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Pessimistic and Optimistic Personality Traits among Tennessee Adult Tobacco Smokers and Nonsmokers in Selected Worksites

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To the Graduate Council:

I am submitting herewith a dissertation written by Kandi Delyn Qualls entitled "Pessimistic and Optimistic Personality Traits among Tennessee Adult Tobacco Smokers and Nonsmokers in Selected Worksites." I have examined the final electronic copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Human Ecology.

June Gorski, Major Professor

We have read this dissertation and recommend its acceptance:

Gregory Petty, Susan Smith, Randall Pierce

Accepted for the Council:

Carolyn R. Hodges

Vice Provost and Dean of the Graduate School

(Original signatures are on file with official student records.)

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Susan Smith

Randall Pierce

Accepted for the Council:

Anne Mayhew
Vice Chancellor and Dean of
Graduate Studies

(Original signatures are on file with official student records.)

PESSIMISTIC AND OPTIMISTIC PERSONALITY TRAITS AMONG
TENNESSEE ADULT TOBACCO SMOKERS AND NONSMOKERS IN
SELECTED WORKSITES

A Dissertation

Presented for the

Doctor of Philosophy Degree

The University of Tennessee, Knoxville

Kandi Delyn Qualls
May 2006

Abstract

The purpose of this study was to examine pessimistic and optimistic personality traits and an adults' tobacco smoking status.

The study population consisted of three Tennessee worksites that gave written permission for data collection. The worksites were comprised of both blue and white collar employees. A convenience sampling technique was used to collect the data. The study sample consisted of 152 employed adults. The sample included adult smokers, nonsmokers and former smokers. Data was collected using a valid and reliable instrument called "Optimism/Pessimism Instrument" (Dember, Martin, Hummer, Howe and Melton, 1989), and a data sheet which included questions about age, gender, education, smoking status, and tobacco usage. A MANOVA, ANOVA and Spearman correlation were implemented to analyze the data.

The findings of this study revealed that there is a significant difference between pessimistic and optimistic personality traits, and smokers and nonsmokers. Alternate hypothesis 1 was accepted, which concluded that smokers are significantly more pessimistic in their personality than nonsmokers. Alternate hypothesis #2 was accepted, nonsmokers are significantly more optimistic in their personality than smokers. The data analysis also reported a significant difference between smokers and former smokers. Former smokers were significantly more optimistic in their personality than smokers. There was no significant difference between nonsmokers and former smokers.

These findings have implications for health educators and clinicians who are primarily responsible for developing smoking cessation and tobacco prevention programs in worksite settings. By examining these personality traits, insights and strategies may be gained for further development of clinical and community-based interventions to help tobacco users quit smoking.

Table of Contents

Chapter	Page
I. Introduction.....	1
Statement of the Problem.....	3
Purpose of the Study.....	4
Alternate Hypotheses.....	5
Research Question.....	5
Need for the Study.....	5
Basic Assumptions.....	7
Delimitations of the Study.....	7
Limitations.....	7
Definitions of Terms.....	8
Rationale.....	9
Summary of Chapter I.....	12
II. Review of Literature.....	14
Adult Smoking Trends in the United States.....	14
Section Summary.....	24
Adult Smoking Cessation Measures.....	26
Section Summary.....	36
Optimistic and Pessimistic Personality Affecting the Health of an Individual.....	37
Section Summary.....	44
Personality Traits That Contribute to an Individual's Smoking Status.....	45
Section Summary.....	49
Summary of Chapter II.....	50
III. Methodology.....	52
Sample Population.....	52
Instrumentation.....	53
Data Collection.....	56
Methods for Data Analysis.....	57
Summary of Chapter III.....	59
IV. Data Analysis and Results.....	60
Introduction.....	60
Sample Characteristics.....	61
Optimism and Pessimism Characteristics of the Sample.....	65
Statistical Analysis.....	67
Summary of Chapter IV.....	79

V.	Findings, Conclusions and Recommendations	80
	Importance of the Study	80
	Procedures Followed	80
	Findings of the Alternate Hypotheses and Research Question	81
	Conclusions	83
	Recommendations	88
	Recommendations for Further Research.....	89
	Summary of Chapter V	89
VI.	The Study in Retrospect	91
	Researcher’s Reflections.....	91
	Concluding Remarks	92
	References	94
	Appendices	102
	Appendix A: Worksite Permission Letters	103
	Appendix B: Worksite Flyer.....	107
	Appendix C: “Optimism and Pessimism” Instrument and Information Sheet	109
	Vita	115

Lists of Tables

Table	Page
1. Demographics of the Sample.....	62
2. Demographics of the Smokers.....	64
3. Personality Score Mean Distribution	66
4. Smoking Status and Single Optimism-Pessimism Score ANOVA.....	68
5. Smoking Status and Single Optimism-Pessimism Score Post Hoc.....	68
6. Optimism and Pessimism Score, and Smoking MANOVA.....	70
7. Optimism and Pessimism, and Smoking Status Post Hoc.....	70
8. Single Optimism-Pessimism Score and Gender ANOVA.....	71
9. Optimism and Pessimism Score, and Gender MANOVA.....	72
10. Single Optimism-Pessimism Score and Age Group ANOVA.....	73
11. Optimism and Pessimism Score, and Age Group MANOVA	73
12. Single Optimism-Pessimism Score and Occupation ANOVA	75
13. Optimism and Pessimism Score, and Occupation MANOVA.....	75
14. Single Optimism-Pessimism Score and Education ANOVA	77
15. Optimism and Pessimism Score, and Education MANOVA	77
16. Personality and Education Correlation Coefficient.....	78

Chapter I

Introduction

Since 1964, 28 Surgeon Generals' reports on smoking and health have concluded that tobacco use is the single most preventable cause of disease, disability, and death in the United States (US Department of Health and Human Services 2000 and 2002). Over the past four decades, cigarette smoking has caused an estimated 12 million deaths. This includes 5.5 million deaths from cardiovascular disease, 4.1 million deaths from cancer, 2.1 million deaths from respiratory diseases, and 94,000 infant deaths related to mothers smoking during pregnancy (Centers for Disease Control and Prevention, CDC, 2005b).

An estimated 45.8 million adults in the United States smoke cigarettes even though this single behavior will result in death or disability for half of all regular tobacco users who smoke. Tobacco use accounts for approximately 440,000 deaths each year. Additionally, 8.6 million people have at least one serious illness caused by smoking (CDC, 2005b).

Paralleling this enormous health toll is the economic burden of tobacco use. The direct and indirect costs of smoking-related illnesses total more than \$157 billion a year. This includes more than \$75 billion per year in medical expenditures and \$80 billion per year resulting from lost productivity (CDC, 2005b).

The national health objective 27-1a, cited in Healthy People 2010, is to reduce the prevalence of cigarette smoking among adults to $\leq 12\%$ (Department of Health and Human Services, 2002). To assess progress toward this objective,

the CDC analyzed self-reported data from the 2004 National Health Interview Survey (NHIS). The results of that analysis indicated that, approximately 20.9% of U.S. adults were current smokers (CDC, 2005a). Although this prevalence is lower than the 22.5% prevalence among U.S. adults in 2002 and significantly lower than the 22.8% prevalence in 2001, the rate of decline is not sufficient to meet the national health objective for 2010. Therefore, the Surgeon General's Report and the Centers for Disease Control and Prevention recommend that smokers need interventions that are comprehensive and sustained to reduce the rate of smoking initiation and increase the rate of cessation to decline cigarette smoking among adults (Department of Health and Human Services, 2002). Methods to accomplish this vary; however, "a comprehensive approach is one that optimizes synergy from applying a mix of educational, clinical, regulatory, economic and social strategies" (Centers for Disease Control and Prevention, 2000).

In 2004, Tennessee's adult smoking population was 26.1%, which was above the national average (CDC, 2004a). Individual areas in Tennessee have also been above the national smoking prevalence; Knoxville had a prevalence of 30.5% (Giovino, 2002); Nashville-Davidson-Murfreesboro metropolitan area had a prevalence of 26.4% (CDC, 2002); and Shelby County had a prevalence of 25.0% (CDC, 2002). In the year 2002, 9,600 adults in Tennessee died from personal smoking. Not only does a high percentage of smoking aid in an individual's death, it also drains the annual budget due to rising health care costs for smokers. Tennessee's annual health care expenditures related to smoking

were \$1.69 billion in 2003. The annual health care portion covered by TennCare was \$531 million (National Center for Tobacco-Free Kids, 2003).

The impact of smoking is transferred to employers as well. It was estimated that Tennessee employers spent \$2.44 billion on the productivity losses caused by smoking (National Center for Tobacco-Free Kids, 2002). On average, employers spend a minimum of \$500.00 more a year in health insurance costs for smokers compared to nonsmokers. If employers in the United States of America enacted or promoted a smoking cessation program, the employers could save \$8.3 million dollars to \$14.0 million dollars in a 20 year period (Halpern, Khan, Young and Battista, 2000).

Of the people alive in the world, 3 million are predicted to die each year; and 10 million people are estimated to die in 30-40 years due to tobacco use (Peto, Lopez, Boreham, Thun and Heath, 1996). Those who are predicted to die from tobacco use will lose an average of ten years of life. Modest breakthroughs in developing interventions with greater impact on populations of smokers could prevent millions of premature deaths and save billions of years of life (Prochaska, 1996). Tobacco use has been a major health issue in the United States of America (U.S.A.) and, the population continues to have a need for effective prevention and cessation programs.

Statement of the Problem

Smoking is the leading preventable cause of death in the United States of America. Smoking behaviors have slowly declined in the past few years, but the USA needs to reduce adult smoking by 8.9% to reach the national health

objective of $\leq 12\%$ as stated in Healthy People 2010 (CDC, 2005a). Therefore, the CDC and Surgeon General recommends that sustained, comprehensive interventions are needed to increase the rate of cessation (CDC, 2000 & 2005b).

Current smoking cessation measures, smoking cessation programs and nicotine replacement therapy have shown to help only in a small percentage of the smoking population (Pierce and Gilpin, 2002). Current smoking cessation interventions are either clinic-based or community-based. These two types of interventions pose issues with smoking cessation. Clinic-based interventions have been known to produce the highest rates of abstinence with the lowest participation rates (Fiore, Bailey, Cohen, Dorfman, Goldstein, Gritz, Heyman, Hollbrok, Jaen, Kottke, Lando, Mecklenberg, Mullen, Nett, Robinson, Stitzer, Tommaysello, Villejo and Wewers, 1996). Community-based interventions reach entire communities of smokers, but produce the lowest abstinence rates. (Carleton, Lasater, Assaf, Feldman, McKinlay, and The Pawtucket Heart Health Program Writing group, 1995; Lando, Pechacek, Pirie, Murray, Mittlemark, Lichtenstein, Notwehr and Gray, 1995). Integrating clinical and community-based approaches into smoking cessation, could maximize participation rates without sacrificing abstinence rates (Fiore, et al., 1996).

Purpose of the Study

The purpose of this study was to examine pessimistic and optimistic personality traits and an adult's tobacco smoking status. By examining these variables, insights and strategies may be gained for further development of clinical and community-based interventions to help tobacco users quit smoking.

Alternate Hypotheses

The following alternate hypotheses were identified:

H_{A1}: Adult tobacco smokers are significantly more pessimistic in their personality than adult nonsmokers at an alpha <.05 using the “Optimism/Pessimism Instrument”.

H_{A2}: Adult nonsmokers are significantly more optimistic in their personality than adult tobacco smokers at an alpha <.05 using the “Optimism/Pessimism Instrument”.

Research Question

1. Are there any other correlations between the personality scores and nonsmokers, smokers, former smokers, age, gender, education, and occupation?

Need for the Study

In the United States, smokers have been offered the means and opportunities to quit through cessation programs and nicotine replacement therapy to help reduce the health care costs directly and indirectly related to smoking. Cessation programs only help a small percentage of smokers, and nicotine replacement therapy can be expensive to use. Nicotine replacement therapy’s effect on helping moderate to light smokers quit is almost equal to a placebo (Pierce and Gilpin, 2002). Due to the lack of successful programs and drugs, there must be other factors not addressed in smoking cessation programs that are contributing to the usage of tobacco among adults (Pierce and Gilpin, 2002).

Studies have found that personality has a significant relationship to the desire to smoke or not to smoke. Researchers have shown a significant relationship between a person's optimism and protective health behaviors, such as eating healthy, exercising, and choosing not to smoke (Maruta, Colligan, Malinchoc and Offord, 2000; Maruta, Colligan, Malinchoc and Offord, 2002; and Chang, 2001) . Almedia and Pfaff (2005) have shown a link between older person's (65 years and older) depressive symptoms and one's smoking status. Lipkus, Barefoot, Williams and Seigler (1994) showed that out of the six personality variables they investigated, hostility emerged as a significant disposition that distinguished ex-smokers from current smokers. Hamymen, Varianinen, Sahi, Pallonen and Salonen (1987) found that personality traits such as rebelliousness and general pessimism were strongly associated with the likelihood of becoming a current smoker. Qualls (2002) found that a significant relationship existed between a teenager's smoking status, and pessimism and optimism traits. The study showed that teen smokers were more pessimistic in their personality than were teen nonsmokers.

Based upon the literature review, personality traits may have an affect on an adult's decision to smoke tobacco. Additionally, there is the possibility that a link exists between pessimistic personality traits and one's desire to smoke, and optimistic personality traits and one's desire not to smoke.

Basic Assumptions

The following assumptions were made regarding this study:

1. Adults possess either a pessimistic or optimistic personality.
2. The optimistic or pessimistic personality traits remain constant in adults.
3. The adult subjects will be candid and honest in responding to the personality inventory and information sheet.
4. The instrument used in this study is reliable and valid.

Delimitations of the Study

For the purpose of this study the following delimitations were made:

1. The population was delimited to adults employed at selected worksites in Tennessee.
2. The study was delimited to adults who volunteered to participate in the study.

Limitations

This study was limited in the following ways:

1. There was a dependence on self-reported data.
2. There was bias data due to the subjects trying to anticipate the agenda of the researcher.

Definition of Terms

The following terms were defined operationally for the purpose of the study:

Adult: A person who is 18 years of age or older.

Explanatory Style: Stable patterns of causal attributions individuals make for positive and negative events in their lives (Handbook of Personality Psychology, 1997).

Former Smoker: A person who has been completely abstinent from smoking for at least six months (Velicer, Prochaska and Rossi, 1992).

Nonsmoker: A person who has smoked less than 100 cigarettes in their lifetime and is not currently smoking everyday or some days (Centers for Disease Control and Prevention, 2005b).

Optimism: Represents a bias in perceptions and expectations in favor of the positive features of life (Dember, Martin, Hummer, Howe and Melton, 1989).

Optimism Score: a score that is generated by adding scale values (1,2 3, or 4) from the completed survey; a lower score means high optimism (Dember, et. al, 1989).

Personality Trait: a consistent pattern of thoughts, feelings or actions that distinguish people from one another (Handbook of Personality Psychology, 1997).

Personality Trait of Optimism: A stable, generalized expectation that positive things will happen (Handbook of Personality Psychology, 1997).

Personality Trait of Pessimism: A stable, generalized expectation that negative things will happen (Handbook of Personality Psychology, 1997).

Pessimism: Represents a bias in perceptions and expectations in favor of the negative features of life (Dember, et al., 1989).

Pessimism Score: a score that is generated by adding scale values (1,2 3, or 4) from the completed survey; a lower score means high pessimism (Dember, et. al, 1989).

Single Optimism-Pessimism Score: a score that combines the optimistic and the reverse pessimistic sub-scores to measure their personality on a larger scale (17-126 point scale); a low score means high optimism and a high score means high pessimism (Dember, et. al, 1989).

Smoker: A person who has smoked at least 100 cigarettes in one's lifetime, and who currently smokes everyday or some days. (CDC, 2005b).

