SOCIAL SUPPORT AND SMOKING AMONG MIDWEST LGBT ADULTS

A DISSERTATION IN
Nursing

Presented to the Faculty of the University
of Missouri-Kansas City in partial fulfillment of
the requirements for the degree

DOCTOR OF PHILOSOPHY

by
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2014

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ABSTRACT

Lesbian, gay, bisexual, and transgender (LGBT) populations have smoking rates twice that of their heterosexual counterparts. To design effective outreach, prevention, and treatments for these individuals, a comprehensive collection of contributing factors is needed. The objective of this dissertation research was to increase understanding of how minority stress, social support, and environmental factors influence smoking behaviors among an LGBT population in the Midwest. This cross-sectional, descriptive study of 135 LGBT adults used an online data collection strategy and multivariate analyses were performed to examine factors associated with current smoking status. Results revealed the current smoking rate in this LGBT population was 30.3% which was greater than one and one half times the smoking rate of the general population in the United States. Depression, anxiety and perceived stress were significantly related to a greater likelihood of smoking. Overall, minority stress was a greater contributing factor than social support to the smoking behaviors of this LGBT population.

APPROVAL PAGE

The faculty listed below, appointed by the Dean of the School of Nursing have examined a dissertation titled "Social Support and Smoking among Midwest LGBT Adults" presented by Angela Denise Sivadon, candidate for the Doctor of Philosophy degree, and hereby certify that in their opinion it is worthy of acceptance.

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ACKNOWLEDGEMENTS

I would like to thank the members of my committee for sharing their expertise with me and giving me the guidance to make this educational journey a successful one. I am also thankful for the group of women that began this trek with me in the summer of 2009. We had no idea what we were in for that sultry July when we met in Kansas City for the first time but we formed a bond during the next few years that became a life raft at times for me when I doubted my abilities. I want to thank my colleagues whose support and encouragement have inspired me to reach for what often seemed unobtainable, especially Jughead who helped me earn a whole new respect for statistics. I will forever be grateful to my best friend Lisa who has always pushed me to look for "what's next" in life, leading to this quest to find out. I want to thank my parents who raised me to know that I can accomplish anything I am willing to work hard enough for and who instilled in me the confidence to go for it. Saving the best for last, I want to thank my partner, Mary, who has been my rock during the stormy times and my biggest cheerleader during the times of celebration.

Partial funding for this project has been received from

the Sigma Theta Tau Lambda Phi Chapter.

CHAPTER 1

INTRODUCTION

Smoking is the greatest contributing factor to preventable deaths in the United States (U.S. Department of Health and Human Services [HHS], 2014) and is associated with significant and serious health problems such as cancer, stroke, cardiac disease, and chronic respiratory illnesses (Centers for Disease Control and Prevention website, n.d). While much research has been conducted in the area of smoking cessation and smoking rates have seen a slight decline among adults in the United States (U.S.), many sub-groups of the population continue to have a high prevalence of tobacco use (Pizacani et al., 2009). Lesbian, gay, bisexual, and transgender (LGBT) populations are one such group (Lehavot & Simoni, 2011). LGBT individuals have high smoking prevalence with rates that are nearly twice that of heterosexuals (Lee, Griffin, & Melvin, 2009). LGBTs also experience a high risk for smoking-related health disparities and are an underserved and understudied group (Wilson & Neville, 2009). Researchers have suggested that factors such as minority stress contribute to this high prevalence of smoking among LGBT communities (Blosnich, Lee, & Horn, 2011). This population has lacked the focused attention that other vulnerable groups have received to address their unique needs to successfully stop smoking. The majority of smoking studies conducted in LGBT populations in the U.S. have targeted those who live in coastal and larger cities, with little attention given to those who live in smaller cities and towns. These towns have very different social norms and attitudes than those found in larger cities. More research is needed to understand the social and environmental factors that contribute to smoking behaviors among LGBT populations, particularly for those who live in smaller communities.

Background

Descriptive and exploratory studies have established the high rate of smoking among LGBT individuals (Gruskin, Greenwood, Matevia, Pollack, & Bye, 2007; Lee et al., 2009; Pizacani et al., 2009). Despite such evidence and the known smoking-related health disparities experienced by this population, little research has been conducted to understand the relationship between social support, minority stressors, and cultural environment on the incidence of smoking among LGBT individuals (Matthews, Hotten, DuBois, Fingerhut, & Kuhns, 2011). LGBT smokers are not targeted for smoking cessation programs and limited intervention research has been conducted to create smoking cessation interventions tailored for them (Hutchinson, Thompson, & Cederbaum, 2006).

LGBT populations are at an increased risk of depression and psychological distress (Lehavot & Simoni, 2011) both of which have an established association with smoking prevalence. Fear of revealing their sexual orientation to healthcare providers, previous poor experiences with health professionals, and the absence of health insurance coverage creates barriers to preventive health services for these individuals (Weisz, 2009). These additional concerns are created by both internal and external stressors which are sociocultural-based, resulting in a unique and long lasting effect known as minority stress (Meyer, 1995). The combination of these factors places this population in the category of smokers less likely to receive advice from healthcare providers about smoking cessation (Borelli, 2010). Moreover, advertisement and financial sponsorships by the tobacco industry target the LGBT community, creating a sense of inclusion and a positive influence for continued smoking (Smith, Thompson, Offen, & Malone, 2008). The Healthy People 2020 LGBT Health objective has linked minority stressors with health disparities, such as smoking, in the LGBT

community (Healthy People 2020, n.d.). The Institute of Medicine has identified social influences as a priority research area among LGBT populations in order to advance the knowledge of LGBT health behaviors (Institute of Medicine [IOM], 2011).

Social influences, specifically social support, have been shown to have a significant relationship with health outcomes (Langford, Bowsher, Maloney, & Little, 1997). Research results in general populations indicate those with positive social support in their lives make healthier lifestyle choices, live longer, and manage stressful situations, such as change, better (Tilden, 1986). This dissertation study explored the impact social support has in the lives of LGBT individuals and their choices regarding smoking using the Weinert Social Support theory as the theoretical framework.

Purpose and Research Questions

The purpose of this dissertation research is to increase understanding of how minority stress, social support, and environmental factors influence smoking behaviors among an LGBT population in the state of Oklahoma. This study will address the following research questions: 1) How does social support differ among smokers and non-smokers in a LGBT population? 2) How does the impact of social support, environmental factors, and minority stress contribute to smoking behaviors of LGBT individuals? 3) Does a higher level of social support increase intention to quit smoking among LGBT individuals?

Definitions

LGBT: Any individual who identifies as lesbian, gay, bisexual or transgender. LGB women and men are often referred to as women who have sex with women (WSW) and men who have sex with men (MSM). Transgender individuals experience a different gender

identity from their sex at birth. These groups may also be referred to as sexual minorities (non-heterosexuals).

Smoking behaviors: Smoking status, length, frequency and amount of smoking; smoking cessation attempts

Current smoking: The report of having smoked at least 100 cigarettes in lifetime and now smoking cigarettes every day or some days (CDC Behavioral risk factor surveillance system, n.d.) Current smokers who reported smoking only on some days were considered *light* or *intermittent* smokers.

Environmental factors: In this study, the extent of connectedness to the LGBT community; the degree of outness to family and friends.

Minority stress: Minority stress is described as "psychosocial stress derived from minority status" (Meyer, 1995, p. 38). For LGBT individuals, three factors represent minority stress: internalized homonegativity, which results from the negative attitudes of society towards self; stigma, which is related to the anticipation of rejection and discrimination; and the experience of being discriminated against or the victim of an act of violence (Meyer, 1995). Minority stress can result in psychological distress such as poor psychological well-being, higher perceived stress levels, depression, and anxiety disorders (Cochran, Sullivan, & Mays, 2003).

Social support: Resources provided by one individual to another (Cohen & Syme, 1985). These include relationships, networks, and/or functional support (emotional, informational, or tangible). Social support may be positive or negative.

Assumptions

Based on Weinert's Social Support Theory, the following study assumptions were made:

1. An individual's personal environment and minority stress factors contributed to poor health behaviors such as smoking.
2. The environment of an individual's situation affected health behavior choices.
3. The number of minority stress factors negatively affected health behavior choices.
4. An individual's social support network contributed to their ability to change health behaviors; a strong network increases LGBT success in smoking cessation.
5. An individual's perception of available social support influenced their ability to make positive health behavior choices.
6. The available social support to an individual affected their ability to make positive health behavior choices.
7. Increased positive social support promoted one's intention to quit smoking.

Significance

Because smoking is the single most preventable cause of premature death in the United States (Hughes et al., 2008), there is a need to support smokers in their smoking cessation efforts. In order to assist LGBT smokers in smoking cessation, the social context of smoking in this population must be determined and the impact of specific cultural environmental factors correlated with smoking behaviors must be determined. In order to change the norms and health behaviors of community members, community focused intervention programs must be developed and tailored for the people that the intervention is intended to reach (Guttmacher, Kelly, & Ruiz-Janecko, 2010). The more community

competence that can be developed, the greater the possibility of successfully working with LGBTs to identify barriers to smoking cessation and to initiate smoking cessation interventions that will create healthful behavior changes (Issel, 2009). Culturally targeted interventions are effective in reducing negative health behaviors in vulnerable populations (Matthews, Sanchez-Johnsen, & King, 2009) such as the LGBT population (Hutchinson, Thompson, & Cederbaum, 2006). Findings from this study will inform future community-based interventions that are congruent with the recent Program Announcement by the National Institutes of Health regarding the need for LGBT intervention research.

This dissertation study guided by Weinert's Social Support Theory is the first step in a program of research that will focus on the reduction of tobacco-related health disparities among the LGBT population. Findings will be used to inform subsequent studies that will aim to develop tailored smoking cessation interventions for this population. My ultimate goal is to enhance the health outcomes of LGBTs through research findings that can be translated into clinical practice and into community-based programs.

