	<u>WBSI</u>	<u>WOC-EA</u>	<u>WOC-PPS</u>	<u>PANAS(PA)</u>	<u>PANAS(NA)</u>
<u>NMR</u>	(-) 0.37**	(-) 0.38**	0.11	.36**	(-) 0.34**

*p < .05. **p < .01.

Table 13

Group Means on the ASQ subscales and NMR Questionnaire

		N	Mean	Std. Deviation	Std. Error
ASQGSB	Smoker	29	24.793	6.560	1.218
	Former Smoker	24	23.542	7.223	1.474
	Never Smoker	27	21.593	5.264	1.013
	Total	80	23.338	6.434	.719
ASQSUB	Smoker	29	25.310	4.481	.832
	Former Smoker	24	25.042	5.879	1.200
	Never Smoker	27	24.519	4.273	.822
	Total	80	24.963	4.827	.540
ASQIEB	Smoker	29	28.069	5.385	1.000
	Former Smoker	24	26.542	5.641	1.152
	Never Smoker	27	23.741	6.267	1.206
	Total	80	26.150	5.988	.669
ASQSGS	Smoker	30	32.400	5.846	1.067
	Former Smoker	25	32.680	6.440	1.288
	Never Smoker	26	31.962	5.688	1.116
	Total	81	32.346	5.919	.658
ASQSUG	Smoker	30	32.367	4.098	.748
	Former Smoker	25	32.680	3.485	.697
	Never Smoker	27	31.444	4.173	.803
	Total	82	32.159	3.933	.434
ASQIEG	Smoker	30	31.233	5.563	1.016
	Former Smoker	25	31.840	5.105	1.021
	Never Smoker	27	31.333	4.788	.921
	Total	82	31.451	5.121	.566
NMRTOT	Smoker	29	107.379	20.538	3.814
	Former Smoker	23	107.826	16.469	3.434
	Never Smoker	28	108.786	9.445	1.785
	Total	80	108.000	15.997	1.789

Table 14

Analysis of variance tests for group differences on the ASQ subscales and NMR

		Sum of Squares	df	Mean Square	F	Sig.
ASQGSB	Between Groups	144.652	2	72.326	1.782	.175
	Within Groups	3125.235	77	40.587		
	Total	3269.888	79			
ASQSUB	Between Groups	8.982	2	4.491	.189	.828
	Within Groups	1831.906	77	23.791		
	Total	1840.887	79			
ASQIEB	Between Groups	267.194	2	133.597	4.011	.022
	Within Groups	2565.006	77	33.312		
	Total	2832.200	79			
ASQGSB	Between Groups	6.719	2	3.360	.094	.911
	Within Groups	2795.602	78	35.841		
	Total	2802.321	80			
ASQSUG	Between Groups	21.866	2	10.933	.702	.499
	Within Groups	1231.073	79	15.583		
	Total	1252.939	81			
ASQIEG	Between Groups	5.578	2	2.789	.104	.901
	Within Groups	2118.727	79	26.819		
	Total	2124.305	81			
NMRTOT	Between Groups	29.154	2	14.577	.056	.946
	Within Groups	20186.846	77	262.167		
	Total	20216.000	79			

Oklahoma State University
Institutional Review Board

Protocol Expires: 4/2/02

Date : Tuesday, April 03, 2001

IRB Application No AS0144

Proposal Title: COPING DIFFERENCES BETWEEN SMOKERS, FORMER SMOKERS AND NEVER SMOKERS

Principal Investigator(s) :

Christopher Neumann
205 N Murray
Stillwater, OK 74078

Frank Collins, Jr.
205 N Murray
Stillwater, OK 74078

Reviewed and Processed as: Expedited

Approval Status Recommended by Reviewer(s) : Approved

Signature :



Carol Olson, Director of University Research Compliance

Tuesday, April 03, 2001
Date

Approvals are valid for one calendar year, after which time a request for continuation must be submitted. Any modifications to the research project approved by the IRB must be submitted for approval with the advisor's signature. The IRB office MUST be notified in writing when a project is complete. Approved projects are subject to monitoring by the IRB. Expedited and exempt projects may be reviewed by the full Institutional Review Board.

VITA 2

Christopher Neumann

Candidate for the Degree of

Master of Science

Thesis: COPING DIFFERENCES BETWEEN SMOKERS FORMER SMOKERS AND NEVER SMOKERS

Major Field: Psychology

Personal Data: Born in Chicago, Illinois January 24, 1977.

Education: Received Bachelor of Arts degree in Psychology from Benedictine University in May, 1999. Completed the requirements for the Master of Science degree with a major in Psychology at Oklahoma State University in August, 2002.

Experience: Employed by Edward Hines Jr. Veteran Hospital in Maywood, Illinois from 1998-1999. Employed by Oklahoma State University Department of Psychology as a graduate assistant from August, 1999 to present.

Professional Memberships: American Psychological Association student affiliate.