Rationale

This study's rationale was based upon literature that describes how adult smoking behavior is declining. According to the National Health Interview Survey of 2004, 20.9% of U.S.A. adults were smokers (CDC, 2005a). Although this prevalence is lower than the 22.5% prevalence among U.S.A. adults in 2002 and significantly lower than the 22.8% prevalence in 2001, the rate of decline is not sufficient to meet the national health objective 27-1a for Healthy People 2010 (Department of Health and Human Services, 2002). There is a need to reduce adult smoking by 8.9% to reach the national health objective 27-1a, which is adult smoking at $\leq 12\%$ by the year 2010. Therefore, the CDC recommends that

sustained, comprehensive interventions are needed to increase the rate of smoking cessation (CDC, 2005b).

Adult Smoking Prevalence

The current measures that have aided the decline of adult smokers include: increased taxation of tobacco products, smoking bans in private and public places, anti-tobacco media campaigns, and population-based smoking cessation programs (Giovino, 2002). Out of these large-scale programs the smoking cessation programs have produced the lowest success rate (Pierce and Gilpin, 2002). The literature suggests that programs need to focus more on factors related to smoking and to be more individualized for a successful program (Prochaska, 1996; Prochaska, Velicer, Fava, Rossi and Tosh, 2001; Pierce and Gilpin, 2002). Therefore, there is a need to investigate other variables that may be linked to one's smoking behavior.

Personality

Literature suggests that a person's personality can either positively or negatively affect one's health. Lipkus, Barefoot, Williams and Seigler (1994) concluded that hostility may be an important variable in initiating and maintaining a smoking habit. O'Toole and Torabi (2001) found that nonsmokers were more extroverted than smokers, and smokers were more introverted than nonsmokers. Hamymen, Varianinen, Sahi, Pallonen and Salonen (1987) discovered that personality traits such as rebelliousness and general pessimism were strongly associated with the likelihood of becoming a current smoker. Literature supports

that there is a strong indication that smokers and nonsmokers have different personality traits.

Optimism and Pessimism

Literature related to pessimism and optimism, in regards to a person's health suggests that optimism can positively affect an individual's health, and pessimism can negatively affect an individual's health. Maruta, Colligan, Malinchoc and Offord's (2000) long-term study concluded that pessimism, as measured by the Optimism-Pessimism scale of the MMPI, is significantly associated with increased mortality in general medical patients. Chang's (2001) research of studies found that when a person is optimistic it can reduce the onset of illness, minimize the severity of the illness, aid in a fast recovery and reduce the occurrence of future relapse. Kubzansky, Sparrow, Vokonas and Kawachi (2001) found that a dose-response relationship existed between optimism and the risk of heart disease. They concluded that having an optimistic explanatory style may protect against risk of coronary heart disease in older men. Maruta, Colligan, Malinchoc and Offord's (2002) findings showed that individuals with poorer health were more pessimistic than both groups (optimistic and mixed). The authors (Maruta, et al., 2002) concluded that pessimism reflected by higher PSM scale scores, were significantly associated with a self-report of poorer physical and mental functioning. The literature supports that optimism can positively affect and pessimism can negatively affect an individual's health.

Optimism and Pessimism, and Smoking

Qualls (2002) discovered that a significant relationship existed between a teenagers smoking status and pessimism and optimism traits. Teenage smokers were significantly more pessimistic in their personality than nonsmokers. Teenage nonsmokers were significantly more optimistic in their personality than smokers. The thesis authored by Qualls (2002) supported that there was a personality difference between teenage smokers and nonsmokers. This significance may also pertain to adult smokers.

Personality factors are baseline factors that could help improve tobacco control programs. Literature supports that personality does have a relationship to one's smoking status. In relation to specific personality traits, literature supports that pessimism and optimism have the potential of significantly impacting one's smoking status.

Summary of Chapter I

This chapter introduced a link between personality traits and an individual's smoking status. Since efforts to reduce smoking through cessation are not adequate to help smokers quit, there is a need for investigating new factors that will aide in helping an individual to quit smoking. Personality traits, or more specifically pessimism and optimism traits, may be a hidden link that would aid smokers to quit successfully when incorporated into a smoking cessation program. A review of the literature indicated pessimistic and optimistic personality traits can have a positive effect on current smoking cessation

measures. This effect could enhance smoking cessation measures and improve success rates.

The remainder of the study was organized into five chapters. The next chapter presented a detailed review of literature pertaining to adult smoking trends, current adult smoking cessation measures, pessimistic and optimistic personality traits affecting the health of individuals, and personality traits that contribute to an individual's smoking status. Chapter III focused on the research methods and procedures. This included the sample selection, instrumentation, data collection and data analysis. Chapter IV presented the data analysis and results of the study. Chapter V consisted of the findings, conclusions, and recommendations. Finally, Chapter VI addressed the study in retrospect. This chapter focused on the author's reflections and insights.

Chapter II

Review of Literature

The purpose of this chapter was to review literature research related to smoking trends in the United States, adult smoking cessation measures, pessimistic and optimistic personality traits affecting the health of an individual, and personality traits that contribute to an individual's smoking status.

Adult Smoking Trends in the United States

The purpose of this section was to present research related to adult smoking trends in the United States. It includes smoking trends in the overall population, by state, local area, gender, age, education and occupation.

Giovino (2002) explored the epidemiology of tobacco use in the United States. The trends focused on adult smoking from 1965 to 2000. According to the literature reviewed by Giovino (2002), the prevalence of smoking among U.S. adults was 42.2% in 1965 and declined to 23.3% in 2000. The prevalence of cessation increased from 24.3% in 1965 to 49.6% in 2000. The prevalence of adults who were nonsmokers increased substantially from 45.8% in 1985 to 54.6% in 2000. The decline of adult smoking was attributed to the many public health interventions that have occurred since 1965. Those interventions have included tobacco education, tobacco cessation, raising excise taxes, providing smoke-free indoor air areas, and anti-tobacco media campaigns.

Giovino (2002) obtained his data from population-based surveys of trends and patterns of tobacco use that provided estimates at the national, regional and state levels. These surveys included the National Household Survey on Drug

Abuse, Behavioral Risk Factor Surveillance System, National Health Interview Survey, and Current Population Survey Tobacco Control Supplements. Giovino (2002) used the results of these surveys separately and also in combination when compiling data for the epidemiologic review.

To define smoking status, the surveys used the following criteria: 1) those persons who have reported they have smoked at least 100 cigarettes in their lifetime were defined as current smokers (from 1965 – 1991). Since 1992, current smokers were defined as persons who have smoked at least 100 cigarettes in their lifetime and who smoked either every day or on some days. 2) Those persons who reported smoking less than 100 cigarettes in their lifetime were defined as nonsmokers. 3) Those persons who smoked at least 100 cigarettes in their lifetime and reported that they no longer smoked were defined as former smokers (from 1965 – 1991). Since 1992, former smokers were defined as those who have smoked at least 100 cigarettes in their lifetime, reported that they did not smoke everyday or on some days (Centers for Disease Control, 1994).

The smoking trends that Giovino (2002) examined among adults have shown that since 1965 the smoking prevalence has declined significantly. The biggest decline has been in the large scale interventions enacted by specific states such as California that have focused on strict indoor air policies, anti-tobacco media campaigns, and having high excise tax on tobacco products. The author expressed that from an epidemiological view there is still a need to focus on all the environmental factors that affect tobacco trends. These factors include

the individual, familial, social, cultural, economic, historical, political, and media-based areas. By integrating all environmental factors in the effort to reduce tobacco use, we can reduce tobacco-attributable disease and death in the 21st century (Giovino, 2002).

The Centers for Disease Control and Prevention (CDC, 2005a,b and c) examined smoking prevalence among adults in the United States using the National Health Institute Survey (NHIS). This survey reported the annual prevalence of current smoking among U.S. adults declined from 24.7% in 1997 to 20.9% in 2004 (CDC, 2005a and b). For the period January - June 2005, 20.9% of adult aged 18 years and over were current smokers, which was the same as the 2004 estimate (CDC, 2005c).

The National Health Institute Survey (NHIS), conducted by the CDC (2005a, b and c) defined current smoker, nonsmoker and former smoker categories. Current smokers were defined as persons who have smoked at least 100 cigarettes in their lifetime and who smoked either every day or on some days. Nonsmokers were defined as persons who reported smoking less than 100 cigarettes in their lifetime. Former smokers were defined as those who have smoked at least 100 cigarettes in their lifetime, but reported that they did not smoke everyday or on some days.

Smoking Trends by State

Giovino's (2002) epidemiological review included adult smoking trends for the states with the highest and lowest smoking prevalence in the United States of America. In 2000, smoking prevalence was the highest in Kentucky at 30.5%

and Nevada at 29.1%. Smoking prevalence was the lowest in Utah at 12.9% and California at 17.2% (Giovino, 2002).

The Centers for Disease Control and Prevention (2004b) examined health behaviors among adults in selected local areas in the United States, which included cigarette smoking. The comparison among states in 2004 showed that Kentucky (27.6%) and West Virginia (26.9%) had the highest prevalence of adult smokers. The states with the lowest prevalence of adult smoking were Utah (10.5%) and California (14.8%). Tennessee's smoking prevalence was 26.1% in 2004, which has a percentage close to the highest ranked states (CDC, 2004b).

The CDC (2004b) used the Behavioral Factor Surveillance System (BRFSS) for their data collection tool. The BRFSS is an on-going, state-based telephone survey of the civilian, non-institutionalized population aged greater than or equal to 18 years old. The survey is administered through a random-digit-dialing method to select a representative sample from each state. In 2004, the survey included participation all 50 states, the District of Columbia (DC), Guam, the Virgin Islands, and the Commonwealth of Puerto Rico. This report for 2004 provided prevalence estimates for personal health behaviors that increase the risk for one or more of the 10 leading causes of death in the United States. The results allow comparisons at the state and local level, and assess progress toward Healthy People 2010 national goals and objectives.

In the BRFSS survey, respondents were asked if they had smoked at least 100 cigarettes in their lifetime and smoked on all days or some days. If they answered "yes", they were classified as smokers. If they answered "no" to

smoking at least 100 cigarettes in their lifetime they were classified as nonsmokers (CDC, 2004b).

Smoking Trends by Local Area

Giovino (2002) reported adult smoking prevalence among metropolitan areas in 2000. The metropolitan areas with the highest adult smoking prevalence were Toledo, Ohio at 31.2%, Knoxville, Tennessee at 30.5% and Indianapolis, Indiana at 30.3%. The lowest prevalence of smoking in the metropolitan areas in 2000 was Orange County, California at 13.0%, Salt Lake City – Ogden, Utah at 14.7% and San Diego, California at 15.2% (Giovino, 2002).

The Centers for Disease Control and Prevention (2002) examined health behaviors among adults in selected local areas in the United States, which included cigarette smoking. The CDC narrowed the focus of adult smoking prevalence to metropolitan areas and counties. The metropolitan area with the highest smoking prevalence in 2002 was Youngstown-Warren-Boardman, Ohio-Pennsylvania at 32.8% and Ogden-Clearfield, Utah at 13.8%. The metropolitan area recorded for Tennessee was Nashville-Davidson-Murfreesboro at 26.4%, which is closer to the highest prevalence in the United States.

The county with the highest smoking prevalence in 2002 was Jefferson County, Kentucky at 31.1%. The county with the lowest smoking prevalence was Davis County, Utah at 10.9%. The two counties evaluated in Tennessee were Shelby County at 25.0% and Davidson County at 22.1%. These Tennessee

counties are closer to the higher prevalence of smoking among counties (CDC, 2002).

The CDC (2002) used the Behavioral Factor Surveillance System (BRFSS) for their data collection tool. The BRFSS is an on-going, state-based telephone survey of the civilian, non-institutionalized population aged greater than or equal to 18 years old. The survey is administered through a random-digit-dialing method to select a representative sample from each state. In 2002, the survey included participation all 50 states, the District of Columbia (DC), Guam, the Virgin Islands, and the Commonwealth of Puerto Rico. This report for 2002 provided prevalence estimates for personal health behaviors that increase the risk for one or more of the 10 leading causes of death in the United States. The results allow comparisons at the local level and assess progress toward Healthy People 2010 national goals and objectives.

The BRFSS data reported the variations in the prevalence of smoking among adults among metropolitan areas and counties. The prevalence of cigarette smoking is declining at different rates throughout the United States. Despite local tobacco-control programs and the decline in smoking from 1991 to 2001, the prevalence of cigarette smoking among adults continues to be high in certain states, selected metropolitan areas, and their counties. Therefore, the CDC (2002 and 2004b) recommended focusing on comprehensive smoking cessation efforts.

Smoking Trends by Gender

Adult smoking trends for men and women reviewed by Giovino (2002), have declined significantly from 1965 to 2000. The prevalence of smoking among adult men in 1965 was 51.9%. In 2000 the smoking prevalence was reduced by half to 25.7%. The smoking trend among women was not as high as men. In 1965 the prevalence of smoking in women was 33.9% and declined to 21.0% in 2000. From 1965 to 2000 men have been consistently more likely to smoke than women (Giovino, 2002).

The Centers for Disease Control and Prevention (2005a) reported similar trends among men and women. Cigarette smoking was higher in men (23.4%) than women (18.5%) in 2004. The Centers for Disease Control and Prevention (2005c), reported adult smoking trends from January – Jun 2005. Men had a higher prevalence of smoking (24.1%) than women (17.9%) (CDC, 2005c). The percentage of former smokers was higher for men (24.8%) than women (18.5%), and the percentage of those who had never smoked was higher for women (63.5%) than men (51.1%) (CDC, 2005c).

Smoking Trends by Education Level

Adult smoking trends researched by Giovino (2002) also varied by education level. In 1965, the highest prevalence of smokers was among persons with some college (13 – 15 years) at 44.8% and persons with a high school diploma (12 years) at 44.7%. The second group was persons with less than 12 years of education at 41.7% and the lowest group was college graduates (greater than 16 years) at 35.3%. Progress in reducing smoking among different

education levels has been sustained the most among college graduates. Reduction among college graduates went from 35.3% in 1965 to 11.7% in 2000. The other educational levels had a significant reduction in smoking prevalence, but not as great as among college graduates. Persons with a high school diploma went from 44.7% in 1965 to 29.5% in 2000; persons with less than 12 years of education went from 41.7% -28.6%; and persons with some college went from 44.8% to 22.6% (Giovino, 2002).

The Centers for Disease Control Prevention (2004b) reported similar findings. The comparison among education levels ranged from 8.0 % to 39.6%. Education levels ranked from the lowest to highest include a graduate degree (8.0%), undergraduate degree (11.7%), <8 years (16.7%), associate degree (22.2%), high school graduate (24%), 12 years (no diploma) (25.5%), 0-12 years (no diploma) (26.2%), 9-11 years (34%) and the highest was GED diploma (39.6%) (CDC, 2004b).

This same pattern was also found in the Centers for Disease Control and Prevention (2005a). Education levels ranked from the lowest to highest were graduate degree (7.9%), undergraduate degree (13.5%), <8 years (23.5%), associate degree and some college (24.6%), high school graduate (27.2%), 12 years (no diploma) (29.9%), 0-12 years (no diploma) (31.5%), 9-11 years (38.3%) and the highest was GED diploma (42.1%) (CDC, 2005a).

Smoking Trends by Age Group

Adult smoking trends from 1965 – 2000 reviewed by Giovino (2002) declined in all age groups, but their ranking from highest to lowest did not

change. The highest age group of adults that smoked was 24 – 44 years old. They had a smoking prevalence of 51.2% in 1965 and 27.0% in 2000. The second highest age group included persons age 18 – 24 which was 45.5% in 1965 and 26.8% in 2000. The third age group included persons 45 – 64 years with 41.6% in 1965 and 24.0% in 2000. The lowest age group of smokers included persons greater than 65 years old with 17.9% in 1965 and 9.7% in 2000 (Giovino, 2002).

The Centers for Disease Control and Prevention (2005b and c) reported that the age group with the lowest prevalence of smoking was adults 65 and older at 8.9%. Individuals ranging from 45 – 64 years old had the next highest prevalence at 21.5% and the highest prevalence of smoking were adults aged 18 – 44 with 24.3%. This pattern in current adult smoking by age group was seen in both men and women (CDC, 2005b and c).