CHAPTER 2

LITERATURE AND THEORETICAL FRAMEWORK

Smoking

Smoking is the most preventable cause of premature death in the United States (Hughes, Johnson, & Matthews, 2008). Although public knowledge about the health risks associated with smoking have increased significantly since it was linked to cancer in the 1950s (Brownson et al., 1992), 19.3% of Americans, 18 years of age or older, are current smokers (Benowitz, 2010). This percentage of the population results in approximately forty-five million adults in the U.S. that currently smoke tobacco. Each year over 400,000 Americans die prematurely from diseases related to direct or indirect exposure to tobacco smoke ("Current Cigarette Smoking," 2011). If current trends remain unchanged greater than nine million people will die annually from smoking related illnesses by the year 2030 (Yanbaeva, Dentener, Creutzberg, Wesseling, & Wouters, 2007). Women who smoke can expect to live 14.5 years less than female non-smokers while male smokers decrease their life expectancy by 13.2 years (American Lung Association, 2010).

The effects from smoking are responsible for approximately 90% of fatal lung cancers and 80-90% of chronic obstructive pulmonary disease (COPD) cases diagnosed annually. Although cancer of the larynx, tongue, and lung are most commonly related to smoking, there is mounting evidence that smoking has a significant extrapulmonary toxic effect (Yanbaeva et al., 2007). The oxidative stress produced by tobacco smoking results in an increased amount of oxidized fibrinogen that plays a key role in the development of atherosclerosis due to an increase in platelet aggregation and thrombosis formation (Yanbaeva et al., 2007). Oxidative stress can also result in a dysfunction of the endothelial

cells of the vascular system creating a disturbance in systemic hemostasis and coagulation, as well as causing lipid abnormalities (Yanbaeva et al., 2007). As a result, exposure to tobacco smoke has a harmful effect on nearly every organ in the body and exacerbates the instances of COPD, coronary artery disease, stroke, abdominal aortic aneurysm, and numerous cancers (American Lung Association, 2010).

By 1987, 90% of adults in the US who smoked acknowledged that smoking caused lung cancer (Brownson et al., 1992). Although many individuals continued to smoke despite this knowledge, smoking behaviors began to change. Consumers started choosing low tar and low nicotine cigarettes, and filtered cigarettes were chosen by the majority of smokers (Warner & Murt, 1982). However, these strategies to decrease health risks actually resulted in an increased consumption of the number of cigarettes smoked in order to fulfill nicotine cravings (Warner & Murt, 1982). As more public education has become available in recent years, there has been a decline in the number of daily smokers. However, light smokers (<1pack/day) and intermittent smokers have increased, especially among women, young adults, educated individuals and minority populations (Schane, Ling, & Glantz, 2010). Those who do not smoke on a daily basis (intermittent) and those who are social smokers are often under-identified as they tend to not consider themselves as smokers. Unfortunately, the adverse health risks associated with light or intermittent smoking is the same as those linked with regular smoking, specifically coronary artery disease (Schane et al., 2010). Even though decreasing smoking amounts and reducing tar and nicotine consumption can begin the process towards a healthier lifestyle, only complete smoking cessation can be offered as a long-term healthy choice (Schane et al., 2010).

Smoking Cessation

In 1964, the Surgeon General published the initial warning about the harmful effects of smoking cigarettes (Elders, Perry, Eriksen, & Giovino, 1994) which led to the first organized smoking cessation group, SmokEnders, in 1969 (Schwartz, 1979). This organized support group used many of the same modern day approaches to smoking cessation: self-care, medication, behavior modification, and group counseling (Schwartz, 1979). Many private and commercial organizations continued to create smoking cessation programs and by 1977, all U.S. cities with a population of at least 500,000 were offering citizens supportive smoking cessation opportunities (Schwartz, 1979). Smoking prevalence began a slight decrease once Public Service Announcements were used between the years of 1967-1970 to counteract the cigarette advertisements of tobacco companies. However, once cigarette advertisement was banned from radio and television, the counter ads were discontinued and smoking prevalence began to rise once again (Flay, 1987).

In October of 1984 the 98th Congress passed Public Law 98-474, *The Comprehensive Smoking Education Act*. The purpose of this act was to set forth guidelines for educating the public on the adverse consequences of smoking and to outline the requirements for cigarette package labeling (Law, 1984). The Secretary of Health and Human Services was directed to oversee the Interagency Committee on Smoking and Health as it conducted research on the health effects of smoking. The committee was required to share the results with the public, educating them on health outcomes related to smoking (Law, 1984). Section four of the Act contained the requirement of all cigarette packaging to contain one of four Surgeon General Warnings about the effects of smoking:

> "SURGEON GENERAL'S WARNING: Smoking Causes Lung Cancer, Heart Disease, Emphysema, and May Complicate Pregnancy.
>
> SURGEON GENERAL'S WARNING: Quitting Smoking Now Greatly Reduces Serious Risks to Your Health.
>
> SURGEON GENERAL'S WARNING: Smoking by Pregnant Women May Result in Fetal Injury, Premature Birth, and Low Birth Weight.
>
> SURGEON GENERAL'S WARNING: Cigarette Smoke Contains Carbon Monoxide" (Law, 1984, p. 33).

Each warning was to be rotated on every brand of cigarette packaging on a timely schedule in order for the public to be exposed to each Warning of the Surgeon General. Section seven of the Act required all cigarette manufacturers and distributors to provide the Secretary of Health and Human Services with a list of "ingredients added to tobacco in the manufacture of cigarettes" for scrutiny on possible additional health risks to the public (Law, 1984, p. 35). This list was required on an annual basis.

The Surgeon General released a report in 1986 that identified environmental tobacco smoke (ETS), more commonly known as second-hand smoke, as a risk-factor for disease in non-smokers (Farrelly, Evans, & Sfekas, 1999). Prior to the release of this report, only 25% of American workers were employed in businesses that restricted smoking in some form in the workplace (Farrelly et al., 1999). As research studies were published stating smoke-free working environments decreased smoking prevalence approximately 23%, more firms began implementing policies to restrict smoking in common work areas (Farrelly et al., 1999). By 1999, almost 70% of U.S. employees were working in establishments with smoke-free workplace policies in effect (Shopland, Gerlach, Burns, Hartman, & Gibson, 2001). Further

research revealed that the presence of smoke-free working environments decreased the amount of cigarettes smoked on a daily basis by as much as 14% (Farrelly et al., 1999).

The Joint Commission on the Accreditation of Healthcare Organizations (JCAHO) published a new standard in 1991 for all institutions applying for accreditation. This new standard required the development and implementation of smoke-free policies to "prohibit smoking among patients, visitors, employees, volunteers, and medical staff" (Orleans & Slade, 1992, p. 46). Although not every healthcare organization in the United States was accredited by JCAHO, this requirement affected 80% of hospitals and included a recommendation to offer smoking cessation support to hospital employees and staff as part of the new policy (Orleans & Slade, 1992).

Even though mass media programs have been used to influence the public's knowledge, attitudes, and behaviors in order to prevent individuals from beginning to smoke or to motivate them to quit smoking (Flay, 1987), it was not until 1990s that a nation-wide campaign was created to improve the health of Americans through smoking cessation. The Healthy People 2000 campaign published 22 priority areas of health concern among the American population and tobacco use was listed in the top three ("Healthy People 2000," n.d). Two decades later, the Healthy People 2020 campaign includes 42 health initiatives and tobacco use and smoking cessation remain a major focus of concern (Healthy People 2020, n.d).

While 40% of U.S. smokers attempt to quit each year, only 10% will be successful in quitting (Lee & Kahende, 2007). One of the greatest challenges of smoking cessation for an individual is the multiple hurdles involved in the process. One must overcome the addictive effects of nicotine, change long-standing habits associated with smoking, and also deal with

physical withdrawal symptoms in order to be successful in quitting (Percival, 2009). Due to these confounding factors, only three percent of smokers are successful in quitting by depending solely on their own will power. However, this success rate is increased to 20% for those who embrace a treatment plan with follow-up and receive continued social support (Percival, 2009).

The 1960's was an era of a multitude of innovative smoking cessation techniques (Shiffman, 1993) and mass media campaigns became the primary avenue for reaching out to smokers (Flay, 1987). Programs such as self-help clinics and call-in hotlines were offered to smokers in order to educate them on the availability of smoking education materials and smoking cessation opportunities (Flay, 1987). During the next decade, the development of nicotine replacement in the form of a chewable gum and the inclusion of acupuncture added another facet to smoking cessation. In the 1980s and 1990s, the focus began to turn from a community only approach and clinical aspects of smoking cessation emerged with the availability of additional pharmacological treatments (Shiffman, 1993). The nicotine patch was added in 1997 and today there are a total of six forms of nicotine replacement therapy (NRT) options: gum, lozenges, patches, inhalants, nasal sprays and micro tabs (Percival, 2009).

In 1997, the first non-nicotine pharmacological smoking cessation aid, bupropion, was approved (Tong, Carmody, & Simon, 2006). Developed initially as an anti-depressant medication, prescription-only bupropion was eventually discovered as an alternative to NRT, reducing nicotine cravings, minimizing withdrawal symptoms for smokers, and doubling their incidence of long-term abstinence from cigarettes (Roddy, 2004). As scientists continued to pursue pharmacological smoking cessation aids, the prescription pill varenicline

was the first medication to be approved specifically for smoking cessation in 2006 (Percival, 2009).

With the availability of a variety of resources for smoking cessation, the era of a single-strategy approach is a thing of the past. All-inclusive programs with multiple components such as cognitive behavioral therapy, psychosocial treatment, and pharmacotherapy have become the dominate approach for the greatest results in successful smoking cessation (Fiore et al., 2008). Social support is a key component in the multi-program approach for providing ongoing encouragement for those trying to quit smoking cigarettes, particularly in vulnerable populations such as LGBT who have an increased risk of smoking due to daily stress related to stigma, prejudice, and discrimination (Fiore et al., 2008).

Smoking among Lesbian, Gay, Bisexual, and Transgender

One of the challenges in early research studies on smoking among LGBT individuals was that determining the sexual orientation of participants was not consistent across the continuum (Ryan, Wortley, Easton, Pederson, & Greenwood, 2001). The primary definition of sexual orientation has relied on self-reporting. Self-identity has been determined by asking the participant how they identify sexually: heterosexual, lesbian, gay, bisexual or transgender. However, many may not consider themselves as LGBT even though they have sex with same-gender partners. In order to address this issue, researchers have shifted to include sexual behavior as a measure to collect data on LGBTs. Participants have been asked to report the gender of their sexual partners in the last five years (Burgard, Cochran, & Mays, 2005), if they have had any sexual activity with same-sex or opposite sex partners (Eisenberg & Wechsler, 2003), or what their current sexual attraction and gender of sexual partners has

been in the last year (Hughes et al., 2008). Lesbian, gay men, bisexual, and transgender individuals have been reported collectively by many researchers as sexual minorities (non-heterosexual) (Matthews et al., 2011; Lee, Griffin, & Melvin, 2009; Blosnich et al., 2011; Lehavot & Simoni, 2011).