Smoking Trends by Occupation

Lee, LeBlanc, Fleming, Gomez-Martin and Pitman (2004) examined trends in U.S. smoking rates in occupational groups. The results of the study showed that the top three highest occupational categories had a smoking prevalence higher than 30%, and the three lowest occupational categories were below a 30% smoking prevalence. The highest occupational category included precision production, craft and repair at 40.06%. The second highest category included handlers, equipment cleaners, helpers, and laborers at 39.64%. The third highest group included machine operators, assemblers and inspectors at 35.66%. The lowest occupational category included executive and administrative

managerial at 21.43%. The second lowest category included administrative support and clerical at 23.87%. Finally, the third lowest category included farming, forestry, and fishing at 28.32%.

The authors (Lee, et. al, 2004) used the results from the National Health Interview Survey (NHIS), which is a continuous, multipurpose, and multistage area probability cross-sectional survey of the U.S. civilian population. This survey is conducted by the National Center for Health Statistics (NCHS). Data on the occupational groups and smoking status were collected on 141,122 adult participants from 1987, 1988, and 1990 – 1994. The authors initially used a 13 category grouping, but restricted analyses to occupational groups within an estimated employment of 100,000 persons or more. This restriction was consistent with previous NHIS occupational smoking analyses and was necessary to ensure reasonably stable trend estimates.

The data was analyzed using the Software for Statistical Analysis of Correlated Data (SUDAAN) to take into account sample weights and design effects. The authors (Lee, et. al., 2004) used a weighted linear regression model to determine if there were any statistically significant trends in smoking over the 8-year period.

The authors (Lee, et.al., 2004) also examined the different trends in smoking between white and blue collar workers. They found that smoking rates among most blue collar occupations were very high. In comparison white collar workers showed a significant downward trend in smoking prevalence.

These findings show that there remain large differences in smoking rates across occupations and blue and white collar workers. According to the Tennessee Department of Labor and Workforce Development (2004), Tennessee's largest industry includes blue collar workers in manufacturing, which comprises 16% of the employed workforce. The authors (Lee, et. al., 2004) express that there is a need for targeted cessation program interventions for blue collar workers. To target this population the authors suggest partnering with labor unions to deliver a smoking cessation program to blue collar workers, and creating new, innovative smoking cessation strategies to help blue collar workers quit smoking.

Section Summary

This section detailed research related to adult smoking trends in the United States. The research showed that there remains a significant difference in the adult smoking prevalence among states, metropolitan areas, counties, gender, age, education and occupation. Giovino's (2002) research reported that the smoking trends of the United States have been declining since 1965. The interventions that have contributed to this decline included tobacco education, tobacco cessation, raising excise taxes, providing smoke-free indoor air areas, and anti-tobacco media campaigns. Giovino (2002) suggested integrating all of the environmental factors to further decline the prevalence of adult tobacco use. These factors included the individual, familial, social, cultural, economic, historical, political, and media-based areas. The integration of all environmental

factors would help reduce tobacco-attributable disease and death in the 21st century.

The Centers for Disease Control (CDC) (2002 & 2004a) concluded that despite the local tobacco-control programs and the decline in smoking from 1991 to 2004 the prevalence of cigarette smoking continues to be high in certain states, selected metropolitan areas, and their counties. Tennessee's smoking prevalence continues to be high at 26.1% (CDC, 2004b). The metropolitan area of Knoxville, TN has one of the highest adult smoking prevalence's at 30.5% (Giovino, 2002), and Nashville-Davidson-Murfreesboro is high at 26.4% (CDC, 2002). The counties evaluated in Tennessee, Shelby County (25.0%) and Davidson County (22.1%) are among other counties with a high prevalence of smoking. Therefore, the CDC recommended focusing on comprehensive smoking cessation efforts to reduce the prevalence smoking in the states, metropolitan areas and their counties. This effort will bring more states closer to meeting the Healthy People 2010 national objective for smoking which is $\leq 12\%$ (CDC, 2002 & 2004a).

Lee, LeBlanc, Fleming, Gomez-Martin and Pitman (2004) discovered that there is a big gap between the blue and white collar smoking prevalence. Tennessee's highest occupational industries are blue collar workers in manufacturing (TN Department of Labor Workforce, 2004). The authors (Lee, et. al., 2004) suggested partnering with labor unions to deliver a smoking cessation program to blue collar workers, and creating new, innovative smoking cessation strategies to help blue collar workers quit smoking.

Adult Smoking Cessation Measures

The purpose of this section was to present research related to the adult smoking cessation measures.

Prochaska (1996) explored the effectiveness of integrating public health and clinical smoking cessation approaches to increase the success of the intervention. This meta-analysis presented the need to focus on the Transtheoretical Model (TTM) (precontemplation, contemplation, preparation, action, maintenance and termination) for practitioners and educators to reach a higher percentage of populations at risk. Prochaska examined how the Transtheoretical Model can be applied to the five most important phases of planned interventions.

The first phase of planned interventions is recruitment. Most public health smoking cessation programs attract only the smokers who are in the preparation stage (20%). Two home-based programs with 5,000 smokers in each study showed that by proactively recruiting through telephone calls and personalized letters, they could successfully recruit smokers to participate in a stage-matched intervention. The second phase of planned interventions is retention. There is poor retention in both clinical and public health smoking cessation programs. To promote retention, the best strategy found was to match interventions to the current stage of the individual. The third phase is progress. Progress is moving an individual from one stage to the next, and not necessarily one's quitting success. A focus on the individual's progress and praise is hoped to lead to quitting in the future (Prochaska, 1996).

The fourth phase was process. There's a need to understand the processes and principles of change to help populations progress through the stages. This was accomplished by focusing on the processes that were matched with each stage and one's needs. Finally the fifth phase was outcomes. Prochaska concluded that by focusing on the Transtheoretical Model, proactively recruiting for the program, having the program match the participant's needs, and moving toward public health behavioral programs that have individualized and interactive intervention strategies, practitioners and educators should be able to respond to the unmet needs and offer great opportunities for people to change their behaviors and become healthier (Prochaska, 1996).

Prochaska, Velicer, Fava, Rossi and TOSH (2001) used The Transtheoretical Model (TTM) to examine the effectiveness of individualized smoking cessation interventions designed for an entire population of smokers in the pre-contemplation, contemplation and preparation stage. A random digit dialing procedure was used to proactively recruit a representative sample of smokers in three geographical areas in the state of Rhode Island. A total of 4144 smokers agreed to participate in the study. The smoking participants were randomly put into an assessment only group or a stage-matched expert system intervention group (Prochaska, et.al, 2001).

The expert interventions were based upon on the stages in the Transtheoretical Model (TTM). This included giving the individual a stage appropriate intervention and self-help materials to move them from their current stage into the next stage. A series of computer reports were performed on each

individual at start of treatment, 3 months and again at 6 months. The reports included the person' stage of change, feedback, description of tempting situations, and a section on strategies for taking small steps to progress to the next stage (Prochaska, et.al, 2001).

The results of the study (Prochaska, et al., 2001) indicated that the expert system intervention had a statistically significant higher quit rate than the assessment only intervention at all points of comparison. When comparing the two groups, the quit rate was 2.3% higher for the expert system intervention group at 6 months, 3.5% at 12 months, 5.1% at 18 months, and 5.9% at 24 months. The highest quit rate for the expert system occurred at the 24 month mark, which was 25.6% (Prochaska, et. al, 2001).

The authors (Prochaska, et al., 2001) concluded that by using a proactive recruitment procedure, 80% of eligible smokers can be recruited into an intervention program that provides individual and interactive materials. It also demonstrated that when starting with a population of smokers with less than 20% prepared to quit and more than 40% not intending to quit, the stage-matched expert system intervention was able to produce 25% abstinence at 24-month follow-up (Prochaska, et.al, 2001).

Prochaska, Velicer, Prochaska, and Johnson (2004) focused on the size, consistency, and stability of stage effects on determinants of outcomes in smoking cessation interventions using the Transtheoretical Model (TTM). Stage effects occur when people who are in the precontemplation stage take less action over time than those in the contemplation stage. This study assesses the

size, consistency, and stability of stage effects at 6, 12, and 18-month follow-ups. The study consisted of 4653 tobacco smokers. The overall stage distribution was, 37.9% in precontemplation, 44.8% in contemplation, and 17.3% in preparation (Prochaska, et.al., 2004).

The subjects were randomly assigned to one of eleven interventions. The eleven interventions were as follows: 1) one mailing of stage-matched manuals covering all stages, 2) one mailing of a manual plus an expert system individualized guide, 3) two mailings of manuals beginning with current stage and followed by future stages, 4) manual at baseline and two expert system guides, 5) three mailings of manuals beginning with current stage and followed by future stages, 6) manual and at baseline and three expert system guides, 7) six mailings of manuals beginning with current stage and followed by future stages, 8) manual at baseline and six expert system guides, 9) three expert system guides and three proactive telephone counselor calls, 10) three expert systems guides and a hand-held nicotine fading computer, and 11) a no-treatment control group.

The results of the study (Prochaska, et.al., 2004) showed that those in the pre-contemplation stage quit less than those in the contemplation stage, who quit less than those in the preparation stage at 6, 12 and 18-months. These results indicated that the stage effects predicted by the TTM have considerable consistency, stability and size. Ninety-four percent of the stage effects were in the predicted direction with smokers in earlier stages. This consistency held even though there were 11 different treatments, and all held through the 6, 12

and 18-month follow-up. The stability of the stage effects were shown through the absolute differences in cessation between an earlier and later stage. The size of the stage effect is comparable to treatment effects that have been found between the best population cessation programs and proactive assessment alone (Prochaska, et.al., 2004).

The authors (Prochaska, et al., 2004) concluded that the results of the study suggested brief stage-matched interventions that help the population progress one stage, could produce 75% more smoking abstinence. Interventions that help population's progress two stages could produce 300% more abstinence. For the U.S.A., where 80% of smokers are in the precontemplation and contemplation stage, this type of intervention could produce substantial progress in helping people to quit smoking.

Pierce and Gilpin (2002) examined trends in smoking cessation, pharmaceutical cessation aid use, and success in the cessation in California. The study included a large population-based survey in 1992 (n=5247), 1996 (n=9725) and 1999 (n=6412). The participant's voluntary took the survey and returned it to the specified address. The study showed that from 1992 to 1999, 61.4% of smokers had quit for one day or more. Out of the smokers who quit for one day or more, 2.4% of them tried group counseling, 3% of them tried one-on-one counseling, 9.7% used self-help materials, and 12% used nicotine replacement therapy (NRT) (Pierce and Gilpin, 2002).

The results of the study concluded that NRT was not as effective as it is advertised. Nearly one third of NRT users relapsed and quit using the aid at the

same time. Collectively pharmaceutical aids and NRT helped moderate to heavier smokers to stop using cigarettes longer than previous attempts without any aids. The cessation aids were not associated with improvement of successful cessation over a long period of time. It was concluded that a contributing factor in relapse among smokers was due to the ineffective NRT and pharmaceutical aids, and the lack of adherence to recommended guidelines and adjuvant behavior counseling (Pierce and Gilpin, 2002).

Ringen, Anderson, McAfee, Zbikowski and Fales (2002) examined the success of an evidence-based pilot program in a blue-collar population. The purpose of this study was to examine the effectiveness of a smoking cessation among blue-collar employees. The population of the study included union workers in the Carpenters Health and Security Trust of Western Washington. Participants chose a 1-call or 5-call smoking cessation counseling plan. This program was provided and evaluated by the Group Health Cooperative's Free and Clear Program. The medications used by participants were limited to the nicotine patch, nicotine gum, and Bupropion. A final follow-up call was conducted at 12 months after program enrollment (Ringen, et. al., 2002).

A total of 935 smokers participated in the program. A total of 325 participants responded to the 12 month follow-up call and were included in the pilot evaluation. Sixty-one percent of the smokers selected 5-call counseling, and 39% selected the one call. Seventy-five percent also used one of the smoking cessation medications. The overall quit rate of the program was 27.5% (1-call, 25.5% and 5-call, 28.9%). The cost of the program was \$1025.28 per

smoker who quit. It is estimated that the savings in medical costs due to the participants who quit were 15 times greater than the cost of the program, yielding a 27.6% return of investment. The authors (Ringen, et al., 2002) concluded that smoking cessation programs can be effective in even hard-to-reach populations, such as union workers, when a smoking cessation program was designed to address one's personal needs and environment.

Moher, Hey and Lancaster (2003) categorized workplace interventions for smoking cessation tested in controlled studies and determined the extent to which the smoking cessation intervention helped workers to stop smoking or to reduce tobacco consumption. The authors (Moher, et al., 2003) searched the Tobacco Addiction Review Group trials register in November 2002, Medline (1996-November 2002), EMBASE (1985 – November 2002) and PsychINFO (to November 2002). They categorized interventions into two groups, interventions aimed at the individual to promote smoking cessation and interventions aimed at the workplace as a whole. The number of articles reviewed in the study were not specified (Moher, et. al., 2003).

The interventions aimed at the individual included group therapy, individual counseling, self-help materials and nicotine replacement therapy. The results from these interventions showed increased cessation for group programs, individual counseling and nicotine replacement therapy. The interventions aimed at the whole workplace included tobacco bans, social support, environmental support, incentives, and competitions. The results for this type of intervention failed to detect any increase in quit rates. Competitions and incentives increased

attempts to stop smoking, though there was less evidence that they increased the rate of actual quitting. The study (Moher, et.al., 2003) found that there was strong evidence that interventions directed toward individual smokers increased the likelihood of quitting smoking.

Smedslund, Fisher, Boles and Lichtenstein (2004) compared the effectiveness of recent controlled trials of worksite smoking cessation during the 1990's, with a previous meta-analysis of programs conducted in the 1980's. The authors had two reviewers independently scan titles and abstracts of relevant reports and reached a consensus regarding the inclusion or exclusion of the full text reports by negotiation. Then a third independent reviewer resolved any disagreements. They searched 14 different databases for studies conducted from January 1989 – December 2000. For potential inclusion the studies had to conform to the following criteria: 1) it was a study of worksite smoking cessation; 2) it reported outcome rates for a follow up of at least six months post-treatment; 3) it included a control or comparison group; and 4) it was published between January 1989 and December 2000. The authors (Smedslund, et al., 2004) found a total of 19 peer-reviewed journal articles that met the inclusion criteria.

The interventions of the 19 journal articles included self help materials, physician advice, health education, cessation groups, incentives, and competitions. A total of 4960 control subjects were compared with 4618 intervention subjects. The articles were coded by the following variables: study design, sample descriptors, organization variables, interventions, and effect size data. The meta-analysis of these articles showed that smoking cessation

interventions at the worksite were initially effective through 6 month's post treatment. This effect seemed to decrease over time and was not present beyond 12 months. The authors (Smedslund, et al., 2004) found that there were methodological inadequacies and insufficient reporting of key variables. They suggested for researchers conducting studies in the future to report data on attrition and retention rates of participants who quit, because these variables can affect quit rates.

Henrikus, Jeffery, Lando, Murray, Brelje, Davidann, Baxter, Thai, Vessey and Liu (2002) examined the effect of program format and incentives on participation and cessation in worksite smoking cessation programs. The project was called "The Success Project." The program formats evaluated were group programs, phone counseling, and choice of group or phone counseling. The incentives on participation included incentives or no incentives.

The authors (Henrikus, et. al., 2002) recruited twenty-four worksites in the Minneapolis-St. Paul metropolitan area. The worksites included nine manufacturing plants, four private sector businesses, five healthcare sites, and six government sites. The worksite eligibility criteria included 300 to 1000 employees in a single worksite setting, a worksite liaison to help coordinate activities, no current smoking cessation program, a stable work-force, and no major recent changes in the company.

The study (Henrikus, et al., 2002) was conducted between fall of 1995 and spring of 1999. The research design included a factorial group-randomized trial. It included six intervention conditions: the three program formats (group,

phone counseling, or choice of either program) crossed with two levels of incentives for participation in the programs (incentives or no incentives). Of the 24 worksites, 4 were randomly assigned to each of the 6 intervention conditions. A randomized stratification was done by gender and education level of the workforce. The evaluation design included 3 surveys: at baseline; follow-up at 12 months; and follow-up at 24 months. The cessation outcome was characterized by whether or not they had smoked in the last 7 days. The surveys were distributed through the worksite mail system and relied upon self-report data. To help reduce error in the self-report data, a saliva cotinine test was used on participants who reported they had been quit for the last seven days on the 24 month follow-up survey. The smoking cessation programs were promoted and offered 3 times during the 18 months of the study.