Although there is a paucity of research documenting smoking among LGBT adults, published exploratory and descriptive studies have reported LGBTs to be twice as likely to smoke when compared to heterosexuals (Lee, Griffin, & Melvin, 2009). In 1992 when Phillip Morris began their tobacco campaign targeting the LGBT market, researchers began inquiring why the LGBT community was being targeted and particularly if smoking was more prevalent among gay men (Arday, Edlin, Giovino, & Nelson, 1993). Subsequent studies revealed gay men had smoking rates of 47.8% compared with overall U.S. smoking rates of 28% (Stall, Greenwood, Acree, Paul, & Coates, 1999). The Gay Men's Tobacco Study reported men who have sex with men (MSM) with smoking rates of 31.4% compared to a general population sample of men from the National Health Interview Study with smoking rates of 24.7% (Greenwood et al., 2005). The Institute of Medicine (IOM) first began exploring sexual minority women's health in 1997 when questions arose about whether lesbian women were at greater risk of health disparities when compared to heterosexual women. The Lesbian Health Report that followed declared that additional data was needed to explore these hypotheses (Institute of Medicine [IOM], 1999). In response, researchers began to examine data from large health surveys that included sexual orientation demographics. The Nurse's Health Study II (NHSII), a large research study containing a sample of over 90,000 female registered nurses between the ages of 32-51, began to include sexual orientation on the survey questionnaire in 1995 (Case et al., 2004). The results of this

study suggested higher rates of smoking among lesbians (18.9%, n=694) and bisexual women (20.6%, n=317) when compared to heterosexual women (10.9%, n=89,812) (Case et al., 2004). The Los Angeles County Health Survey in 1997 had a sample size approximately half (n=4697) of the NHSII but reported a significantly higher prevalence of smoking among sexual minority women compared to their heterosexual counterparts: lesbians 37% (n=51), bisexual women 50% (n=36) heterosexual women 14% (n=4610) (Diamante, Wold, & Gelberg, 2000). Other large-scale health surveys consistently report smoking rates among LGBT individuals to be 1.5-2.5 times greater than heterosexuals (Gruskin, Hart, Gordon, & Ackerson, 2001; Tang et al., 2004; Gruskin & Gordon, 2006; Steele, Ross, Dobinson, Veldhuizen, & Tinmouth, 2009; & Trocki, Drabble, & Midanik, 2009), or the general population (Gruskin et al., 2007).

The Behavioral Risk Factor Surveillance System (BRFSS) is the largest ongoing health survey conducted in every state across the U.S. monthly (CDC Behavioral risk factor surveillance system, n.d.). Although sexual orientation is not standard on the BRFSS questionnaire, Massachusetts, Oregon and Washington collect this data on their survey. BRFSS survey data from 2001-2008 in Massachusetts reported smoking rates among lesbians and gay men (29.3%), bisexuals (36.2%) and heterosexuals (20%) (Conron, Mimiaga, & Landers, 2010) while the 2009 BRFSS in Oregon and Washington showed similar results: lesbians and gay men (30.6%), bisexuals (35.9%), and heterosexuals (18.8%) (Pizacani et al., 2009). This data contributes to the pattern of smoking rates among LGBs being almost twice that of heterosexuals.

As researchers began to focus on the health of sexual minorities, specific studies including smoking among LGBTs were published. The Epidemiologic Study of Health Risk

Lesbians (ESTHER) (Aaron et al., 2001), the California Women's Health Survey (Burgard et al., 2005), and the Lesbian Social Life Study (Austin & Irwin, 2010) all reported smoking rates among SMW congruent with those in the larger health surveys. The Lesbian Smoking Survey, a study conducted in the Bronx, reported a smoking prevalence of 60% among SMW, however, no comparison group was reported (Sanchez, Meacher, & Beil, 2005).

Three studies were conducted among college students using the Student Life Survey (McCabe, Boyd, Hughes, & D'Arcy, 2003), the National College Health Assessment (Ridner, Frost, & LaJoie, 2006) and the College Alcohol Study (Eisenberg & Wechsler, 2003). Although the sample sizes were small (see Table 1), McCabe et, al. (2003) and Ridner et, al. (2006) reported smoking rates for lesbians almost three times higher than heterosexual women and rates for gay men twice as high as rates in heterosexual males. Eisenberg & Wechsler (2003) reported no significance in smoking rates between lesbians/gay men (34.5%) and heterosexuals (33.5%); however, smoking rates among bisexuals were higher at 45%.

There have been studies published that do not report higher prevalence of current smoking among SMW. In a multisite woman's health study conducted in Chicago, Hughes et, al. (2008) found no difference in current smoking rates among SMW (19%) and heterosexual women (19%). However, a greater percentage of SMW (61%) reported having ever smoked compared to heterosexual women (54%). A California based study compared 324 lesbians > 40 years of age with their biological heterosexual sisters who were closest to their age (Roberts, Dibble, Nussey, & Casey, 2003). Results revealed a higher prevalence of smoking among the 324 heterosexual sisters (38%) compared to 22% among their lesbian siblings (Roberts et al., 2003).

One of the challenges in conducting research in sexual minority populations is the collection of data through non-probability samples (Conron, Mimiaga, & Landers, 2010). Large probability samples are difficult to obtain due to the reluctance of LGBTs to report same-sex relationships (Hughes et al., 2008) as well as the absence of sexual orientation inquiry in large surveys such as the BRFSS. However, recently the Department of Health and Human Services announced the plan to include sexual orientation and gender identity questions on the National Health Interview Survey in order to improve health data collection on LGBT individuals (National Coalition of LGBT Health website, n.d.). Even though this inclusion will not be implemented until later this year, it will be instrumental in planning targeted interventions for modifying health risk behaviors in the LGBT population.

Table 1. Smoking Rates among LGBT Populations

Authors/Year	Design/Setting	Total sample/% current smokers
Diamante, Wold & Gelberg (2000)	1997 Los Angeles County Health Survey	Lesbians (n=51)- 37% Bisexual women (n=36)- 50% Heterosexual women (n=4610)- 14%
Aaron, Markovic, Danielson, Honnold, Janosky, & Schmidt, (2001)	Self-report questionnaire Epidemiologic Study of Health Risk Lesbians (ESTHER) – Pittsburg, PA	Lesbians (n=1010) 35.5% 1998 Behavioral Risk Factor Surveillance Survey Women (n=88,191)- 20.5%
Austin & Irwin, (2010)	Online survey Lesbian Social Life Study (13 southern states) Comparative data – 2008 Behavioral Risk Factor Surveillance Survey	Southern lesbians(n=1141)- 24.2%, Southern women in general (n=57,340-65,895) 17.5% Women in all regions in US (n=170,860-192,618)-15.6%
Burgard, Cochran & Mays, (2005)	Random dialed telephone survey California Women's Health Survey (1998-2000)	Women with any same-sex partners (n=350)- 29.8% Women with only male sex partners(n=10,854)- 17%
Case, Austin, Hunter, Manson, Malspeis &	Survey questionnaire U.S. Nurses' Health Study II	Lesbians (n=694)- 18.9% Bisexual women (n=317)-20.6%

Willett, et al. (2004)		Heterosexual women (n=89,821)- 10.6%
Conron, K. J., Mimiaga, M. J., & Landers, S. J., 2010	Behavioral Risk Factor Surveillance Survey 2001-2008 Massachusetts	Lesbians and gay men(n=1645)- 29.3% Bisexuals (n=626)- 36.2% Heterosexuals (n=65,088)- 20%
Eisenberg, & Wechsler (2003)	Random sampling-questionnaires College Alcohol Study (195 institutions)	Lesbians and gay men (n =246)- 34.5% Bisexuals (n=384)-45% Heterosexuals (n=9671)- 33.5%
Greenwood, Paul, Pollack, Binson, Catania, Chang, Humfleet,& Stall (2005)	Gay men's tobacco study compared with Sample from 1999 National Health Interview Study (NHIS)	MSM^{+} (n=1780)-31.4% NHIS (n=832) -24.7%
Gruskin & Gordon (2006)	General health survey (1999 & 2002) Kaiser Permanente Medical Care Program - CA	Lesbians and gay men (n=541)- 19.5% Heterosexuals (n=21,530) – 13.1%
Gruskin, Hart, Gordon, & Ackerson (2001)	General health survey (1996) Kaiser Permanente Medical Care Program - CA	Lesbian/bisexual women (n= 120)- 25.4% Heterosexual women (n=7993)- 12.6%
Gruskin, Greenwood, Matevia, Pollack & Bye (2007)	Random dialed telephone survey Large-scale, population-based California tobacco survey	Lesbians and gay men (n=877)-28% Bisexuals (n=375)-28.6% WSW*(n=383)-43.6% MSM^{+}(83) – 23.3% General population (n =20,525)- 17.9%
Hughes, Johnson, & Matthews (2008)	Survey questionnaire Multisite Women's Health Study - Chicago	Lesbians (n=550)- 19% Heterosexual women (n = 279)- 19%
Lee, Goldstein, Ranney, Crist & McCullough (2011)	Survey questionnaire West Virginia Pride Parade and Festival	Lesbians and gay men (n=334)- 44.5% Bisexuals (n=52)-47.5% West Virginia general population - 26%
Lee, Griffin, & Melvin (2009)	Review of the literature 1987-May 2007	SMW^ more likely to smoke (OR = 1.5-2.0) SMM$^{\#}$ more likely to smoke (OR = 2.0-2.5)
McCabe, Boyd, Hughes & D'Arcy (2003)	Online/US mail survey Student Life Survey (under-grad college students)	SMW$^{\wedge}$ (n=65)- 14.1% (at least 1 cig/day) Heterosexual women - 5.1% (at least 1 cig/day) SMM$^{\#}$ (n=54) -13% (at least 1 cig/day) Heterosexual men (n=1446) – 6.1%

		(at least 1 cig/day)
McKirnan, Tolou-Shams, Turner, Dyslin, & Hope (2006)	In person surveys with MSM in Chicago 2001 National Health Interview Study (NHIS)	MSM (n=817) – 37.2% NHIS sample (n=14,490) – 28.4%
Pizacani, Rhode, Bushore, Stark, Maher, Dilley, & Boysun (2009)	Behavioral Risk Factor Surveillance Survey Washington & Oregon	Lesbian and gay men (n=1190)-30.6% Bisexuals (n=902)-35.9% Heterosexuals (n=82757)- 18.8%
Ridner, Frost & LaJoie (2006)	Online survey – random e-mail selection National College Health Assessment Louisville, KY university	SMW^ (n=21) -57.1% Heterosexual women (n=517)-21.5% SMM# (n=234) – 20% Heterosexual men (n=214) – 17.7%
Roberts, Dibble, Nussey & Casey (2003)	Survey questionnaire California lesbians >40 yo and their heterosexual sisters closest in age	Lesbians (n=324)-22% Heterosexual sisters (n=324)- 38%
Ryan, Wortley, Easton, Pederson & Greenwood (2001).	Review of the literature	Lesbians, gays, bisexuals range from 38-59% General population = 28%
Sanchez, Meacher, & Beil (2005)	One-on-one interviews Lesbian identified clubs in the Bronx	Lesbians (n=130)- 60% (no comparison group)
Stall, Greenwood, Acree, Paul, & Coates (1999)	Portland/Tucson men from bars and household telephone surveys National population-based survey	Gay and bisexual men (n=2593)-47.8% Men in U.S. survey (n=8303) – 28.6%
Steele, Ross, Dobinson, Veldhuizen & Tinmouth (2009)	National population-based survey Canadian Community Health Survey	Lesbians (n = 354)-28.7% Bisexual women (n=424)-33.9% Heterosexual women (n=60,937)-17.4%
Tang, Greenwood, Cowling, Lloyd, Roeseler & Bal (2004)	Random dialed telephone survey California Health Interview Survey	Lesbians and gay men (n =936)-29.3% Bisexuals (n=793)-23.9 % Heterosexual (n=42,875) -18.1%
Trocki, Drabble & Midanik (2009)	Random dialed telephone survey 2000 National Alcohol Survey 50 states + Washington, DC	Lesbians and gay men (n=93)-29.4% Bisexuals (n=77)-32.2% WSW* (n=87)-34.1% MSM+ (n=83) – 25.7% Heterosexuals (n=6924)- 20.9%
Valanis, Bowen, Bassford, Whitlock, Charney & Carter (2000)	Clinic and questionnaire data collection Nationwide Women's Health Initiative Post-menopausal women age 50-79	Lifetime lesbians(n=264) -10% Lesbian after age 45 (n=309)-14.4% Bisexual women (n=740)-12% Heterosexual women (n=90,578)-7.2%

*WSW - Women who have sex with women but identify as heterosexual ^SMW – Sexual minority women

[+]MSM-Men who have sex with men but identify as heterosexual [#]SMM- Sexual minority men

Contributing Factors to Smoking among LGBT Populations

Vulnerable Populations

In 1948, at the International Health Conference, the World Health Organization (WHO) defined the concept of *health* in the preamble of the WHO constitution: "the state of complete physical, mental, and social well-being" (World Health Organization [WHO], 1948, p. 1). Populations who do not have access to resources or opportunities to achieve and maintain *health* are often defined as *vulnerable* (Flaskerud & Winslow, 1998). Vulnerable populations are at risk of poor physical, psychological, or social health and are "susceptible to harm or neglect" by the acts of others, either by omission or commission (Aday, 2001, p. 1). These populations may be marginalized due to political or social issues, poor economic status, or cultural differences and may be targets of discrimination (Wilson & Neville, 2009). Vulnerable populations experience inadequate access to full and timely healthcare, are more apt than others in the community to develop health disease and disparities, and are often exposed to incongruent health risks (Wilson & Neville, 2009). LGBT individuals experience unique health disparities as a result of decreased access to health insurance, lack of experienced, culturally competent health providers, and the absence of population-targeted health research (Institute of Medicine [IOM], 2011). Additionally, LGBTs are an underserved, marginalized group which also classifies them as a vulnerable population (Hutchinson et al., 2006). The Vulnerable Populations Conceptual Framework provides an understanding and insight to the increased risk of unhealthy lifestyle behaviors by providing

guidance in the assessment of environmental factors, socioeconomic status, and social support in the population (Figure 1).

Minority statuses of a vulnerable population, such as race/ethnicity, sexual orientation, socioeconomic factors, educational status, and resource availability, are also considerations when examining the overall health status of population members (Flaskerud & Winslow, 1998). As with any marginalized population, minority status has a significant impact on the smoking rates in the LGBT population and plays a significant role in the smoking behaviors of LGBTs. The more minority statuses present for an individual, the greater likelihood of smoking: no minority status (11% smoking rate) and three minority statuses (50% smoking rate) (Hughes et al., 2008).

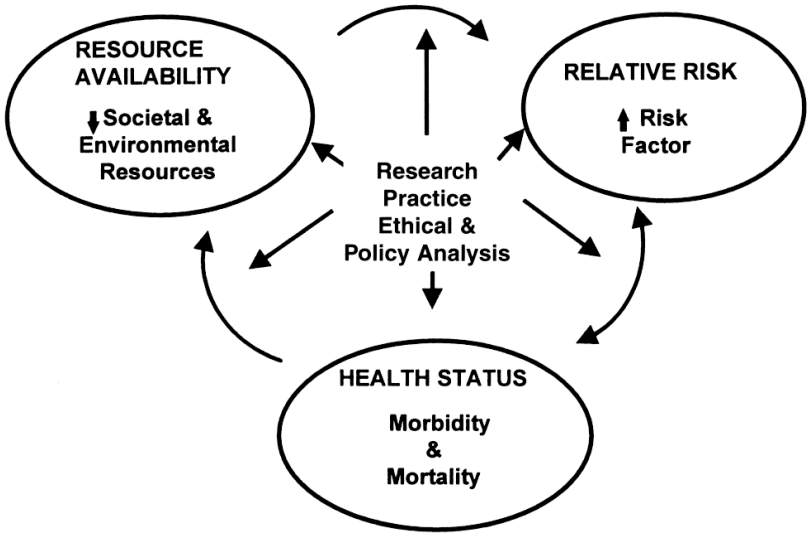

Figure 1. Vulnerable Populations Conceptual Model (Flaskerud & Winslow, 1998)

Minority Stress

Minority stress occurs in addition to everyday life stressors for those who are members of a marginalized social group (Rostosky, Riggle, Gray, & Hatton, 2007).

Members of the LGBT community regularly experience discrimination, resulting in the anticipation of being rejected, the need to hide their sexual orientation, or the internalization of homophobia (Rostosky et al., 2007). Minority stress, also known as gay stress when related to sexual orientation (Lewis, Derlega, Griffin, & Krowinski, 2003), is experienced as internalized homophobia, perceived stigma, and prejudice in the form of discrimination or violence among the LGBT population (Meyer, 2003).

The Minority Stress Theory (Meyer, 1995), posits that individuals who belong to an oppressed social group, such as LGBTs, experience additional stressors related to negative life events which are associated with non-dominant societal status. The marginalization and ascribed inferior status that LGBT individuals experience result in oppression from the dominant societal groups (Hamilton & Mahalik, 2009). External stressors such as prejudice, discrimination, rejection, and even violence create minority stress which can result in excess mental distress (depression, anxiety) and a higher prevalence of unhealthy lifestyle behaviors such as smoking (Meyer, 2003). Health outcomes can be determined by the coping abilities of the individual and utilization of available social support (Figure 2).

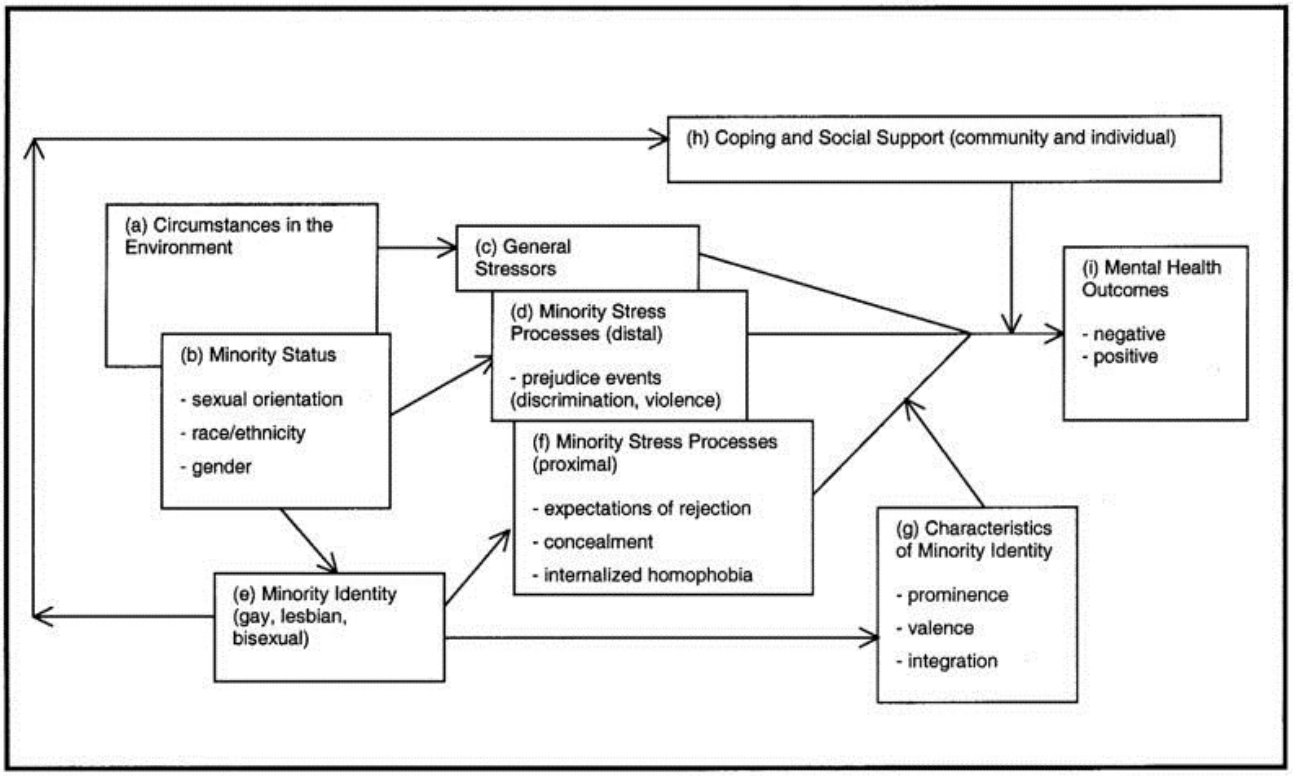

Figure 2. Minority Stress Processes in LGBT Populations (Meyer, 2003)