The results of the study (Henrikus, et. al., 2002) showed that incentives had a strong effect on increasing registration for the smoking cessation programs. Although registration nearly doubled with the offering of incentives, it did not increase the smoking cessation rates. The relationship between program format and cessation, was statistically significant ($p=.046$) at 12 months. In both sets of analyses, the phone counseling program was associated with the highest cessation rate and the group program was associated with the lowest. The data comparing success rates at 24 months indicated a significantly greater cessation rate in the phone counseling than in the group program.

Section Summary

This section detailed the selected adult smoking cessation measures studied in the United States and in the workplace. The selected measures reviewed for adult smoking cessation have been broad and not specific. These studies support that cessation measures need to be customized for the smoking population and meet the individual needs of each participant.

Prochaska's (1996) research concluded a move toward public health behavioral programs that have individualized and interactive intervention strategies would increase cessation rates. Thus, health providers will be able to respond to the unmet needs of smokers and open opportunities for people to change their behaviors. Prochaska, Velicer, Fava, Rossi and Tsoh (2001) found that an individualized stage-matched smoking cessation intervention can produce greater cessation results in smokers in the precontemplation, contemplation, and preparation stage. Prochaska, Velicer, Prochaska and Johnson (2004) concluded stage-matched interventions that help people progress one stage, could produce 75% more smoking abstinence. Pierce and Gilpin (2002) concluded that smoking cessation programs in California did not yield high success rates due to the ineffectiveness of nicotine replacement therapy, lack of adherence to guidelines, and lack of behavioral counseling.

Smoking cessation measures in the workplace need to be more specific to address the working population. Ringen, Anderson, McAfee, Zbikowski and Fales (2002) concluded that smoking cessation programs can be effective in hard-to-reach populations when the program is designed to their needs and

environment. Moher, Hey and Lancaster (2003) found strong evidence that interventions directed toward individual smokers increased the likelihood of quitting smoking. Smedslund, Fisher, Boles and Lichtenstein (2004) found that worksite smoking cessation programs were initially effective through six months post treatment. The smoking cessation seemed to decrease over time and was not present past twelve months. Henrikus, Jeffery, Lando, Murray, Brelie, Davidann, Baxter, Thai, Vessey and Liu (2002) found that in a worksite setting, incentives had no effect in the cessation rates of a smoking cessation program, even though it did increase participation rates. The results showed that in a worksite setting, individual phone counseling was more successful in helping people quit than the group program.

The literature in this section supported that smoking cessation measures offered in the general population and at the workplace need improvement. Smoking cessation measures are more successful when they focus on individual counseling versus group programs. Many worksite programs typically focus on groups of people and not individual participants, which can lead to a small success rate.

Optimistic and Pessimistic Personality Affecting the Health of an Individual

The purpose of this section was to present research and literature that detailed pessimistic and optimistic personality. This section also discussed how pessimism and optimism affects the health of individuals.

Dember, Martin, Hummer, Howe and Melton (1989) employed the development and validation of a new Optimism and Pessimism Scale. Their

research consisted of two studies. The first study was to develop a pool of items balanced across a variety of content areas and assess the properties of the items relative to issues of internal consistency. A number of optimism and pessimism tools were researched to devise the pool of items.

The scale was constructed from an initial pool of 60 items. Forty of the items were to be scored: 20 statements were worded to reflect optimism, 20 statements were worded to reflect pessimism, and 20 were filler items. After the instrument was rated, the authors dropped four items. Subjects to test the instruments were recruited from the introductory psychology pool at the University of Cincinnati. A total of 216 students participated, 119 females and 97 males.

The instrument was evaluated in two ways: 1) as a single bipolar optimism/pessimism measure; and 2) as two separate optimism and pessimism scales. The authors (Dember, et. al., 1989) evaluated the statistical characteristics of the individual terms first. The optimism items had a standard deviation from .50 to .80, and the pessimism items had a standard deviation from .58 to .87. The mean inter-item correlation for the 20 optimism items was .20, and the 20 pessimism items was .24. Next the authors looked at the bipolarity of the construct. The initial assessment of reliability by means of coefficient alpha yielded a value of .89 for the combined 40-items scale (Dember, et. al., 1989).

Separating the optimism and pessimism scales produced an alpha value of .83 for optimism and a .86 for pessimism. The Pearson product correlation of .54 was obtained between optimism and pessimism scores. Due to the high

internal consistency of the individual scales, and the low correlation between the two, the authors concluded that optimism and pessimism were not polar opposites and needed to be tested on two separate scales. This determination led to re-testing coefficient alpha. The coefficient alpha for optimism went from a .83 to .84, and coefficient alpha for pessimism remained at .86 (Dember, et. al., 1989).

The authors (Dember, et. al., 1989) also did additional analyses to provide a preliminary assessment of validity. They assessed 204 persons, those who provided complete data on all measures. The two scales correlated differentially with criterion measures. Pessimism was found to correlate more highly with Likelihood of a Nuclear War instrument ($t=2.44$, $df=201$, $p<.05$) and optimism correlated more highly with Commitment to Religion instrument ($t=2.37$, $df=201$, $p<.05$) and Social Desirability ($t=2.24$, $df=201$, $p<.05$).

The purpose of the second study (Dember, et al., 1989) was to determine if pessimism and optimism are in fact not bipolar and to confirm that the instrument does measure them as separate constructs and not as a bipolar unit. The subjects were undergraduate volunteers recruited from the subject pools of introductory psychology classes at the University of Cincinnati in the academic year. This sample had the same criteria as in the first study, but the population that was recruited was entirely new. The sample comprised of 217 individuals, 102 males and 112 females ranging from 17 to 42 years old (Dember, et. al., 1989).

The 56 item instrument was administered yielding separate scores for optimism and pessimism. The replicated internal consistency analyses showed the optimism scale with a standard deviation of 5.84 and pessimism scale with a standard deviation of 7.42. Characteristics of this sample compare closely with those of the first study. In study 1 and 2, there were no gender differences found. The internal properties of study 1 and 2 were close, and revealed a clear linear relationship between the two scales. The replication analyses of the internal properties add weight to the conclusion that optimism and pessimism might not be bipolar. The comparisons of the optimism and pessimism scales to other like instruments showed that the instrument developed by the authors (Dember, et al., 1989) was valid.

The test-retest reliability was not tested in study 1 or 2. The authors gave results of another study that did explore the test-rest reliability of their instrument. The instrument was administered to 101 subjects. The test-retest correlation for optimism was .75 and pessimism was .84.

The results of this study (Dember, et. al., 1989) showed that the optimism and pessimism scale measures an individual's willingness to endorse statements that are optimistic or pessimistic in character. The scales were demonstrated to be reliable in terms of both internal consistency and test-retest reliability, and to show relationships with other measures intended to tap optimistic and pessimistic orientations.

Seligman's (1998) book, Learned Optimism, described the optimistic and pessimistic style of adolescents and adults. He looked at how optimistic and

pessimistic styles begin to present themselves during childhood. This leads to how one looks at life as a teenager and as an adult.

Seligman (1998) believes that a pessimistic person can become more optimistic through education in optimistic thinking. For this to occur, Seligman has found three critical areas that need to be addressed: permanence, pervasiveness, and personalization. Permanence dealt with changing one's views from permanence or non-changeable to temporary and changeable. Pervasiveness was when someone believes that everything is against him/her in every situation. When changing pervasiveness, the individual needed help to realize that specific actions caused the outcome. Personalization was helping an individual realize that he/she is not to blame every time something goes wrong. There are a set of contributing factors that the individual has to evaluate. These factors are: how much of the problem includes personal actions and how much of the problem was attributable to the contributing factors. When an individual learns how to improve their optimistic thinking, one's quality of thinking and quality of life can improve. In the end, the individual will become more optimistic in thinking and have better control over decision making (Seligman, 1998).

Maruta, Colligan, Malinchoc and Offord (2000), examined explanatory style which is how people explain life events and their risk for early death. They used scores from the Optimism-Pessimism scale of the Minnesota Multiphasic Personality Inventory (MMPI). They looked at the survival rate among medical patients over a 30-year period.

The study included a total of 839 patients who completed the MMPI between 1962 and 1965. The subjects were self-referred general medical patients. Thirty years later, the vital status of these patients was ascertained. Out of the 839 patients, 124 were classified as optimistic, 518 were mixed, and 197 were pessimistic. A follow-up was completed on 723 patients.

The results of the study showed that a 10-point increase in the pessimistic score on the Optimism-Pessimism scale was associated with a 19% increase in the risk of mortality. The authors concluded a pessimistic explanatory style as measured by the Optimism-Pessimism scale of the MMPI, is significantly associated with increased mortality (Maruta, et. al., 2000).

Chang's (2001) book explored optimism and physical well-being. It demonstrated how optimism creates one's beliefs and behaviors. Chang researched studies that included adults across the life span, some included individuals that were initially healthy and others that were quite ill. Chang's exploration of other studies found that optimism impacts health at a number of junctures: 1) it reduces the initial onset of illness, 2) it minimizes the severity of illness, 3) it can speed recovery, and 4) it can reduce the likelihood of relapse. Students in college that were optimistic reported less physical illness, had fewer doctor visits, and felt more able to prevent health problems than their pessimistic peers. Chang (2001) found programs that improved explanatory style (from pessimism to optimism) helped to prevent depressive symptoms in adults and children.

Kubzansky, Sparrow, Vokonas and Kawachi (2001) examined the prospective relationship of an optimistic or pessimistic explanatory style with coronary heart disease incidence in the Veteran Affairs Normative Aging Study. This was an ongoing cohort of older men. The study population included 1306 men who completed the revised MMPI in 1986. During an average of 10 year follow-up, 162 cases of incident coronary heart disease occurred.

The results of the study found a dose-response relation between levels of optimism and an outcome of incident nonfatal myocardial infarction, fatal coronary heart disease, and angina pectoris. The authors (Kubzansky, et al., 2001) concluded that the findings suggested that an optimistic explanatory style may protect against risk of coronary heart disease in older men.

Maruta, Colligan, Malinchoc and Offord (2002) studied the association between explanatory style and self-reported health status. They assessed the explanatory style by using the Minnesota Multiphasic Personality Inventory (MMPI) and their health status using the 36-item Short-Form Health Survey (SF-36). There were a total of 447 subjects in the study. They were self-referred, general medical outpatients who completed the MMPI between 1962 and 1965, and also completed the SF-36 thirty years later. The results were examined by an analysis of variance and line regression analysis. The results of the study showed that 101 patients were classified as optimistic, 272 were mixed, and 74 were pessimistic. Scores on all eight health concept domains in the SF-36 were significantly poorer in the pessimistic group than in both the optimistic and the mixed group. The authors (Maruta, et al., 2002) concluded that a pessimistic

explanatory style reflected by higher PSM scale scores, were significantly associated with a self-report of poorer physical and mental functioning.

Section Summary

This section detailed the connection between optimism and pessimism and a person's health. Seligman (1998) discovered when an individual works on changing one's thinking from pessimistic toward optimistic, one becomes more optimistic in thinking and has better control over one's future decision making. Maruta, Colligan, Malinchoc and Offord's (2000) long-term study concluded that pessimism, as measured by the Optimism-Pessimism scale of the MMPI, is significantly associated with increased mortality in general medical patients. Chang's (2001) research of studies found that when a person is optimistic it can reduce the onset of illness, minimize the severity of the illness, aid in a fast recovery and reduce the occurrence of future relapse. Kubzansky, Sparrow, Vokonas and Kawachi (2001) found that a dose-response relationship exists between optimism and the risk of heart disease. The authors (Kubzansky, et al., 2001) concluded that having an optimistic explanatory style may protect against risk of coronary heart disease in older men. Finally, Maruta, Colligan, Malinchoc and Offord's (2002) findings showed that individuals with poorer health were more pessimistic than both groups (optimistic and mixed). The authors (Maruta, et al., 2002) concluded that pessimism reflected by higher PSM scale scores, were significantly associated with a self-report of poorer physical and mental functioning. The literature in this section supported that individuals who display a pessimistic personality have a greater chance of mortality, and they have poorer

health habits. When individuals have an optimistic personality, they have decreased mortality and make better health decisions.

Personality Traits That Contribute to an Individual's Smoking Status

The purpose of this section was to present research related to personality traits that can contribute to an individual's smoking status.

Hamymen, Varianinen, Sahi, Pallonen and Salonen's (1987) research looked at social, personality and environmental determinants of smoking. The research was based upon the classical framework for the relationship between psychosocial, biological factors and smoking. These relationships are given in the social learning model and the nicotine addiction model. According to the authors (Hamymen, et al., 1987) the social learning theory model claimed that direct and vicarious learning with rewards and punishments lead to the acquisition of specific behavior. Personality traits such as anxiety, self-confidence, low-self esteem and rebelliousness have been shown to be associated with smoking.

The authors (Hamymen, et al., 1987) used a study population comprised of 471 men aged 19-20 years who began their military service in three military bases. All men who began their military service in Southwest, Southeast and Northern Finland, in February of 1982, were required to participate in the study. Of the 471 men, 48% reported they smoked regularly or in the past three weeks. The data gathered was two self-administered questionnaires. The questionnaires were determined to be reliable and valid by an alpha of .74. The first questionnaire included socioeconomic background, previous health habits, health

beliefs, and health-related attitudes. The second questionnaire included 24 items about personality.

The questionnaires were evaluated using multivariate logistic analysis. The authors (Hamymen, et al., 1987) found that among the 14 explanatory variables, smoking with family and friends, place of residence, physical activities, number of friends, rebelliousness, intelligence test score, and general pessimism were most strongly associated with the likelihood of being a current smoker.

Lipkus, Barefoot, Williams and Seigler (1994) examined the potential for personality measures to be predictors of smoking initiation and cessation. This longitudinal study used the Minnesota Multiphasic Inventory (MMPI) to evaluate the personality scores of college men and women in 1964-1967 with a 20 year follow-up. A total of 3,810 men and 836 women volunteered to participate in the study. The following MMPI scales were chosen because of their previous associations with smoking behavior. The MMPI is valid and reliable with a coefficient alpha of .93. The scales were *Pd* (Psychopathic Deviate) scale, *Si* (Social Introversion) scale, the *Ma* (Hypomania) scale, the *L* (Lie) scale, and the *Ho* (Hostility) scale, and Schubert's Smoking scale.

Using MANOVA, the study (Lipkus, et al., 1994) compared people who smoked and people who had never smoked. In the comparison of the smokers and nonsmokers, and the prospective analysis of smoking initiation, the study found that a person who scored high on the Psychopathic Deviate scale (*Pd*), the Hypomania scale (*Ma*), the Schubert Smoking scale, and the Hostility scale (*Ho*) were associated with a significant increase in the probability of smoking. In the

prospective analysis of smoking cessation, the study found that smokers only had higher scores on the Schubert Smoking scale and Hostility scale (*Ho*). People who had quit compared to those who continued to smoke, scored lower on the Hostility scale (*Ho*).

Out of the six variables studied, hostility (a negative orientation toward people) emerged as a significant disposition that distinguished ex-smokers from current smokers. This study (Lipkus, et al., 1994) concluded that hostility may be an important variable in initiating and maintaining a habit; therefore, an important task of future research would be to further clarify the relationship between hostility and smoking.

O'Toole and Torabi (2001) investigated the relationship between psychological types as determined by the Myers-Briggs Type Indicator (MBTI) and tobacco use among young adults. Eight questions from the Tobacco Use Inventory were selected in order to measure smoking status, levels, frequencies of smoking, and age of initiation. The study did a cross-sectional survey of 1,029 university students from eight pre-selected Georgia colleges and universities. The instrument was considered valid and reliable with a split-half reliability coefficient (Pearson's *r*) reported as generally exceeding 0.80. Subjects were categorized into different groups in terms of MBTI type and smoking status.