Social Support

In the mid-1950's the term *social network* actually became the norm for describing the linkage between families, groups, and friends (Cohen & Syme, 1985). Once the existence of social networks was acknowledged, scientists began to explore how the members interacted with one another resulting in a focus on an often referred to "new field of scientific research" known as social support (House, Landis, & Umberson, 1988, p. 541). During the 1970s, the idea that social support may have an influence on health and health behaviors began to be examined by researchers from multiple disciplines including psychology, sociology, and public healthcare (Cohen & Syme, 1985). As more studies were performed to

correlate this relationship, the quality and quantity of social relationships became the focus of inquiry in the quest to understand a causal relationship (Figure 3). Research on social support exploded in the early 1980s as scientists began to examine not only the direct effect this support has on health outcomes, but an indirect effect as well (Cohen & Syme, 1985). James House focused on the direct effect aspect, particularly the functional role relationships play in social support. He found the presence of social integration, described as belonging to community organizations or groups, correlated with both improved mental and physical health (Cohen & Syme, 1985). The indirect effect of social support through the perception of available resources by the recipient or by a buffering process was declared just as significant by researchers (Mermelstein, Cohen, Lichtenstein, Baer, & Kamarck, 1986). The buffer effect exists when an individual feels protected from stressful situations because of their social relationships, thus preventing susceptibility to unfavorable situations and risks for illness (Cohen & Syme, 1985). Positive support not only helps one in coping with stressful events and life stressors, it can also help in the adaptation to change process (Ootim, 2001). Negative social support may exist where one individual is trying to quit smoking and the spouse or best friend insists on continuing to smoke in the person's presence. This type of negative support can affect the mental health well-being stronger than any positive support offered by another (Cohen & Syme, 1985).

Early research on social support was mainly qualitative in nature. Exploration of the concept and its impact on health and illness became the focus of scientists in the sociological and psychological disciplines. When nurse researchers embraced the concept of social support, they began to discover the relational possibilities with proactive interventions (Tilden, 1986). It became evident through the use of reliable measurement tools that there is

a positive correlation between social support, coping with illness, mental well-being, and functioning in society (Weinert, 2003). For example, studies using social support measures as well as mental health and personality measures showed significant correlations between instruments: Profile of Mood States (r = -.24); Center of Epidemiologic Studies Depression Scale (r = -.46); Trait Anxiety scale (r = .52) (Norbeck, Lindsey, & Carrieri, 1983),(Weinert & Brandt, 1987). Subsequent research has revealed that positive social support plays a significant role in disease management, healthcare access, and optimistic outlook during illness (Pimouguet, LeGoff, Thiebaut, Dartigues, & Helmer, 2011).

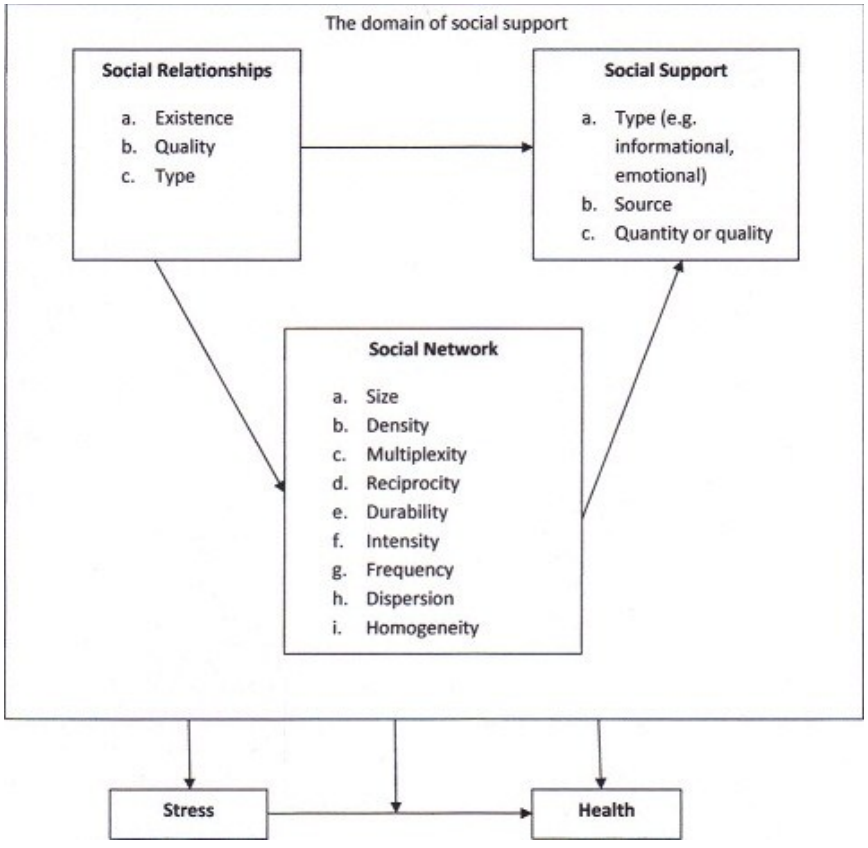

Figure 3. The Relationship of the Domain of Social Support to Stress and Health (House and Kahn, 1985)

Social Support Theory

Social Support theory originated in the social and behavioral sciences (Cohen & Syme, 1985). First used in the context of mental health, early studies involved personal crises, self-help behaviors, political elections, and the pursuit of happiness (Brandt & Weinert, 1981). As the health sciences, such as nursing, began contributing to the research on social support, development of social support theory became one of shared knowledge (Tilden, 1986). A variety of theoretical approaches to social support were developed, including the House Social Support Theory (House, Landis, & Umberson, 1988), the Social Support Buffering Model (Cohen & Syme, 1985), the Norbeck Social Support Theory (Norbeck et al., 1983), and the Weinert Social Support Theory (Weinert, 2003).

Because of its previous use in vulnerable populations, the Weinert Social Support Theory (Weinert, 2003) was chosen for this study to provide the framework for understanding the social context of smoking among sexual minority individuals. This theory posits that an individual's connectivity to others is significant for achieving and maintaining a healthy lifestyle and poor health outcomes are associated with social isolation (Weinert, 2003). The theory contains five major concepts: 1) Worth – acknowledgement that one is valued; 2) Social integration – individual is significant part of a group; 3) Intimacy – feeling of attachment or belonging; 4) Nurturance – opportunity for nurturing; 5) Assistance – material help, information, emotional support (Weinert & Brandt, 1987). Weinert's Social Support Theory proposes that one's environment influences their response to life's stressors and is a significant facet to health maintenance (Weinert, 2003). The absence of social support, or the presence of negative social support, decreases healthy behaviors and leads to

increased risk for negative health choices (Weinert, 2003). Since smoking is an exemplar of negative health choices, Weinert's theory is especially applicable to this study.

An important advantage to using Weinert's Social Support Theory is the associated and well-validated Personal Resource Questionnaire (PRQ) which is designed to measure one's perceived social support (Weinert, 2003). Weinert's Personal Resource Questionnaire has been previously used in research studies involving isolated populations (Oriet, Cudney, & Weinert, 2007), medically uninsured individuals, culturally diverse populations, and populations with increased vulnerability (Hill & Weinert, 2004). In the Women to Women project, the PRQ was used to explore social support as it was delivered via computer to women with chronic health conditions living in rural communities (Weinert, 2000). Findings from this project revealed significantly improved computer skills among older women which in turn resulted in decreased social isolation among women in rural environments (Hill & Weinert, 2004). The social bonds that were formed through the online self-help groups allowed the women to become more comfortable with their health conditions as well as more informed regarding alternative coping strategies (Hill & Weinert, 2004). The PRQ was also used in a study examining participation in a cardiac rehabilitation program in isolated rural populations (Johnson, Weinert, & Richardson, 1998). Social support was statistically significant for predicting participation in a cardiac rehabilitation program for post-acute myocardial infarction patients ($p = .034$) (Johnson et al., 1998). In a study involving women over the age of 50 years with a low socioeconomic status, chronic illness, and living in a rural environment, social support had an influence on health behaviors, quality of life, and illness management when overlapped with hope, depression and spirituality (Craig, Weinert, Walton, & Derwinski-Robinson, 2006).

This literature review found that there is a higher prevalence of smoking among LGBT individuals than heterosexuals (Lee et al., 2009). It has also been well documented that social support plays a significant role in health behavior choices (Weinert, 2003). However, no studies reviewed for this dissertation identified research on the association of smoking and social support in the LGBT population.

CHAPTER 3

METHODOLOGY

Research Design

This cross-sectional, descriptive study measured the association of social support, environmental factors, minority stress, and smoking behaviors in a convenience sample of the LGBT population in Oklahoma. A cross-sectional study is not only economical but it allows for describing the relationship between several variables of interest at the same time (Neuman, 2009). A cross-sectional study is valuable in making inferences about possible relationships among variables, creating preliminary data to support future research in specific populations (Neuman, 2009). One of the limitations of cross-sectional studies is that resulting explanations may be from one of several variables present and not simply the one being studied (Polit & Beck, 2008). Moreover, a weakness of this design is that it only measures data at a given time (Burns & Groves, 2005). An online data collection strategy was used to gather demographics, environmental factors, minority stress, and social support data from LGBT adults in the Midwestern state of Oklahoma.

Setting and Sample

This study took place in Oklahoma, which is situated in the Midwest section of the United States and has an estimated population of 3.7 million people. Oklahoma has a smoking rate of 26% among adults compared to the national smoking rate of 19.3% (Oklahoma State Department of Health website, n.d.). The state is predominantly conservative and does not offer any government-supported services to the LGBT population, does not recognize same-sex couples, and does not provide basic civil rights such as same-sex partner benefits or protection through anti-discrimination laws (Krehely, 2009).

Oklahoma does, however, house the Dennis R Neill Equality Center, one of the largest LGBT centers in the United States. The center is owned and operated by the Oklahomans for Equality (OkEq) and provides support and services to LGBT communities across the state. The Equality Center is an 18,000 square foot facility, located in downtown Tulsa, Oklahoma, featuring an event center, a full-service lending library, a wellness center, a David Bohnett Cyber Center, and small conference rooms. There are approximately 20,000 individuals who self-identify as LGBT in the metropolitan Tulsa area (2010 Census website, n.d.). However, this is likely a considerable underestimation as the Oklahomans for Equality Executive Director has reported approximately 44,000 LGBT individuals access their services annually (Toby Jenkins, personal communication, March 25, 2012). Gay Rights organizations estimate there are approximately 150,000 LGBT persons residing in the state of Oklahoma.

The Executive Director of the Dennis R Neill Equality Center supported this project (Appendix A) by assisting with recruitment and providing computer access at the Equality Center for individuals to complete the online questionnaire as needed.

Sample: The study sample consisted of non-heterosexual men and women who are over the age of 18 and live in Oklahoma. Current smokers, former smokers, and non-smokers were included in the sample in order to conduct comparative analysis. Current smokers were defined as those who report they now smoke cigarettes every day or some days and have smoked at least 100 cigarettes in their lifetime (CDC Behavioral risk factor surveillance system, n.d.). Former smokers included those who have not smoked in the past 30 days, and non-smokers were defined as those who have never smoked cigarettes (CDC Behavioral risk factor surveillance system, n.d.).

Recruitment: Initial recruitment targeted individuals who were between the ages of 18 and 30. Due to poor response after seven weeks of the survey being active (75 respondents), recruitment was expanded to include all LGBT individuals over the age of 18. All participants were recruited through identical convenience sampling. Although convenience sampling can often present bias (Polit & Beck, 2008) this approach was necessary to gain participation from the understudied and hard to reach LGB population. Announcements were posted in various LGBT-targeted domains: the OkEq web page, the OkEq e-newsletter, and various LGBT organizations' social media pages. The announcements displayed a web-based Survey Monkey link for individuals to access via a matrix barcode (QR code) as well as the uniform resources locator (URL) web address. Flyers with the link to the online survey were posted at the Dennis R Neill Equality Center in Tulsa, the Cimarron Alliance Equality Center in Oklahoma City, and in the local gay bars. Small postcards containing the QR code and the URL were provided to members of the Parents and Friends of Lesbians and Gays (PFLAG) organization for distribution to LGBT communities statewide.

Since it was cost prohibitive to offer an incentive award to all participants, at the conclusion of the survey, participants could choose to be entered into a random drawing for a $100.00 Amazon gift card. This was done on the last page of the survey, where the participant was given a choice of entering the drawing or exiting the completed survey. If s/he chose to enter the drawing, they were directed to the Sweepstakes Reward web page, which was not associated with the LGBT survey, and provided information for entering the drawing. The awarding of the prize was conducted by ePrize (ePrize, n.d.) after the LGBT survey was closed.

Power Analysis and Sample Size Calculation: The sample size calculation for a one-sided, Spearman Rho correlation was based on the following criteria: a desired power of 0.80, a significance level of $\alpha = 0.05$, and a moderate effect size of 0.3. For correlation, a minimum of 85 surveys was needed for this study (Siegel, 1988). For logistic regression, there should be a minimum of 20 subjects per predictor (Leech, Barrett, & Morgan, 2008). For seven predictors, 140 participants in the survey were needed. However, the larger the sample size, the greater likelihood of population representativeness (Polit & Beck, 2008). A power of 0.80 is reasonable for social science researchers (Munro, 2005).

Protection of Human Subjects

After approval from the University of Missouri-Kansas City (UMKC) Social Sciences Institutional Review Board was obtained, the Survey Monkey link was activated and the survey became accessible. The first page of the online survey (Appendix B) contained an informed consent document with an option for the participant to verify they are 18 years of age or older and agreed or disagreed to participate in the study. If the participant agreed, they were instructed to continue with the survey. If they did not agree to participate, they were directed to exit the survey. The participants were instructed that they may withdraw at any time from the survey. There was no personal identifying data collected during the online survey and the IP address tracking function on the Survey Monkey tool was inactivated to ensure anonymity for participants. Electronic informed consent was implied if the participant chose to complete the survey.

Measures

The 59 question survey was designed to measure demographics, smoking behaviors, smoking attitudes, minority stress, environmental factors, and social support. The following

standardized questions and scales were used to measure each of the constructs of Weinert's Social Support theory (Table 2):

- ***Demographics:*** Demographic questions included age, race/ethnicity, gender, sexual orientation, relationship status, education, employment status, income level, and health insurance status.
- ***Smoking behaviors:*** Questions to determine smoking behaviors such as smoking status, amount of cigarettes smoked, and intention to quit were selected from the Behavioral Risk Factor Surveillance System (BRFSS) survey.
- ***Intention to quit:*** To measure the intention of current smokers to quit smoking, three questions from the BRFSS were asked: 1)Would you like to quit smoking one day? 2) Are you seriously considering quitting smoking in the next 6 months? 3) Are you seriously considering quitting smoking in the next 30 days?
- ***Environmental Factors*****:** Environmental factors in this study were defined as the extent of connectedness to the LGBT community and the degree of outness to family and friends The Connectedness to the LBGT Community of New York City (NYC) scale, which was adapted from the Urban Men Health Study (UMHS) measure of community affiliation (Frost & Meyer, 2012). This scale consisted of eight items asking participants to indicate to what extent they agreed with each statement regarding community connectedness (i.e. You feel you are part of the LGBT community). Responses were measured on a four-point Likert scale ranging from 1=*Strongly Agree* to 4=*Strongly*

Disagree. A mean score was calculated after reverse coding of all items with higher scores being equivalent to greater feelings of connectedness; Reliability of this scale in previous studies reflected strong internal consistency scores of Cronbach's $\alpha = 0.81$.

- The Outness Inventory (OI) scale was originally designed to provide an assessment of the level of outness in varying areas of an individual's life (Mohr & Fassinger, 2000) and has been widely used to measure the extent of outness in LGBT populations (Sanchez, 2006; Solomon, Rothblum, & Balsalm, 2004; Carvalho, Lewis, Derlega, Winstead, & Vigianno, 2011; Knoble & Linville, 2010). The scale consists of 11 items, divided into three areas of functioning: Out to Family ($\alpha = .74$), Out to World ($\alpha = .79$), and Out to Religion ($\alpha = .97$) with a three factor confirmatory factor analysis ($\alpha = .95$) (Mohr & Fassinger, 2000). Each item represented someone in the participants life such as mother, father, co-workers, members of religious community, etc. and was measured by a seven-point Likert scale 1= *Definitely does NOT know about sexual orientation status* to 7=*Definitely knows about orientation status and it is openly talked about* with an additional response of 0 = *Not Applicable, no such person or group in your life.* An average was calculated for all responses and reported as a mean score for Overall Outness. Possible scores ranged from 0-7 with higher scores indicating the participant was more open about their sexual orientation or gender identity than those with lower scores.

- ***Minority Stress***: Four effects of minority stress were measured: depression, anxiety, perceived stress, and psychological well-being. Depression was measured using the 10-item Center for Epidemiological Studies Depression Scale (CES-D) (Irwin, Haydari, & Oxman, 1999). This 10-item scale asked participants how often in the past week they have felt a range of specific emotions. Likert scale responses were scored ranging from 0 = *Rarely or None of the Time* to

  3 = *Most of the Time*. Eight of the items were positive predictors of depression if experienced more often and the remaining two were non-depression related emotions. The two latter items were reverse-coded prior to calculation of sum depressions scores for each participant ranging from 0-30, with higher scores more indicative of depression. Test reliability of the 10-item CES-D showed good internal consistency (Cronbach's $\alpha = .92$).

  The seven-item generalized anxiety disorder scale (GAD-7), was used to measure anxiety (Spitzer, Kroenke, Williams, & Lowe, 2006). This seven-item Likert scale has demonstrated excellent internal consistency ($\alpha = .92$) and has been used in numerous research settings targeting LGBT individuals (Balsam, Levahot, Beadnell, & Circo, 2010; Litt, Lewis, Blayney, & Kaysen, 2013; Levahot & Simoni, 2011). The items inquired how often participants were bothered by a range of anxiety-related feelings during the previous two weeks and response choices were 0 = *Not at all, 1=Several days, 2=More than half the days,* and 3=*Nearly every day* (Spitzer et al., 2006). Scores from

all items were summed for a generalized anxiety score (0-21). Higher scores were predictive of generalized anxiety in the participant (Spitzer et al., 2006). The most commonly used scale for measuring an individual's perception of stress is the Perceived Stress Scale (PSS) (Cohen, 1994). Due to length and space, the shorter 4 item scale (PSS4) was used for this study. The PSS4 is a five point Likert scale which asked participants how frequently they have felt or thought about the listed items. A sample item is "In the last month, how often have you felt that you were unable to control important things in your life?" Possible responses range from 0=*Never* to 4=*Very often* and were summed for a total perceived stress score of 0-21 after the two positively stated items (item one and item two) were reversed scored. Although the best psychometric properties have resulted on the PSS10, (Cronbach's $\alpha = .78$), the shorter version PSS4 has an adequate reliability ($\alpha = .60$) (Cohen & Williamson, 1988).