The results of the study (O'Toole and Torabi, 2001) found that those with an Introversion-Intuitive-Thinking-Perceiving (INTP) personality type had a greater association with smoking and those with an Extroversion-Intuitive-Thinking-Perceiving (ENTP) personality type had a lower association with

smoking. This finding showed that a link to smoking was introversion versus extroversion as a personality trait. The authors (O'Toole and Torabi, 2001) concluded that the study suggested that the extroverted person may have a positive (optimistic) strategy for coping with life situations and an introverted person may have a negative (pessimistic) strategy for coping with life.

A thesis written by Qualls (2002) investigated the relationship between teen smokers and nonsmokers, and pessimistic and optimistic personalities. The participant's personality score was derived from Optimistic/Pessimistic Personality Inventory and an information data sheet. The instrument was scored on a 0-100 scale. The closer to 0 a person scored, the more pessimistic one was in thinking. The closer to 100 a person scored, the more optimistic one was in thinking. Fifty was considered a neutral score.

The study population was teenagers ranging in age from 16 – 18 years old. The study population included three high schools, in which students volunteered to participate with parental consent. The results of the study were analyzed using a frequency table, t-test, normality test, and regression test. The results showed that the participants who smoked had a more pessimistic score and the participants who did not smoke had a more optimistic score. The study found that there was a significant difference in the pessimistic/optimistic score for teenagers who smoked and teenagers who did not smoke cigarettes.

Almedia and Pfaff (2005) designed a study to investigate the association between smoking and depression in people aged 60 years and over. This study consisted of a cross-sectional survey of older adults attending a representative

sample of general practitioners in Western Australia. The sample consisted of 1030 subjects ranging in age from 60 to 101 years old. Subjects were divided into the following groups: never smoked, ex-light smoker, ex-heavy smoker and current smoker. The Center for Epidemiologic Studies-Depression Scale (CES-D) assessed each participant's depressive symptoms.

The results showed that current or ex-heavy smoking was associated with increased risk of clinically significant depression when compared to the group of subjects who had never smoked or were past light smokers. The authors (Almedia and Pfaff, 2005) made adjustments for age, gender, place of birth, social isolation, self-perceived health and harmful or hazardous drinking. The study concluded that past heavy smoking and current smoking were associated with the increased frequency and severity of depression.

Section Summary

The literature presented in this section offered evidence that personality traits have a strong relationship to an individual's smoking status. Dember, Martin, Hummer, Howe and Melton (1989) devised a valid and reliable instrument that measures an individual's pessimism and optimism as separate constructs. Hamymen, Varianinen, Sahi, Pallonen and Salonen's (1987) findings showed that general pessimism was one of the variables that were strongly associated with the likelihood of being a current smoker. Lipkus, Barefoot, Williams and Seigler (1994) concluded that hostility may be an important variable in initiating and maintaining a smoking habit. Therefore, they recommended that the relationship between hostility and smoking status should be researched further.

O'Toole and Torabi (2001) found that nonsmokers were more extroverted than smokers, and smokers were more introverted than nonsmokers. Qualls (2002) found that there was a significant difference in the pessimistic/optimistic personality score for teenagers who smoked and teenagers who did not smoke cigarettes. Teenage smokers were more pessimistic in their personality than teenage nonsmokers. Teenage nonsmokers were more optimistic in their personality than teenage smokers. Almeida and Pfaff (2005) concluded that past heavy smoking and current smoking were associated with the increased frequency and severity of depression. The literature in this section supported that personality traits have a correlation to one's smoking preference. The section also presented studies that have found pessimistic and optimistic personality traits to be correlated with an individual's smoking status.

Summary of Chapter II

The literature pertaining to current adult smoking trends in the United States showed that there has been a decline in adult smoking prevalence since 1965. Although there has been a decline, there continues to be significant differences in the adult smoking prevalence among states, metropolitan areas, counties, sex, age, education and occupation. Therefore, the USA needs to focus on comprehensive smoking cessation efforts that address these differences to further reduce our adult smoking prevalence and meet the smoking objective of Healthy People 2010.

The literature pertaining to current adult smoking cessation measures showed that cessation measures are not very effective at helping smokers to

quit. The measures for adult smoking cessation have been broad and not specific. The studies in this section supported that cessation measures need to be customized for the smoking population and meet the individual needs of each participant.

The literature related to pessimistic and optimistic personality traits affecting the health of individual's support that there is a connection between optimistic and pessimistic personality traits and a person's health. The studies gave evidence that individuals who display a pessimistic personality have a greater chance of increased mortality and have poorer health habits. The literature also supported that individual's who display an optimistic personality have less mortality and make better health decisions.

The literature presented in the section suggested personality traits that contribute to an individual's smoking status support that there is a strong relationship between personality traits and one's smoking preference. The studies gave evidence that pessimistic and optimistic personality traits are connected to an individual's smoking status.

The next chapter focused on the research methods and procedures of the study. The chapter included information about the sample selection, instrumentation, data collection and the procedure for data analysis.

Chapter III

Methodology

The purpose of this chapter was to summarize the method and procedures of the study. The method and procedures are described in the following sections of this chapter: study population, instrumentation, data collection and method for data analysis.

Sample Population

The population identified in this study was adult smokers, nonsmokers, and former smokers. The sample was selected from three worksites in Tennessee. The sampling technique employed was convenience sampling. The workplace was chosen because it has several advantages for smoking cessation research. First, it provides access to a large number of people who make up a relatively stable population. Second, it has the potential for reaching a larger proportion of the smoking population than non-workplace environments. Finally, adults spend a lot of time at work, so the workplace was a convenient way to sample the population (Smedslund, Fisher, Boles, and Lichtenstein, 2004).

Six different Tennessee worksites were approached to participate in the study. The worksites employed blue collar and/or white collar employees. The appropriate personnel were contacted at each worksite for preliminary approval for data collection. Each worksite representative that gave preliminary approval over the phone, received an onsite meeting with the principle researcher to review the study in detail. The representative from each worksite that gave final written approval for the data collection was included in this study. There were

three different worksites in Tennessee that gave final written approval for data collection (see Appendix A). The total eligible population was 700 employees between the three worksites.

Employees at the three Tennessee worksites were informed of this study through informational flyers posted at the worksite (see Appendix B). The format of the flyers and advertisement for participation had to be within the guidelines set forth by the employer. The available population at each worksite was limited to adults who were present the day(s) and time(s) of data collection, and who were in the local vicinity of the researcher. Using the convenience sampling technique and keeping within the guidelines of each worksite, the researcher had 152 adults volunteer to participate. This sample included adult smokers, nonsmokers and former smokers.

Instrumentation

The survey instrument selected for this study was the “Optimism/Pessimism Instrument” (Dember, Martin, Hummer, Howe and Melton, 1989). The instrument was designed to assess an individual’s tendency to endorse items which are optimistic or pessimistic in nature. This 56 item instrument had an established reliability and validity from two separate studies. The first study included 216 undergraduates from the University of Cincinnati. This study addressed item preparation, internal consistency, and provided correlations between this scale and measures of social desirability, locus of control, and other potential validity measures. The second study included 228 adults. In this study correlations with measures of psychological defense were

presented, providing additional evidence of construct validity. The instrument has a reported coefficient alpha of 0.84 for optimism and 0.86 for pessimism (Dember, et al., 1989).

The other pessimism/optimism instruments examined were also reliable and valid, but contained 60 to 326 items. After reviewing all instruments and considering the study population, the “Optimism/Pessimism Instrument” was chosen for this study because it was reliable, valid, had acceptable alpha coefficients, and had a length of 56 items.

The instrument consisted of 18 statements that are optimistic in nature, 18 items that are pessimistic in nature and 20 filler statements. Each statement was rated on a 4-point scale, 1) strongly agree, 2) agree, 3) disagree, and 4) strongly disagree. The scale measured several content areas relevant to optimism and pessimism including a general outlook on people, work and the future; expectations regarding one’s own personal situation; processing of current information; and current behavioral choices (Dember, et al., 1989).

The scoring method for “Optimism/Pessimism Instrument” derived three scores for each individual: a single optimism-pessimism score, an optimistic score, and a pessimistic score. The single optimism-pessimism score was a combination of the optimistic score and the reverse pessimistic score. The single optimism-pessimism score ranged from 36 – 144. A low single optimism-pessimism score meant high optimism, and a high single optimism-pessimism score meant high pessimism. The optimistic score ranged from 18 – 72, a low

score meant high optimism. The pessimistic score ranged from 18 – 72, a low score meant high pessimism.

The “Optimism/Pessimism Instrument” was used in conjunction with demographic and descriptive questions, called the information sheet. The information sheet was incorporated at the beginning of the survey instrument. It included questions about age, gender, education, smoking status, and tobacco usage. The instrument and additional questions are referred to as the “instrument packet” (see Appendix C).

The questions to determine smoking status included the following: 1) “Have you smoked at least 100 cigarettes in your entire life?” Those who responded “no” were classified as a nonsmoker. Those who responded “yes”, were also asked “Do you smoke everyday or some days?” If they responded “yes” to both questions they were classified as a smoker (Centers for Disease Control and Prevention, 2005b).

If the participant was a smoker, he or she was asked to approximate tobacco usage, “If you currently smoke everyday or some days, approximately how many cigarettes do you smoke per day?” The respondents could choose from 1-9 cigarettes, 10-19 cigarettes per day or 20+ cigarettes per day.

If the participant was a smoker, but currently did not smoke everyday or some days, he or she was asked “If you are not currently smoking, how long has it been since you completely stopped smoking cigarettes?” If the respondent answered 6 months or more, the individual was classified as a former smoker (Velicer, Prochaska, and Rossi, 1992).

To include other forms of smoking tobacco, all respondents were asked “Do you smoke any other form of tobacco?” This question was included because literature has shown that smoking cessation programs focus on cigarettes as the primary smoking habit, and other forms of tobacco are included as a secondary (Farkas, Gilpin, Distefan, and Pierce, 1999; Hennrikus, Jeffery, Lando, Murray, Brelje, Davidann, Baxter, Thai, Vessey, and Liu, 2002; Koffman, Lee, Hopp, and Emont, 1998; Moher, Hey, and Lancaster, 2003; Pierce and Gilpin, 2002).

Data Collection

Three Tennessee worksites and their representative(s) gave written approval to distribute the instrument packet during office hours to their employees. The worksites differed in classification of employees, white and blue collar. Each worksite that gave written approval was scheduled a specific date(s) and time(s) for the data collection. An informational flyer describing the study was sent or displayed on bulletin boards for employees (see Appendix B). The flyer stated data collection date(s), time(s) and site location. This flyer was distributed to the approved worksites 7-10 days prior to the scheduled data collection date.

On the specified date(s) and time(s) at each worksite, employees who were present at the worksite, in the local vicinity of the researcher and that chose to volunteer, were administered the survey. The participants were asked to answer all questions in the survey. If they did not feel comfortable answering a question, they could skip it due to the voluntary nature of the study. Each participant was given a writing utensil if he/she did not bring one. Once the

participant read the information sheet and directions of the instrument packet and had no further questions, he/she began responding to the items in the instrument packet.

After each participant completed the instrument packet, the researcher had the participant insert the instrument packet in a box at that worksite. When all instruments and information sheets were collected for that worksite, the packets were sealed in a box and labeled by the selected worksite.

The instrument packet was scored and tabulated within seven days using The Statistical Package for the Social Sciences (SPSS), 13th edition. The SPSS statistical analysis of the instrument packet scores and information included an ANOVA, MANOVA, and Spearman's correlation. All the collected data were stored in a locked cabinet in the department's office at the University of Tennessee, Knoxville. The same procedure was used for all selected worksites in this study.

Methods for Data Analysis

The survey method was used in the study. Each completed instrument packet was tabulated and analyzed. The study was a group comparison of seven independent variables, adult smokers, nonsmokers, former smokers, gender, age group, education, and occupation; and three dependent variables, optimism score, pessimism score and a single optimism-pessimism score (this score was a combination of the optimistic score and the reverse pessimistic score). These variables were compared using statistical tests from SPSS. The

following SPSS statistics were tabulated for the variables related to each research hypothesis and research question:

H_{A1}: Adult tobacco smokers are significantly more pessimistic in their personality than adult nonsmokers at an alpha <.05 using the “Optimism/Pessimism Instrument”.

The independent variables for the first research hypothesis one were adult smokers, nonsmokers, former smokers, gender, age group, education, and occupation. The dependent variables were the pessimistic score, optimistic score, and the single optimism-pessimism score. A MANOVA was used to show if there was a statistical difference between any of the variables. An ANOVA was used where appropriate. A Spearman correlation was employed to see if any correlations existed between variables.

H_{A2}: Adult nonsmokers are significantly more optimistic in their personality than adult tobacco smokers at an alpha <.05 using the “Optimism/Pessimism Instrument”.

The independent variables of research hypothesis two were adult smokers, nonsmokers, former smokers, gender, age group, education, and occupation. The dependent variables were the pessimistic score, optimistic score, and the single optimism-pessimism score. A MANOVA was used to show if there was a statistical difference between any of the variables. An ANOVA was used where appropriate. A Spearman correlation was employed to see if any correlations existed between variables.

Research Question #1: Are there any other correlations between the personality scores and nonsmokers, smokers, former smokers, age, gender, education, and occupation?

The independent and dependent variables in research question #1 were analyzed by an ANOVA, MANOVA and Spearman correlation where appropriate.

Summary of Chapter III

The purpose of this chapter was to give a description of the study's population, instrumentation, data collection and data analysis. The study population was sampled using a convenience sampling technique. The instrumentation section identified the instrument used for the study, and the reliability and validity of the instrument. The data collection section itemized the procedure for data collection at each worksite. Finally, the independent and dependent variables, statistical analysis, and tabulation of results were explored in the data analysis section.

The next chapter presented the data analysis and interpretation of results. This included descriptive statistics, statistical analyses, and the results of the alternate hypotheses and research question.

Chapter IV

Data Analysis and Results

The purpose of this chapter was to present the statistical analysis and interpretation of results of the data collected for the alternate hypotheses. The alternate hypotheses were:

H_{A1}: Adult tobacco smokers are significantly more pessimistic in their personality than adult nonsmokers at an alpha $<.05$ using the "Optimism/Pessimism Instrument".

H_{A2}: Adult nonsmokers are significantly more optimistic in their personality than adult tobacco smokers at an alpha $<.05$ using the "Optimism/Pessimism Instrument".

The research question of this study was:

2. Are there any other correlations between the personality scores and nonsmokers, smokers, former smokers, age, gender, education, and occupation?

This chapter has been organized into the following sections: introduction, sample characteristics, optimism/pessimism characteristics and statistical analysis.

Introduction

The purpose of this study was to examine the pessimistic and optimistic personality traits and an adults' smoking status. This was accomplished by measuring the pessimistic and optimistic personality characteristics with smokers, nonsmokers and former smokers. This study included a convenience sample of 152 employed adults from three Tennessee worksites. Employees at

the three Tennessee worksites were informed of this study through informational flyers posted at the worksite. The participants were present the day(s) and time(s) of data collection, were in the local vicinity of the researcher, and volunteered to participate. Alternate hypotheses were tested using the SPSS statistical package and the following analyses: ANOVA, MANOVA, and Spearman's correlation.

Sample Characteristics

The convenience sample was taken from three worksites in Tennessee. The sample included 152 participants. The demographics of the sample were put into two sections, sample demographics and smoker demographics. Sample demographics included gender, age, education, occupation, worksite and smoking status of the entire sample (n=152). Smoker demographics included gender, age, education, occupation and tobacco usage of the smokers (n=57). The demographics were tabulated using frequencies and cross-tabulations in SPSS.

Table 1 displays the distribution of participants according to sample characteristics: gender, age, education, occupation, worksite, and smoking status. Some of the education categories were combined for the statistical analysis from the data collection instrument due to the small number of individuals in each group. The categories labeled as "less than 8th grade" and "9-12th grade" were combined and re-labeled as "less than 12th grade". The categories labeled as "some graduate school" and "graduate degree" were combined and re-labeled as "graduate school".