The last measure associated with minority stress was assessed using the 18-item psychological well-being (PWB) scale from the Mid-Life Development in the US (MIDUS-I) study (Ryff & Keyes, 1995). This scale has been used to measure six characteristics of positive psychological function, demonstrating good internal consistency in each category: autonomy ($\alpha = .86$), environmental mastery ($\alpha = .90$), personal growth ($\alpha = .87$), positive relations with others ($\alpha = .91$), purpose in life ($\alpha = .90$), self-acceptance ($\alpha = .93$) (Ryff, 1989). This seven point Likert scale measures the participants' agreement with statements related to psychological functioning with choices ranging

from *Strongly Agree* to *Strongly Disagree.* The response values range from 1-6 and the total scores are summed for an overall PWB score (18-126), with a higher score indicative of better psychological well-being (Ryff & Keyes, 1995).

- ***Social Support:*** The Personal Resource Questionnaire (PRQ2000) instrument uses 15 positively worded questions (i.e. "There is someone I feel close to who makes me feel secure") answered with a seven point Likert scale ranging from 1=*Strongly Disagree* to 7=*Strongly Agree*. The items are summed for a total Social Support score (15-105) with higher numbers indicating a higher level of perceived social support in the domains of self-worth, social integration, intimacy, nurturance, and assistance. Reliability estimates for the instrument indicate an internal consistency of Cronbach's $\alpha = 0.87\text{-}0.93$. Although social support is not the same as mental health predictors, correlation with mental health indicators for this instrument is good, with Cronbach alpha scores ranging from $\alpha = 0.89\text{-}0.95$ (Weinert, 2003).

Table 2. Measurement of Framework Constructs

Environmental Factors	Social Integration	Connectedness to the LGBT Community Scale Outness Inventory Scale
Minority Stress	Worth	10-item CES-D GAD-7 Perceived Stress Scale
	Nurturance/Opportunity for Nurturing	Psychological well-being scale
Social Support	Intimacy/Feeling of Attachment	PRQ2000
Intention to Quit	Assistance	BRFSS Questions

Data Analysis

After the survey was closed, responses were exported from Survey Monkey into Statistical Packet for the Social Sciences (SPSS) for analysis. Descriptive statistics were used to characterize the sample and inferential statistics were used to identify relationships between variables. Reliability statistics were calculated for each of the sub-scales from the survey to determine internal consistency. The Community Connectedness and Outness Inventory scales were calculated with mean scores while the remaining five scales used summed scores. Positively-stated items were reversed scored on the CES-D, Perceived Stress, and Psychological Well-being instruments so higher scores reflected a greater amount of psychological distress on those scales. Pearson's correlation was used to examine the association between each of the predictor variables and smoking. A logistic regression was conducted including the variables that were significant on smoking status in the MANOVA. An independent *t*-test was used to examine the association of social support and the intention to quit smoking among current smokers.

For correlation, a minimum of 85 surveys was needed for this study (Siegel, 1988) and for logistic regression there should be a minimum of 20 subjects per predictor (Leech, Barrett, & Morgan, 2008). Given the 3 predictors in the final model used for the regression, 60 participants in the survey were needed for an adequate sample.

CHAPTER FOUR

Results

Participant Characteristics

Demographics

Of the 152 participants who completed the survey, the mean age was 33.99 years (SD=12.94 years). The range in age was 18-75 years with 53.3% of the participants considered young adult (≤ 30 years of age) and 46.7% classified as older adult (> 30 years of age). Of the 146 participants who reported their race/ethnicity, 4.8% were African American/Black, 15.1% were Latino, 79.5% were White and less than 1% reported another category. Nearly two-thirds of the participants were employed full-time (64.4%) and 12.8% were students. Disabled and retired participants were represented equally at 5.4% and the remainder of the sample was employed part-time (8.7%) or unemployed 3.4%. Over one-third of the participants had graduated from college (34.2%) or held a postgraduate/professional degree (20.4%). Another 27.0% had completed some college and 6.6% reported attending a technical school. Those who reported having a high school education or less represented 11.8% of the sample. A majority of participants reported having health insurance (79.2%) with 18.1% reporting no insurance and 2.7% unsure of their insurance status. The descriptive characteristics of the participants are presented in Table 3.

Table 3. Sample Characteristics, *N*=152

	n (%)
Race/Ethnicity	
African American/Black	7 (4.8)
Latino	22 (15.1)
White	116 (79.5)
Other	1 (.7)
Age (years)	
Mean (SD)	33.99 (12.94)
Range	18-75
</= 30	81(53.3)
Over 30	71 (46.7)
Employment	
Employed full-time	96 (64.4)
Employed part-time	13 (8.7)
Unemployed	5 (3.4)
Student	19 (12.8)
Retired	8 (5.4)
Disabled	8 (5.4)
Education	
High School or less	18 (11.8)
Technical school	10 (6.6)
Some college	41 (27)
College graduate	52 (34.2)
Postgraduate or Professional degree	31 (20.4)
Income	
<$20,000	31 (20.4)
$20,001-40,000	32 (21)
$40,001-75,000	49 (32.2)
>$75,000	40 (26.3)
Gender Identity	
Female	73 (49.3)
Male	72 (48.6)
Something else	3 (2)
Transgender	
Yes, Male to female	9 (5.9)
Yes, Female to male	4 (2.6)
Yes, Neither male nor female	1 (0.7)
Sexual identity	
Homosexual (gay or lesbian)	124 (87.3)
Bisexual	18 (11.8)
Pansexual	3 (1.9)
Health Insurance	
Yes	118 (79.2)
No	27 (18.1)
Not sure	4 (2.7)

Gender Identity and Sexual Orientation

Gender identity was evenly distributed among participants with 49.3% identifying as female and 48.6% identifying as male while 2% indicated they did not identify as female or

as male. Of the 152 participants, 9.25% reported they were transgender (male to female *n* = 9, female to male *n* = 4, neither male nor female *n* = 1). The majority of the sample (87.3%) identified as homosexual (lesbian or gay male), 11.8% identified as bisexual and 3% reported they were pansexual (attracted to all genders and biological sexes, King, 2011).

Smoking Behaviors

Of the 152 completed surveys, 135 participants reported their current smoking status. The prevalence of current smokers in this LGBT population was 30.3% (every day smoking n=21.3% and light/intermittent smoking n= 8.9%); the remaining 69.7% reported not smoking. The prevalence of smoking among this population is slightly above the rate of all smokers in Oklahoma (26%) and greater than one and one – half times the national smoking rate of the general population (19.3%) (Oklahoma State Department of Health website, n.d.).

Among the participants who reported any current smoking, 68% (n=28) were 30 years of age or younger and 32% (n=13) were over the age of 30. (n=41). Interestingly, those who reported smoking on some days (light/intermittent smoking) were almost all 30 years of age or less (92%) while those who smoked every day were more equally distributed (≤30 = 58.7% and >30 = 41.3%). Table 4 below shows the overall smoking behaviors of the sample participants.

Table 4. Smoking Behaviors

Current Smoker	***n* (%)**
Yes	41 (30.3)
No	94 (69.6)
Age First Cigarette Smoked (years)	
Mean (SD)	15.68 (4.13)
Range	7-32
Number of Cigarettes Smoked Daily	
Mean (SD)	11.59 (9.95)
Range	0-35
Number of Days Smoking in last 30 days	
Mean (SD)	22.73 (10.05)
Range	1-30
	***n* (%)**
Usually Smoke Menthol Cigarettes	
Always	20 (48.8)
Occasionally	7 (17.1)
Never	14 (34.1)
How soon after waking is first cigarette smoked?	
Within 5 min	4 (10.3)
5-30 min	14 (35.9)
31-60 min	9 (23.1)
After 60 min	12 (30.8)
Difficulty not smoking in non-smoking venues	
Yes	9 (23.1)
No	30 (19.7)
More smoking during 1st hour of waking vs. all day	
Yes	9 (22.5)
No	31 (77.5)
Still smoke when ill and in bed most of the day	
Yes	12 (30.0)
No	28 (70.0)

Description of the Predictor Variables

Among the 152 participants, 135 (current smokers - $n = 41$; non-smokers - $n = 94$) completed all seven of the predictor sub-scales in the survey (Table 5). For the CES-D 10 depression scale, the mean score for current smokers was 11.00 (SD .7.26, range 0-30) and was 7.26 (SD = 5.41, range 0-30) for non-smokers. The generalized anxiety scale, GAD-7, had mean scores of 9.74 (SD = 5.79, range 0-21) and 6.04 (SD = 5.68, range 0-21) for

current smokers and non-smokers respectively. Perceived stress had mean scores of 7.54 (SD = 3.68, range 0-16) for current smokers and 5.48 (SD = 3.17, range 0-16) for non-smokers. Psychological well-being had a mean score of 77.92 (SD = 15.80, range 18-126) for current smokers and a mean of 83.62 (SD =15.17, range 18-126) for non-smokers. Mean scores for community connectedness were 1.82 (SD = .579, range 0-4) for current smokers and 1.75 (SD = .596, range 0-4) for non-smokers. Outness inventory mean scores were 4.95 (SD = 1.64, range 0-7) and 5.11 (SD = 1.49, range 0-7) for current smokers and non-smokers. Social support had mean scores of 81.79 (SD = 18.31, range 15-105) for current smokers and 83.12 (SD = 18.72, range 15-105) for non-smokers.

Table 5. Predictor Variables

			Current Smokers N=39		Non-smokers N=94	
Instrument	**Range**	***p*-value**	**Mean**	**SD**	**Mean**	**SD**
Community Connectedness	0-4	.46	2.98	.48	3.05	.47
Outness Inventory	0-7	.59	4.95	1.64	5.11	1.49
CES-D 10 (Depression)	0-30	.00	11.00	7.26	7.27	5.41
GAD 7 (Anxiety)	0-7	.00	9.74	5.79	6.04	5.68
Perceived Stress	0-16	.00	7.54	3.68	5.48	3.17
Psychological Well-being	18-126	.05	77.92	15.79	83.63	15.17
PRQ 2000 (Social Support)	15-105	.71	81.79	18.31	83.12	18.72

Instrument Reliability

Cronbach's alpha was calculated to measure internal consistency for each instrument included in the survey. Reliability coefficients ranged from .81 to .94, suggesting that there is good internal consistency for all instruments. These results are presented in Table 6.