Table 1

Demographics of the Sample

Variables	n=152	Percent
<u>Gender</u>		
Female	65	42.8
Male	87	57.2
<u>Age</u>		
18-24	26	17.1
25-34	35	23.0
35-44	48	31.6
45-54	28	18.4
55+	15	9.9
<u>Education</u>		
12 th grade or less	13	8.6
high school diploma	56	36.8
1-2 years of college	28	18.4
3-4 years of college	12	7.9
Bachelor's degree	23	15.1
Graduate school	20	13.2
<u>Occupation</u>		
Managerial and professional	41	27.0
Technical, sales and administrative	30	19.7
Service, production, craft and repair	29	19.1
Operators, fabricators, and laborers	50	32.9
Farming, forestry, and fishing	2	1.3
<u>Worksite</u>		
Worksite #1	72	47.4
Worksite #2	69	45.4
Worksite #3	11	7.2
<u>Smoking Status</u>		
Nonsmoker	63	41.4
Smoker	57	37.5
Former Smoker	32	21.1

A majority of the sample consisted of males (87, 57.2%). The largest age representation of the sample was the 35 – 44 category (48, 31.6%), and the smallest representation of it was the 55+ category (15, 9.9%). The high school diploma education category had the highest representation (56, 36.8%) and 3-4 years of college had the lowest (12, 7.9%). The largest occupation category represented was operators, fabricators and laborers (50, 32.9%) and farming, forestry, and fishing (2, 1.3%) represented the smallest occupation category. Most of the sample was collected from worksite #1 (72, 47.4%) and #2 (69, 45.4%). Worksite #3 had the smallest portion of the sample (11, 7.2%). The largest percentage of the sample was nonsmokers (63, 41.4%), followed by smokers (57, 37.5%) and former smokers (32, 21.1%).

Table 2 displays the demographics of the smokers (n=57) for gender, age, education, occupation, and tobacco usage. This table showed that male smokers made up the largest percentage of the smoker sample (37, 74%). There were two age groups that made up the largest percentage of smokers 25 – 34 year olds (17, 29.8%) and 35 – 45 year olds (16, 28.1%). Smokers with a high school diploma made up the largest education level (29, 50.7%). The occupation category that comprised the highest percentage of smokers was operators, fabricators and laborers (23, 40.4%). The tobacco usage category with the highest percentage of smokers was 10 – 19 cigarettes per day (26, 45.5%). For the purpose of this study, participants who reported they smoked zero cigarettes per day, and reported being quit for less than 6 months were included in the smoker category (Velicer, Prochaska, and Rossi, 1992).

Table 2

Demographics of the Smokers

Variables	n =57	Percent
<u>Smokers by Gender</u>		
Male	37	74.0
Female	20	26.0
<u>Smokers by Age</u>		
18-24	8	14.0
25-34	17	29.8
35-44	16	28.1
45-54	11	19.3
55+	5	8.8
<u>Smokers by Education</u>		
12 th grade or less	6	10.6
high school diploma	29	50.7
1-2 years of college	9	15.8
3-4 years of college	3	5.3
Bachelor's degree	9	15.8
Graduate school	1	1.8
<u>Smokers by Occupation</u>		
Managerial and professional	8	14.0
Technical, sales and administrative	10	17.5
Service, production, craft and repair	14	24.6
Operators, fabricators, and laborers	23	40.4
Farming, forestry, and fishing	2	3.5
<u>Tobacco Usage</u>		
0 cigarettes per day	3	5.3
1-9 cigarettes per day	12	21.1
10-19 cigarettes per day	26	45.5
20+ cigarettes per day	16	28.1

Optimism and Pessimism Characteristics of the Sample

The survey instrument selected for this study was the “Optimism/Pessimism Instrument” (Dember, Martin, Hummer, Howe and Melton, 1989). It consisted of 18 statements that are optimistic in nature, 18 items that are pessimistic in nature and 20 filler statements. The scoring method for “Optimism/Pessimism Instrument” derived three scores for each individual: a single optimism-pessimism score, optimism score, and pessimism score. The single optimism-pessimism score was a combination of the optimism score and the reverse pessimism score. The single optimism-pessimism score ranged from 36 – 144. A low single score meant high optimism, and a high single score meant high pessimism. The optimism score ranged from 18 – 72, a low score meant high optimism. The pessimism score ranged from 18 – 72, a low score meant high pessimism.

Table 3 displays the mean score distribution of the sample, which included the single optimism-pessimism score, optimism score, and pessimism score.

Single Optimism-Pessimism Score

The mean single optimism-pessimism score of the smoker and nonsmoker category’s vary by 16.2 points. The nonsmoker mean single optimism-pessimism score is closer to 36 (scale range 36-144) than the smoker category, which means the nonsmoker’s have higher optimism. The mean single optimism-pessimism score for the former smoker’s category is very close to the nonsmoker category, with a .5 difference for the single optimism-pessimism score. This means that the former smoker category also has higher optimism.

Table 3

Personality Score Mean Distribution

Personality Scores	n =152	Mean Score
<u>Single Optimism-Pessimism Score</u>		
Nonsmokers	63	61.8
Smokers	57	78.0
Former Smokers	32	62.3
<u>Optimism Score</u>		
Nonsmokers	63	30.1
Smokers	57	37.8
Former Smokers	32	30.3
<u>Pessimism Score</u>		
Nonsmokers	63	53.1
Smokers	57	44.3
Former Smokers	32	52.7

Optimism Score

The mean optimism score of the smoker and nonsmoker category varies by 7.7 points. The nonsmoker's optimism mean score is closer to 18 (scale range 18-72) than the smokers' category, which means the nonsmoker's have higher optimism. The mean optimism score for the former smoker's category is very close to the nonsmoker category, with a .2 difference for the optimism score. This means that the former smoker category also has higher optimism.

Pessimism Score

The mean pessimism score of the smoker and nonsmoker category vary by 8.8 points. The smoker's pessimism mean score is closer to 18 (scale range 18-72) than the nonsmoker category, which means the smoker's have higher

pessimism. The mean pessimism score for the former smoker's category is very close to the nonsmoker category, with a .4 difference for the pessimism score. This means that the former smoker category also has low pessimism just like the nonsmoker category.

Statistical Analysis

The independent variables for the study were adult smokers, nonsmokers, gender, age group, education, and occupation. The dependent variables were the single optimism-pessimism score, pessimism score, and optimism score. Using SPSS, an ANOVA, MANOVA and Spearman's correlation were used for data analysis at an alpha level of .05. The data were analyzed by the following categories: personality and smoking status, personality and gender, personality and age group, personality and occupation, and personality and education.

Personality and Smoking Status

Table 4 is the ANOVA analysis between the smoking status and the single optimism-pessimism score. The results of Table 4 showed that there is a significant difference between smoking status and the single optimism-pessimism score ($p < .05$).

Table 5 is a multiple comparison analysis between smoking status (smoker, nonsmoker and former smoker) and the single optimism-pessimism score. The results of Table 5 showed that this significant difference exists between nonsmokers and smokers ($p < .05$), and former smokers and smokers ($p < .05$). There is no significant difference between former smokers and nonsmokers ($p > .05$).

Table 4

Smoking Status and Single Optimism-Pessimism Score ANOVA

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	9213.570(a)	2	4606.785	13.423	.000
Intercept	632692.714	1	632692.714	1843.532	.000
Smoking Status	9213.570	2	4606.785	13.423	.000
Error	51136.193	149	343.196		
Total	764014.000	152			
Corrected Total	60349.763	151			

a R Squared = .153 (Adjusted R Squared = .141)

Table 5

Smoking Status and Single Optimism-Pessimism Score Post Hoc

(I) Smoking Status	(J) Smoking Status	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Nonsmoker	Smoker	-16.25(*)	3.387	.000	-24.26	-8.23
	Former Smoker	-.50	4.021	.991	-10.02	9.02
Smoker	Nonsmoker	16.25(*)	3.387	.000	8.23	24.26
	Former Smoker	15.74(*)	4.092	.001	6.06	25.43
Former Smoker	Nonsmoker	.50	4.021	.991	-9.02	10.02
	Smoker	-15.74(*)	4.092	.001	-25.43	-6.06

Based on observed means.

* The mean difference is significant at the .05 level.

Table 6 is a MANOVA between the optimism and pessimism score, and smoking status. The Wilks' Lambda analysis between the smoking status, and optimism and pessimism score reported an $F(7.047, 296)$, $p < .05$. The results of Table 6 showed that there is a significant difference between the optimism and pessimism score, and smoking status ($p < .05$).

Table 7 is a multiple comparison analysis between the optimism and pessimism score, and smoking status (smoker, nonsmoker and former smoker). The results of Table 7 showed that this significant difference exists between the nonsmokers and smokers, and the optimism score ($p < .05$). A significant difference also existed between and former smokers and smokers ($p < .05$) and the optimism score. A significant difference also existed between the nonsmokers and smokers, and the pessimism score ($p < .05$), and between smokers and former smokers ($p < .05$). There is not a significant difference between nonsmokers and former smokers for the optimism score ($p > .05$) and pessimism score ($p > .05$).

The results of tables 4-7 confirmed that smokers are significantly more pessimistic in their personality than nonsmokers; and, nonsmokers are more optimistic in their personality than smokers. Therefore, alternate hypotheses 1 and 2 were accepted. Tables 5 and 7 also confirmed that nonsmokers and former smokers do not differ significantly in their single optimism-pessimism score, optimism score and pessimism score.

Table 6

Optimism and Pessimism Score, and Smoking MANOVA

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	Optimism Score	2067.941(a)	2	1033.971	12.468	.000
	Pessimism Score	2672.621(b)	2	1336.310	12.581	.000
Intercept	Optimism Score	149263.050	1	149263.050	1799.844	.000
	Pessimism Score	349524.576	1	349524.576	3290.723	.000
Smoking Status	Optimism Score	2067.941	2	1033.971	12.468	.000
	Pessimism Score	2672.621	2	1336.310	12.581	.000
Error	Optimism Score	12356.736	149	82.931		
	Pessimism Score	15826.057	149	106.215		

a R Squared = .143 (Adjusted R Squared = .132)

b R Squared = .144 (Adjusted R Squared = .133)

Table 7

Optimism and Pessimism, and Smoking Status Post Hoc

Dependent Variable	(I) Smoking Status	(J) Smoking Status	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Optimism Score	Nonsmoker	Smoker	-7.68(*)	1.665	.000	-11.62	-3.74
		Former Smoker	-.19	1.977	.995	-4.87	4.49
	Smoker	Nonsmoker	7.68(*)	1.665	.000	3.74	11.62
		Former Smoker	7.49(*)	2.012	.001	2.73	12.26
	Former Smoker	Nonsmoker	.19	1.977	.995	-4.49	4.87
		Smoker	-7.49(*)	2.012	.001	-12.26	-2.73
Pessimism Score	Nonsmoker	Smoker	8.79(*)	1.884	.000	4.33	13.25
		Former Smoker	.39	2.237	.983	-4.90	5.69
	Smoker	Nonsmoker	-8.79(*)	1.884	.000	-13.25	-4.33
		Former Smoker	-8.40(*)	2.277	.001	-13.78	-3.01
	Former Smoker	Nonsmoker	-.39	2.237	.983	-5.69	4.90
		Smoker	8.40(*)	2.277	.001	3.01	13.78

Based on observed means.

* The mean difference is significant at the .05 level.

Personality and Gender

Table 8 is an ANOVA between the single optimism-pessimism score and gender (male and female). The results of Table 8 showed that there is a significant difference between the single optimism-pessimism score and gender ($p > .05$).

Table 9 is a MANOVA between the optimism and pessimism score, and gender. The Wilks' Lambda analysis between gender, and optimism and pessimism score reported an $F(3.721, 149)$, $p < .05$. The results of Table 9 showed that the significant difference is only between the pessimism score and gender ($p < .05$).

Tables 8 and 9 showed that there is a significant difference between personality scores and gender. This significant difference only existed between the pessimism score and gender.

Table 8

Single Optimism-Pessimism Score and Gender ANOVA

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1909.940(a)	1	1909.940	4.902	.028
Intercept	678462.993	1	678462.993	1741.440	.000
Gender	1909.940	1	1909.940	4.902	.028
Error	58439.823	150	389.599		
Total	764014.000	152			
Corrected Total	60349.763	151			

a R Squared = .032 (Adjusted R Squared = .025)

Table 9

Optimism and Pessimism Score, and Gender MANOVA

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	Optimism Score	198.766(a)	1	198.766	2.096	.150
	Pessimism Score	825.581(b)	1	825.581	7.007	.009
Intercept	Optimism Score	160871.976	1	160871.976	1696.257	.000
	Pessimism Score	374080.423	1	374080.423	3174.999	.000
Gender	Optimism Score	198.766	1	198.766	2.096	.150
	Pessimism Score	825.581	1	825.581	7.007	.009
Error	Optimism Score	14225.912	150	94.839		
	Pessimism Score	17673.097	150	117.821		
Total	Optimism Score	180415.000	152			
	Pessimism Score	395405.000	152			
Corrected Total	Optimism Score	14424.678	151			
	Pessimism Score	18498.678	151			

a R Squared = .014 (Adjusted R Squared = .007)

b R Squared = .045 (Adjusted R Squared = .038)

Personality and Age Group

Table 10 is an ANOVA between the single optimism-pessimism score and age group (18-24 years old; 25-34 years old; 35-44 years old; 45-54 years old; and 55+). The results of Table 10 showed that there is no significant difference between the age groups and the single optimism-pessimism score ($p > .05$).

Table 11 is a MANOVA analysis between the optimism and pessimism score, and age group. The Wilks' Lambda analysis between age group, and optimism and pessimism score reported an $F(0.535, 292)$, $p > .05$. The results of Table 11 showed that a significant difference does not exist between age group and the optimism and pessimism score ($p > .05$).

Table 10

Single Optimism-Pessimism Score and Age Group ANOVA

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	991.128(a)	4	247.782	.614	.653
Intercept	604928.229	1	604928.229	1498.088	.000
Age	991.128	4	247.782	.614	.653
Error	59358.635	147	403.800		
Total	764014.000	152			
Corrected Total	60349.763	151			

a R Squared = .016 (Adjusted R Squared = -.010)

Table 11

Optimism and Pessimism Score, and Age Group MANOVA

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	Optimism Score	144.876(a)	4	36.219	.373	.828
	Pessimism Score	278.842(b)	4	69.711	.562	.690
Intercept	Optimism Score	143111.986	1	143111.986	1473.232	.000
	Pessimism Score	327024.209	1	327024.209	2638.474	.000
Age	Optimism Score	144.876	4	36.219	.373	.828
	Pessimism Score	278.842	4	69.711	.562	.690
Error	Optimism Score	14279.801	147	97.142		
	Pessimism Score	18219.835	147	123.944		
Total	Optimism Score	180415.000	152			
	Pessimism Score	395405.000	152			
Corrected Total	Optimism Score	14424.678	151			
	Pessimism Score	18498.678	151			

a R Squared = .010 (Adjusted R Squared = -.017)

b R Squared = .015 (Adjusted R Squared = -.012)

Tables 10 and 11 confirmed that there is no significant difference between the single optimism-pessimism score, optimism score and pessimism score and age group.

Personality and Occupation

Table 12 is an ANOVA between the single optimism-pessimism score and occupation (managerial and professional; technical, sales and administrative; service, production, craft and repair; and operators, fabricators and laborers). The farming, forestry, and fishing category was excluded from this analysis because it only had 2 individuals in that group where the other occupational categories had a representation of 8-23 individuals. The results of Table 12 showed that there is no significant difference between occupation and the single optimism-pessimism score ($p > .05$).

Table 13 is a MANOVA between the optimism and pessimism score, and occupation. The Wilks' Lambda analysis between occupation, and optimism and pessimism score reported an $F(2.021, 290)$, $p > .05$. The results of Table 13 showed that a significant difference does not exist between occupation and the optimism ($p > .05$) and pessimism score ($p > .05$).

Tables 12 & 13 confirmed that there is no significant difference between the single optimism-pessimism, optimism and pessimism personality scores, and occupation.

Table 12

Single Optimism-Pessimism Score and Occupation ANOVA

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1019.079(a)	3	339.693	.872	.457
Intercept	651497.945	1	651497.945	1672.058	.000
Occupation	1019.079	3	339.693	.872	.457
Error	56887.195	146	389.638		
Total	744317.000	150			
Corrected Total	57906.273	149			

a R Squared = .018 (Adjusted R Squared = -.003)

Table 13

Optimism and Pessimism Score and Occupation MANOVA

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	Optimism Score	103.836(a)	3	34.612	.363	.780
	Pessimism Score	695.911(b)	3	231.970	2.027	.113
Intercept	Optimism Score	153953.823	1	153953.823	1613.026	.000
	Pessimism Score	356845.923	1	356845.923	3117.718	.000
Occupation	Optimism Score	103.836	3	34.612	.363	.780
	Pessimism Score	695.911	3	231.970	2.027	.113
Error	Optimism Score	13934.837	146	95.444		
	Pessimism Score	16710.783	146	114.457		
Total	Optimism Score	176927.000	150			
	Pessimism Score	393808.000	150			
Corrected Total	Optimism Score	14038.673	149			
	Pessimism Score	17406.693	149			

a R Squared = .007 (Adjusted R Squared = -.013)

b R Squared = .040 (Adjusted R Squared = .020)

Personality and Education

Table 14 is an ANOVA between the single optimism-pessimism score and education level (less than 12th grade; high school diploma; 1-2 years of college, 3-4 years of college; bachelor's degree; and graduate school). The results of Table 14 showed that there is a significant difference between education and the single optimism-pessimism score ($p < .05$).

Table 15 is a MANOVA between the optimism and pessimism score and education level. The Wilks' Lambda analysis between education, and optimism and pessimism score reported an $F(1.724, 290)$, $p > .05$. The results of Table 15 showed that a significant difference does exist between education and the pessimism score ($p < .05$). There is not a significant difference between education and the optimism score ($p > .05$).

Table 16 is a Spearman's correlation between education and the personality scores (single optimism-pessimism score, optimism score and pessimism score). The Spearman's correlation in Table 16 showed a linear relationship between education and the optimism score, pessimism score and single optimism-pessimism score. This analysis showed that as education level increases, the optimism score decreases; the pessimism score increases; and the single optimism-pessimism score decreases.

Tables 14 and 15 confirmed that there is only a significant difference between the pessimism score and education. Table 16 showed that a linear correlation does exist between the personality scores and education.

Table 14

Single Optimism-Pessimism Score and Education ANOVA

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	5383.129(a)	5	1076.626	2.860	.017
Intercept	547748.880	1	547748.880	1454.907	.000
Education	5383.129	5	1076.626	2.860	.017
Error	54966.635	146	376.484		
Total	764014.000	152			
Corrected Total	60349.763	151			

a R Squared = .089 (Adjusted R Squared = .058)

Table 15

Optimism and Pessimism Score, and Education MANOVA

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	Optimism Score	821.002(a)	5	164.200	1.762	.124
	Pessimism Score	1716.624(b)	5	343.325	2.987	.013
Intercept	Optimism Score	129659.864	1	129659.864	1391.561	.000
	Pessimism Score	293901.742	1	293901.742	2556.878	.000
Education	Optimism Score	821.002	5	164.200	1.762	.124
	Pessimism Score	1716.624	5	343.325	2.987	.013
Error	Optimism Score	13603.676	146	93.176		
	Pessimism Score	16782.053	146	114.946		
Total	Optimism Score	180415.000	152			
	Pessimism Score	395405.000	152			
Corrected Total	Optimism Score	14424.678	151			
	Pessimism Score	18498.678	151			

a R Squared = .057 (Adjusted R Squared = .025)

b R Squared = .093 (Adjusted R Squared = .062)

Table 16

Personality and Education Correlation Coefficient

Spearman's rho		Education	Optimism Score	Pessimism Score	Single optimism-pessimism score
Education	Correlation Coefficient	1.000	-.206(*)	.330(**)	-.304(**)
	Sig. (2-tailed)	.	.011	.000	.000
	N	152	152	152	152
Optimism Score	Correlation Coefficient	-.206(*)	1.000	-.728(**)	.890(**)
	Sig. (2-tailed)	.011	.	.000	.000
	N	152	152	152	152
Pessimism Score	Correlation Coefficient	.330(**)	-.728(**)	1.000	-.937(**)
	Sig. (2-tailed)	.000	.000	.	.000
	N	152	152	152	152
Single optimism-pessimism score	Correlation Coefficient	-.304(**)	.890(**)	-.937(**)	1.000
	Sig. (2-tailed)	.000	.000	.000	.
	N	152	152	152	152

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

Summary of Chapter IV

This chapter has displayed the sample characteristics, pessimism and optimism characteristics, and the statistical analysis of the sample. There were statistical differences presented between smokers and nonsmokers and their personality scores. A linear correlation was discovered between education and the single optimism-pessimism score, optimism score and pessimism score. Chapter VI will summarize the findings, conclusions and recommendations of the study.

Chapter V

Findings, Conclusions, and Recommendations

The purpose of this study was to examine pessimistic and optimistic personality traits and an adults' tobacco smoking status. The data were gathered using a convenience sampling technique at three different Tennessee worksites. The data collection sources were the "Optimism/Pessimism Instrument" (Dember, Martin, Hummer, Howe and Melton, 1989), and an information sheet with questions about age, gender, education, smoking status, and tobacco usage. Together, the instrument and information sheet were labeled as the "instrument packet."

Importance of the Study

This study has the potential to introduce new baseline information about smokers and nonsmokers. The literature review in Chapter II suggested that a link is possible between pessimistic personality traits and one's desire to smoke, and optimistic personality traits and one's desire not to smoke. The personality variables examined, pessimism and optimism, could give health educators, human resource personnel and clinicians new insights as to why a person continues to smoke or decides not to smoke. These insights could be used in the development of clinical and group interventions that can be used at the worksite to help tobacco users to quit smoking.

Procedures Followed

Three Tennessee worksite representatives gave written approval to distribute the instrument packet to their employees during office hours. Adults

who were present on the specified date(s) and time(s) at each worksite and who were present in the local vicinity of the researcher were recruited to participate in the study. The adult employees, who volunteered to participate, were administered the survey. A total of 152 adults completed the instrument packet among the three worksites. The instrument packets were scored according to the authors (Dember, et al., 1989) scoring instructions and entered into SPSS.

Findings of the Alternate Hypotheses and Research Question

Findings from this research are presented in the following headings: alternate hypothesis 1, alternate hypothesis 2, and findings related to the research question.

Alternate Hypothesis 1

H_{A1}: Adult tobacco smokers are significantly more pessimistic in their personality than adult nonsmokers at an alpha <.05 using the "Optimism/Pessimism Instrument".

For the purpose of analysis of alternate hypothesis 1, respondents were classified as smokers and nonsmokers.

The data displayed in smoking characteristics showed that smokers on average had a lower pessimistic score than nonsmokers (by 8.8 points) and a higher single optimism-pessimism score (by 16.2 points). This lower pessimistic score and higher single optimism-pessimism score determines that smokers are more pessimistic in their personality than nonsmokers (Dember, et al, 1989). The findings of the ANOVA and MANOVA analyses displayed that this 16.2 difference for the single optimism-pessimism score was statistically significant

($p < .05$), and the 8.8 difference for the pessimistic score was statistically significant ($p < .05$). This significant difference was determined at an alpha level of .05; therefore, alternate hypothesis 1 is accepted.

Alternate Hypothesis 2

H_{A2} : Adult nonsmokers are significantly more optimistic in their personality than adult tobacco smokers at an alpha $< .05$ using the "Optimism/Pessimism Instrument".

For the purpose of analysis of alternate hypothesis 2, respondents were classified as nonsmokers and smokers.

The data displayed in smoking characteristics showed that nonsmokers on average had a lower optimistic score than nonsmokers (by 7.7 points) and a lower single optimism-pessimism score (by 16.2 points). This lower optimistic score and higher single optimism-pessimism score determined that nonsmokers are more optimistic in their personality than smokers (Dember, et al, 1989). The findings of the ANOVA and MANOVA analyses displayed that this 16.2 difference for the single optimism-pessimism score was statistically significant ($p < .05$) and the 7.7 difference for the optimistic score was statistically significant ($p < .05$). This significant difference was determined at an alpha level of .05; therefore, alternate hypothesis 2 is accepted.

Findings Related to the Research Question

3. Are there any other correlations between the personality scores and nonsmokers, smokers, former smokers, age, gender, education, and occupation?

In regard to former smokers, the ANOVA and MANOVA analyses displayed that there was no significant difference between former smokers and nonsmokers, and the single optimism-pessimism score ($p > .05$), optimistic score ($p > .05$) and pessimistic score ($p > .05$). The statistical analysis also displayed a significant difference between smokers and former smokers, and the single optimism-pessimism score ($p < .05$), optimistic score ($p < .05$), and pessimistic score ($p < .05$).

The other findings in the data statistical analysis included: a significant difference between the single optimism-pessimism score and gender ($p < .05$); a significant difference between the pessimistic score and gender ($p < .05$); a significant difference between education and the single optimism-pessimism score ($p < .05$); a significant difference between education and the pessimistic score ($p < .05$); and, a liner relationship was found between education and the optimistic, pessimistic and single optimism-pessimism score. The correlation analysis Single Optimism-Pessimism score displayed that as one's education level increases, the single optimism-pessimism score decreases, the optimistic score decreases, and the pessimistic score increases.

Conclusions

Conclusions from this research were presented in the following headings: smoking characteristics, personality scores and smoking status, personality scores and gender; personality scores and age group; personality scores and occupation; and, personality scores and education.

Smoker Characteristics

The largest percentage of the sample was nonsmokers (63, 41.4%), followed by smokers (57, 37.5%) and former smokers (32, 21.1%). These findings are higher than the smoking trends displayed by the Centers for Disease Control (CDC, 2005a) which showed the adult smoking prevalence in 2005 at 20.9%. The percentage of smokers in this study is closer to Tennessee's smoking prevalence of 26.1% (CDC, 2005a).

Male smokers made up the largest percentage of the smoker sample (74%). This was consistent with Giovino's (2002) epidemiological study and the CDC (2005a,b, and c) that men have a higher smoking prevalence than women.

There were two age groups that made up the largest percentage of smokers, 25 – 34 year olds (17, 29.8%) and 35 – 45 year olds (16, 28.1%). This matched Giovino's (2002) findings among age groups. His epidemiological review displayed that highest age group of adults who smoked was 24 – 44 years of age.

Smokers with a high school diploma made up the largest education level (29, 50.7%). This was consistent with Giovino's finding, that in 2000 the highest prevalence of smokers was among persons with a high school diploma.

The occupation category that comprised the highest percentage of smokers were operators, fabricators and laborers (23, 40.4%). These findings were similar to Lee, LeBlanc, Fleming, Gomez-Martin and Pitman (2004) that found laborers had a smoking prevalence of 39.64% and operators were at

35.66%. The tobacco usage category with the highest percentage of smokers was 10 – 19 cigarettes per day (17.1%).

Personality Scores and Smoking Status

The smoking characteristics displayed a difference in the mean optimistic score, pessimistic score and single optimism-pessimism score. The optimistic mean of nonsmokers was closer to 18 than the smokers, implying that the nonsmokers are more optimistic in their personality. The pessimistic mean of smokers was closer to 18 than the nonsmokers, implying they are more pessimistic than nonsmokers. The single optimism-pessimism score of the nonsmokers was lower than the smokers, implying that overall the nonsmokers are more optimistic than smokers.

The results of the ANOVA and MANOVA analyses displayed that this difference is significant between smokers and nonsmokers at an alpha of .05. A significant difference also existed between smokers and former smokers, and the single optimism-pessimism score, optimistic score, and pessimistic score. These analyses displayed that there was not a significant difference between nonsmokers and former smokers for the single optimism-pessimism score, optimistic score, and pessimistic score.

The findings support the research conducted by Qualls (2002); Hamymen, Varianinen, Sahi, Pallonen and Salonen's (1987); Lipkus, Barefoot, Williams and Seigler (1994); and O'Toole and Torabi (2001). Qualls (2002) found that teenage smokers were significantly more pessimistic in their personality than teenage nonsmokers, and that teenage nonsmokers were significantly more optimistic in

their personality than teenage smokers. Hamymen, Varianinen, Sahi, Pallonen and Salonen's (1987) research found that general pessimism was strongly associated with the likelihood of being a current smoker. Lipkus, Barefoot, Williams and Seigler's (1994) research showed that hostility (a negative orientation toward people) was a significant disposition that distinguished ex-smokers from current smokers. O'Toole and Torabi's data (2001) concluded that that an introverted person may have a negative (pessimistic) strategy for coping with life, and that an extroverted person may have a positive (optimistic) strategy for coping with life situations.

In regard to former smokers, the ANOVA and MANOVA analyses showed that there is a significant difference between the overall, optimistic, and pessimistic score of former smokers and smokers ($p < .05$). The statistical analysis also showed that there is no significant difference ($p > .05$) between the overall, optimistic, and pessimistic score of former smokers and nonsmokers. This finding gave support to Seligman's (1998) research that has shown an individual can change from a pessimistic to an optimistic outlook.

Personality Scores and Gender

The ANOVA analysis displayed that there is a significant difference between the single optimism-pessimism score and gender ($p < .05$). A MANOVA was performed for the optimistic and pessimistic score and gender. The MANOVA displayed that the significant difference only existed between the pessimistic score and gender ($p < .05$). The extensive literature review for this study did not find any studies that support or confirm this significant difference

between the personality scores and gender. In regard to gender and smoking, Giovino's (2002) epidemiological review and the Centers for Disease Control's (2005) National Health Institute Survey support that adult men have been consistently more likely to smoke than women.

Personality Scores and Age Group

The ANOVA and MANOVA analyses did not show any significant difference between personality scores (optimism score, pessimism score and single optimism-pessimism score) and stated age groups (18 – 24; 25 – 34; 35 – 44; 45 – 55; 55+).

Personality Scores and Occupation

The ANOVA and MANOVA analysis did not show any significant difference between personality scores (optimism score, pessimism score and single optimism-pessimism score) and occupation (managerial and professional; technical, sales and administrative; service, production, craft and repair; and operators, fabricators, and laborers). The farming, forestry, and fishing category was excluded from this analysis because it only had 2 individuals in that group where the other occupational categories had a representation of 8-23 individuals.

Personality Scores and Education

The ANOVA analysis showed that there is a significant difference between the single optimism-pessimism score and education ($p < .05$). The MANOVA analysis showed that a significant difference does exist between education and the pessimistic score ($p < .05$), but there is not a significant difference between education and the optimistic pessimistic score ($p > .05$). The education categories

included: less than 12th grade; high school diploma; 1-2 years of college; 3-4 years of college; bachelor's degree; and graduate school.

A Spearman's correlation was employed to see if a linear relationship existed between education and the personality scores. This correlation analysis showed that as education goes up, the optimistic score goes down; the pessimistic score goes up; and, the single optimism-pessimism score goes down.

The literature review for this study did not find any studies that support or confirm the significant difference or correlation between the personality scores and education. In regard to education and smoking, Giovino's (2002) epidemiological review and the Centers for Disease Control's (2005) National Health Institute Survey supported that the highest rates of smoking are in lower educated individuals with a high school diploma or GED; and, the lowest rates of smoking are found in higher educated individuals with graduate school preparation or those with a graduate degree.

Recommendations

The following recommendations resulted from the findings and conclusions of the study:

1. Human resource professionals, health educators, health and wellness program managers at worksites should to consider evaluating their employees pessimistic and optimistic personality traits before and six months – 1 year after a smoking cessation program.

2. Human resource professionals, health educators, health and wellness program managers at worksites should consider including optimism traits when developing smoking cessation programs for employees.

Recommendations for Further Research

1. Further research that involves incorporating optimism skills in a smoking cessation program at a worksite, and an evaluation of the program's success.
2. A replication of this study with the general population and a substantially larger sample, would allow for results that are comprehensive and that can be compared with the general population.

Summary of Chapter V

This chapter explored the significant results between smoking status and optimism/pessimism personality traits. The researcher concluded that there was a significant difference between the single optimism-pessimism score, pessimism score, and optimism score for employed adults who are classified as smokers and nonsmokers. The researcher discovered that former smokers and nonsmokers are not different in their pessimistic score, optimistic score and single optimism-pessimism score. However, former smokers and smokers are significantly different in their pessimism, optimism and single optimism-pessimism personality scores.

The results of this study have practical implications. The study has documented that there is a link between personality and smoking. It is not the sole factor in one's decision to smoke or to continue smoking but, personality

should be considered as a contributing factor. This finding could be considered when planning tobacco prevention programs. The final chapter, VI, discussed the study in retrospect.

Chapter VI

The Study in Retrospect

This chapter presented a retrospective view of the study which includes the researcher's reflections and concluding remarks.

Researcher's Reflections

The design of the study has strengths that aided to the quality of the study. The strengths of this study lie in the sample population, the on-site involvement, and the data collection. The study included a sample population of 152 individuals, which was a strong sample when considering the approval from worksite representatives and the voluntary nature of the participants. The study population was also comprised of blue and white collar employees. This strengthened the analysis between the participants, because blue collar worksites tend to have a higher prevalence of smoking than white collar worksites. This study included all three categories of smoking status: smokers, nonsmokers and former smokers. By including all three smoking status categories, it facilitated the evaluation of group differences that would not have been possible if all three types of participants were not included.

The worksites used for data collection were located in Tennessee; therefore, the researcher was onsite for the duration of the data collection. This presence allowed participants to ask questions and express concerns at the time of data collection which may have positively impacted the participation rate.

The length of the survey was optimal for the study population of employed

adults. It took the participants 10-20 minutes on average to complete the survey, which allowed participation on a shift break or lunch break.

Looking back there was one thing that could have been improved upon in the study. This improvement included the focus of the study population. The study population could have included the general population instead of solely worksites. The focus on the worksites limited the application of the study to that select group.

Concluding Remarks

The purpose of this study was to examine pessimistic and optimistic personality traits and an adult's tobacco smoking status. The variables examined in this study have given further insights on how one's personality can affect smoking status. The personality traits of pessimism and optimism have been found to be significantly linked to one's smoking status.

Optimism and pessimism now can be seen as a factor that is linked to one's smoking status. It is not the only factor that determines smoking status, but it should be considered within the other factors that can influence a person's smoking status. The other factors include: age, gender, education level, occupation and where the subject lives.

Although pessimism and optimism personality traits are not the sole links to smoking status, these traits cannot be ignored by health educators, health and wellness program managers, human resource professionals and clinicians. These personality traits cannot be ignored when developing prevention and cessation programs for worksites. There exists the possibility that by changing

one's pessimistic nature to becoming more optimistic, the onset of tobacco use may be prevented. Furthermore, the smokers may be more successful in their endeavors to quit smoking.

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Appendices

Appendix A

Worksite Permission Letters

October 27, 2005

Human Subject Committee
University of Tennessee, Knoxville

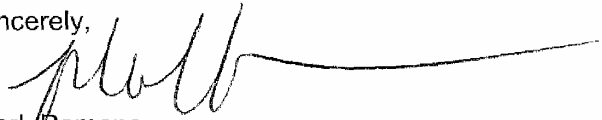
Dear Review Board Member,

As the Director of Human Resources of _____ I have discussed with Ms. Kandi Qualls her research proposal and her plan to use the "Optimism/Pessimism Instrument" (Dember, Martin, Hummer, & Melton 1989), and attached information sheet for data collection. I give my permission for Kandi to have access to our worksite and allow our employees to voluntarily participate in completing the data collection instrument.

I have received and reviewed a copy of the Informed Consent Statement. Ms. Kandi Qualls is approved to have access to our employees for data collection in the capacity as stated in the Human Subjects Committee Proposal Approval form.

We do understand that all participant information will be kept confidential and that no personal identifying information will be collected.

Sincerely,

A handwritten signature in black ink, appearing to read 'Mark Romano', with a long horizontal flourish extending to the right.

Mark Romano
Director, Human Resources

The Customer Driven Company

December 2, 2005

Human Subject Committee
University of Tennessee, Knoxville

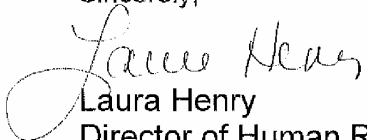
Dear Review Board Member,

As the Director of Human Resources of I I have
discussed with Ms. Kandi Qualls her research proposal and her plan to use the
"Optimism/Pessimism Instrument" (Dember, Martin, Hummer, & Melton 1989),
and information sheet for data collection. I give my permission for Kandi to have
access to our worksite and allow our employees to voluntarily participate in
completing the data collection instrument.

I have received and reviewed a copy of the instrument and information sheet.
Ms. Kandi Qualls is approved to have access to our employees for data
collection in the capacity as stated in the Human Subjects Committee Proposal
Approval form.

We do understand that all participant information will be kept confidential and that
no personal identifying information will be collected.

Sincerely,


Laura Henry
Director of Human Resources

September 30 ,2005

Human Subject Committee
University of Tennessee, Knoxville

Dear Review Board Member,

As the **Safety Manager** of _____ I have discussed with Ms. Kandi Qualls her research proposal and her plan to use the "Optimism/Pessimism Instrument" (Dember, Martin, Hummer, & Melton 1989), and attached information sheet for data collection. I give my permission for Kandi to have access to our worksite and allow our employees to voluntarily participate in completing the data collection instrument.

I have received and reviewed a copy of the Informed Consent Statement. Ms. Kandi Qualls is approved to have access to our employees for data collection in the capacity as stated in the Human Subjects Committee Proposal Approval form.

We do understand that all participant information will be kept confidential and that no personal identifying information will be collected.

Sincerely,



Bill Monroe

Human Resource/Safety Manager

Appendix B
Worksite Flyer

Looking for Volunteers to Participate

DISSERTATION SURVEY

As part of a dissertation project, Ms. Kandi Qualls is conducting a survey regarding smoking status (smokers, former, and nonsmokers) and a person's personality. She is doing the dissertation project to complete her Ph.D. in Community Health.

Please feel completely free to volunteer and participate in the project conducted by Ms. Qualls.

Who: ANYONE can participate

When: Date and Times

Where: Breakroom

Appendix C

“Optimism and Pessimism” Instrument and Information Sheet

Optimism/Pessimism Survey

Pessimistic and Optimistic Personality Traits among Adult Tobacco Smokers and Nonsmokers in Selected Worksites

Introduction: A graduate from the University of Tennessee is conducting a survey for her dissertation research. Adults 18 years of age and over are invited to participate. The purpose of the research study is to determine if a significant difference exists between pessimistic and optimistic personality traits and an adults' tobacco smoking status.

Your Involvement in the Study: Your involvement in the study is completely voluntary. This packet includes instructions for completing the survey. The first section includes questions about age, gender, occupation, education, smoking status and tobacco usage. The second section includes 56 items that you are asked to respond to: strongly agree, agree, disagree, strongly disagree. In the second section, please try to answer all the items in the survey. You should not place your name or any personal identifier on the survey form. The drop box will be attended to ensure no surveys are viewed or removed. Once the survey period is complete the drop box will be removed by the researcher.

The estimated time for completion is approximately 15-30 minutes.

Risks: There are no known risks associated with this type of survey research.

Benefits: There are no direct benefits to the participants. The benefit of the study is that it will look at pessimistic and optimistic personalities and it's relation to tobacco smoking among adults. This correlation has not been explored in the past and may offer insight into why some adults decide to smoke tobacco. The results of the study may help identify strategies for improving tobacco smoking cessation and prevention programs.

Confidentiality: The information provided by all participants will be kept confidential. 1) All information packets will be coded with a letter and numbering system. 2) The instrument packet does not include any personal identifying information (i.e. birth date, first or last name, address, phone number, employer or ethnic background). Data will be stored securely and will be made available only to the researcher conducting the study. No reference will be made in oral or written reports which could link participants to the study.

Contact Information: If you have questions at any time about the study procedures, you may contact the researcher, Kandi Qualls at Andy Holt Ave, Knoxville, TN, and 865-386-4748. If you have any questions about your rights as a participant, contact The University of Tennessee Office of Research Compliance Services at 974-3466.

Participation: Your participation is voluntary; you may decline to participate without penalty. If you decide to participate, you may withdraw from the study at anytime without penalty. If you withdraw from the study before data collection is completed, the survey will be returned to you or destroyed. Return of the completed survey constitutes your consent to participate.

OPEN THE BOOKLET TO BEGIN THE SURVEY

Section 1

Instructions: Please read each item and check your response.

Sex: <input type="checkbox"/> female <input type="checkbox"/> male	Age Group: <input type="checkbox"/> 18-24 <input type="checkbox"/> 25-34 <input type="checkbox"/> 35-44 <input type="checkbox"/> 45-54 <input type="checkbox"/> 55 or more years of age	Occupation: <input type="checkbox"/> managerial and professional <input type="checkbox"/> technical, sales and administrative <input type="checkbox"/> service, production, craft and repair <input type="checkbox"/> operators, fabricators, and laborers <input type="checkbox"/> farming, forestry and fishing <input type="checkbox"/> unemployed
Level of Education: (one that best represents your level) <input type="checkbox"/> less than 8 th grade <input type="checkbox"/> 9-12 <input type="checkbox"/> high school diploma <input type="checkbox"/> 1-2 years of college <input type="checkbox"/> 3-4 years of college <input type="checkbox"/> Bachelor's degree <input type="checkbox"/> Some graduate school <input type="checkbox"/> Graduate degree		

1. Have you smoked at least 100 cigarettes in your entire life? <input type="checkbox"/> Yes (go to # 2) <input type="checkbox"/> No (go to #5)
2. Do you currently smoke everyday or some days? <input type="checkbox"/> Yes (go to #3) <input type="checkbox"/> No (go to #4)
3. If you currently smoke everyday or some days, approximately how many cigarettes do you smoke per day? <input type="checkbox"/> 0 <input type="checkbox"/> 1-9 <input type="checkbox"/> 10-19 <input type="checkbox"/> 20+
4. If you are not currently smoking, about how long has it been since you completely stopped smoking cigarettes? <input type="checkbox"/> 0-3 months <input type="checkbox"/> 3-6 months <input type="checkbox"/> 6 months or more
5. Do you smoke any other form of tobacco? <input type="checkbox"/> No <input type="checkbox"/> Pipes <input type="checkbox"/> Cigars <input type="checkbox"/> Bidis

Section 2

Optimism/Pessimism Instrument, W.N. Dember, S.H. Maring, M.K. Hummer, S.R. Howe, and R.S. Melton

Instructions: The 56 items printed represent individual differences in viewpoint. Using the scale shown below, please respond with your own point of view to all of the statements: for example, if you strongly agree with a statement then circle 1 (S. Agree). Do not spend a lot of time thinking about each one; just indicate your first impression. Remember, respond to these statements according to how you feel about them right now.

	1 – Strongly Agree	2 – Agree	3 – Disagree	4 – Strongly Disagree
			S. Agree	S. Disagree
1. I like people I get to know.	1	2	3	4
2. It is best not to set your hopes too high since you will probably be disappointed.	1	2	3	4
3. There is so much to be done and so little time to do it in.	1	2	3	4
4. I have a tendency to make mountains out of molehills.	1	2	3	4
5. Rarely I expect good things to happen.	1	2	3	4
6. Everything changes so quickly these days that I often have trouble deciding which are the right rules to follow.	1	2	3	4
7. All in all the world is a good place.	1	2	3	4
8. When it comes to my future plans and ambitions in life, I expect more to go wrong than right.	1	2	3	4
9. My hardest battles are within myself.	1	2	3	4
10. I believe there's not much hope for the human race.	1	2	3	4
11. It does not take me long to shake off a bad mood.	1	2	3	4
12. If you hope and wish for something long and hard enough, you will eventually get it.	1	2	3	4
13. People get ahead by using 'pull' and not because of what they know.	1	2	3	4
14. Even when things in my life are going okay, I expect them to get worse soon.	1	2	3	4
15. With enough faith you can do almost anything.	1	2	3	4

1 – Strongly Agree 2 – Agree 3 – Disagree 4 – Strongly Disagree

	S. Agree			S. Disagree
16. I enjoy myself most when I am alone, away from other people.	1	2	3	4
17. When I undertake something new, I expect to succeed.	1	2	3	4
18. Honesty is the best policy in all cases.	1	2	3	4
19. I generally look at the brighter side of life.	1	2	3	4
20. If I make a decision on my own, I can pretty much count on the fact that it will turn out to be a poor one.	1	2	3	4
21. I generally make light of my problems.	1	2	3	4
22. It is always a good thing to be frank.	1	2	3	4
23. Where there's a will, there's a way.	1	2	3	4
24. I have a tendency to blow up problems so they seem worse than they really are.	1	2	3	4
25. All in all, it is better to be humble and honest than important and dishonest.	1	2	3	4
26. As time goes on, things most likely get worse.	1	2	3	4
27. It is the slow, steady worker who usually accomplishes the most in the end.	1	2	3	4
28. When I go to a party I expect to have fun.	1	2	3	4
29. Times are getting better.	1	2	3	4
30. Everyone should have an equal chance and an equal say.	1	2	3	4
31. Better to expect defeat, then it doesn't hit so hard when it comes.	1	2	3	4
32. It is wise to flatter important people.	1	2	3	4
33. I expect to achieve most of the things I want to in life.	1	2	3	4
34. It seems the cards of life are stacked against me.	1	2	3	4
35. What is lacking in the world today is the old kind of friendship that lasts for a lifetime.	1	2	3	4
36. When the weatherman predicts 50% chance of rain, you might just as well count on seeing rain.	1	2	3	4

1 – Strongly Agree 2 – Agree 3 – Disagree 4 – Strongly Disagree

	S. Agree			S. Disagree
37. Before an interview, I am usually confident that things will go well.	1	2	3	4
38. Sometimes I feel down, but I bounce right back again.	1	2	3	4
39. The future seems too uncertain for people to make serious plans.	1	2	3	4
40. When I have undertaken a task, I find it difficult to set it aside even for a short time.	1	2	3	4
41. Tenderness is more important than love.	1	2	3	4
42. When gambling, I expect to lose.	1	2	3	4
43. Anybody who is willing to work hard has a good chance for success.	1	2	3	4
44. The future looks very dismal.	1	2	3	4
45. If I had to choose between happiness and greatness, I'd choose greatness.	1	2	3	4
46. Minor setbacks are something I usually ignore.	1	2	3	4
47. In general, things turn out all right in the end.	1	2	3	4
48. It is better to be a dead hero than a live coward.	1	2	3	4
49. Give me 50/50 odds and I will choose the wrong answer every time.	1	2	3	4
50. It is hard to get ahead without cutting corners here and there.	1	2	3	4
51. If I were in competition and contestants were narrowed down to myself and one other person, I would expect to be runner-up.	1	2	3	4
52. April showers bring May flowers.	1	2	3	4
53. I can be comfortable with nearly all kinds of people.	1	2	3	4
54. The worst defeats come after the best victories.	1	2	3	4
55. In the history of the human race there have been just a handful of really great thinkers.	1	2	3	4
56. Every cloud has a silver lining.	1	2	3	4

Thank you for your participation!
Please insert your completed survey in the box provided.

Vita

Kandi Delyn Qualls was born in Tarzana, California on September 20, 1977. She has always had a great passion for education and setting her goals beyond what was expected of her. Kandi's first degree was a Bachelor of Arts in Liberal Studies, from Humboldt State University, California. Kandi entered the workforce as a Prevention Specialist. She taught an annual health education curriculum to children from head start – 6th grade. Through her experience as a Prevention Specialist, Kandi found she had a passion for health education. Kandi then went on to complete her Master's in Health Education at Idaho State University, while being employed as a Smoking Cessation Coordinator. Finally, Kandi's overwhelming desire to increase her knowledge and follow her love of education lead her to the University of Tennessee. This is where she completed a Ph.D. degree in Human Ecology, with a concentration in Community Health and a specialization in Safety.

In the professional arena, Kandi has been employed as a health education specialist while juggling education, work and family. She was a Graduate Teaching Assistant at the University of Tennessee for the 3 years. The courses she instructed included Advanced First Aid/CPR, Health Instruction for Elementary School Teachers, and Personal Health and Wellness. Additionally, Kandi has developed health and wellness programs for local employers in small and medium industries. She is grateful for the support of her family and friends which has allowed her to pursue personal and professional goals.