Table 6. Reliability Scores

Instrument	N of Items	Cronbach's alpha
Community Connectedness	8	.89
Outness Inventory	11	.92
CES-D 10	10	.87
GAD - 7	7	.93
Perceived Stress	4	.81
Psychological Well-being	18	.90
PRQ 2000	15	.94

A Multivariate Analysis of Variance (MANOVA) was conducted with smoking status as the independent variable and the seven sub-scale measures as the multiple dependent variables. Wilks' Lambda was significant, Wilks' $\lambda = .89$, F (7,125) =2.23, p=.04 with significant univariate tests for depression F (1,131) =10.66, p = .00, generalized anxiety F (1,131) =11.55, p = .00, and perceived stress F (1,131) =10.54, p = .00. MANOVA did not show significant between-subjects effect for community connectedness F (1,131) =.34, p=.56, outness inventory F (1,131) =.29, p=.59, psychological well-being F (1,131) =3.80, p = .05, or social support F (1,131) =.14, p=.71.

Research Question One

How does social support differ among smokers and non-smokers in a LGBT population?

Based on Weinert's Social Support Theory, increased social support, or perceived support, increases positive health behavior choices, such as not smoking. However, in this LGBT population in the Midwest, the difference between smokers and non-smokers on social support was not statistically significant (p = .71) based on MANOVA (Table 7). The non-smoker mean score for social support (range 15-105) was 83.12 (SD = 18.72) while the mean score for smokers was 82.94 (SD = 19.39). Social support was explored even further

for all smokers by comparing every day smokers (n=27) and light/intermittent smokers (n=12). Those participants who reported smoking every day had a slightly lower social support mean score of 79.96 (SD = 16.24) than those who reported smoking only on some days (light/intermittent smokers), who had a mean score of 85.92 (SD = 22.53).

Table 7. Social Support and Smoking Status

		Social Support	
Smoking Status	**N**	**Mean**	**SD**
All Smokers	39	82.94	19.39
Every day Smoker	27	79.96	16.24
Intermittent/Light Smoker	12	85.92	22.53
Non-smoker	94	83.12	18.72

Research Question Two

How does the impact of social support, environmental factors, and minority stress contribute to smoking behaviors of LGBT individuals?

Logistic regression was conducted to assess the main effects of environmental factors, minority stress, and social support in predicting smoking among LGBT individuals. The MANOVA revealed that only minority stress variables were significant on smoking status, so those three variables were included in the first logistic regression. When all three were considered together, the Omnibus Test of Model Coefficients indicated the logistic regression model was statistically significant ($\chi^2 = 12.26$, $df = 3$, $N = 135$, $p = 0.00$). According to the Classification table, overall 71.1% of the participants were predicted correctly for smoking status. Table 8 presents the odds ratios, suggesting that the odds of smoking were not greater when considering any of the predictor variables.

Table 8. Logistic Regression Predicting Smoking

Predictor	*B*	*Wald Statistic*	*Odds Ratio*	*p-value*
Anxiety	.07	2.25	1.07	.68
Perceived stress	.05	.36	1.05	.55
Depression	.02	.17	1.02	.38

Research Question Three

Does a higher level of social support increase intention to quit smoking among LGBT individuals?

Of the 39 participants who reported currently smoking, 87% (*n* =34) stated they would like to quit smoking one day. However, social support was not a statistically significant predictor (p =.63) with a mean score of 82.35 (SD = 18.43) for *YES* response and 78.00 (SD = 19.01) for *NO* response. When asked "Are you seriously considering quitting smoking in the next six months?" 62% responded *YES* (*n* =24) compared to 38% (*n* =15) responded *NO*. An independent samples *t*-test revealed that social support also remained not statistically significant on intention to quit in the next six months (*p* = .07) with a mean score for *YES* 85.96 (SD = 17.97) and for *NO* 75.13 (SD = 17.39). Although fewer participants indicated they were seriously considering quitting smoking within the next 30 days (n=20), the mean score for social support increased to 87.05 (SD = 18.74). However, the *t*-test revealed no significant difference in social support for those who indicated an intention to quit in the next 30 days (*t* (37) =1.90, *p* =.07). See Table 9 below for means and standard deviations for intention to quit smoking at various timeframes.

Table 9. Social Support and Intention to Quit Smoking

		Social Support		
		Mean	**SD**	**p-value**
Would you like to quit smoking one day?	Yes (n = 34)	82.35	18.43	.63
	No (n = 5)	78.00	19.01	
Are you seriously considering quitting smoking in the next 6 months?	Yes (n = 24)	85.96	17.96	.07
	No (n = 15)	75.13	17.39	
Are you seriously considering quitting smoking in the next 30 days?	Yes (n= 20)	87.05	18.73	.07
	No (n = 19)	76.26	16.56	

CHAPTER FIVE

Discussion

There was a greater prevalence of smoking among LGBT adults who were surveyed in this Midwest state (30.3%) than the general population of the state (26.0%) and more than one and a half times greater than the US population (19.3%) (Oklahoma State Department of Health website, n.d.). These results are consistent with the published literature in which sexual minority individuals have been reported to have smoking rates of 1.5 – 2 times those of heterosexuals (Lee et al., 2009).

Research Question One

How does social support differ among smokers and non-smokers in a LGBT population?

Although there was no significant difference on social support among the two smoking status groups, those who reported smoking every day had a slightly lower mean score for social support than those who reported not smoking or smoking only on some days (light/intermittent smoking). Interestingly, the highest mean score on social support was among those who were light/intermittent smokers and not the non-smoking group as was hypothesized based on the literature. Negative health choices and unhealthy behaviors are often the result of the absence of social support or the presence of negative social support (Weinert, 2003). Additionally, even though social support was not significantly related to smoking for older or younger individuals, participants over the age of 30 had a slightly higher mean score for social support. This is worth noting since fewer smokers were in this older group but at the same time were more habitual smokers than the younger group.

Research Question Two

How does the impact of social support, environmental factors, and minority stress contribute to smoking behaviors of LGBT individuals?

The primary purpose of this study was to explore contributing factors to smoking behaviors of LGBT individuals and if social support in particular was significant in the choice to smoke. Based on the literature, it was expected the environment of an individual's situation (i.e. social support, community connectedness, and outness) affected health behavior choices, such as smoking, in this marginalized group (Weinert & Brandt, 1987). Previous studies have shown a positive correlation of social support and health behaviors and health outcomes (Kelly et al., 2011). Social connectedness and the extent to which an individual is out to family and friends have been associated with levels of minority stress (Meyer, 2003), which also influences health behaviors. However, in this study, there was not a distinct difference in the levels of social support, community connectedness, or the extent of outness among smokers and non-smokers. Many of the participants who reported being current smokers had the highest level of social support scores just as various individuals who reported not smoking had particularly low social support scores. Similar results were found with community connectedness and outness as well. Participants who reported smoking did not have predominately less involvement in the LGBT community or less openness about their sexual orientation than non-smokers. However, it must be noted that specific involvement in the LGBT community was not identified during the study.

Three of the minority stress predictor variables were significantly associated with smoking: depression, generalized anxiety, and perceived stress. Participants who reported higher scores on these sub-scales were two and one-half times more likely to smoke than

those with lower scores. There is a well-established link between stress and smoking in the general population (Kassel, Stroud, & Paronis, 2003) so it follows suit that a community that experiences not only everyday stress, but additionally minority stress, would have an increased prevalence of smoking. Participants with higher scores for depression and anxiety were more likely to smoke every day, however, perceived stress scores were about the same for every day smokers and light/intermittent smokers.

Three of the minority stress predictor variables were significantly associated with smoking: depression, generalized anxiety, and perceived stress. Participants who reported higher scores on these sub-scales were two and one-half times more likely to smoke than those with lower scores. There is a well-established link between stress and smoking in the general population (Kassel, Stroud, & Paronis, 2003) so it follows suit that a community that experiences not only everyday stress, but additionally minority stress, would have an increased prevalence of smoking. Overall, minority stress (psychological distress) was a greater predictor of smoking behaviors than social support, community connectedness, or outness in this LGBT population.

Research Question Three

Does a higher level of social support increase intention to quit smoking among LGBT individuals?

More than one-third of the participants who reported currently smoking indicated they were trying to quit. Among these individuals, social support was slightly greater on average than for those who were not actively trying to quit smoking. However, some of the participants not trying to quit smoking had relatively high social support scores just as some individuals trying to quit had relatively low social support scores. Almost two-thirds of the

smoking participants reported a desire to quit smoking within the next six months, while approximately half of the smokers indicated that they were seriously considering quitting smoking in the next 30 days. Social support scores for those considering quitting smoking in the next six months were about the same as those currently trying to quit. However, those who had an intention to quit within the next 30 days had slightly greater social support scores on average than participants in both of those categories. These results suggest that even though higher levels of social support may not promote one's intention to quit smoking, social support levels were somewhat higher among participants who were considering quitting in the very near future. Nevertheless, overall results from the study did not indicate that a significant higher level of social support was present for those who had an intention to quit smoking within the next 30 days, the next six months, or even those actively trying to quit compared to those who indicated no intention of quitting.

More than half of the current smokers reported smoking a mentholated brand of cigarettes. This is worthy of noting because preliminary studies report smoking menthol cigarettes may increase the level of nicotine addiction and therefore decrease the success of smoking cessation (Food and Drug Administration [FDA], 2013).

Conclusion

This study suggests that lesbian, gay, bisexual, and transgender individuals in this Midwest state had smoking rates greater than the overall population. Living in a Midwest state that is predominantly conservative, does not offer any government-supported services to the LGBT population, does not recognize same-sex couples, and does not provide basic civil rights such as same-sex partner benefits or protection through anti-discrimination laws creates an environment steeped in minority stress. Further research is needed to identify the

social context of smoking and to examine the extent of minority stress in this Midwest population to develop effective community-based interventions.

Limitations

Due to the small sample size and the use of a convenience sample, the results from this study are certainly not generalizable to all LGBT communities. However, it does present a sample of the LGBT population in a conservative Midwest state. The late decision to target all LGBT individuals, as opposed to only those younger than 30 years of age, decreased the opportunity to have a larger sample size and possibly greater diversity in the sample.

Furthermore, even though the use of an online survey was economical and provided anonymity for sexual minorities, self-report of smoking behaviors and predictor variable sub-scales on the questionnaire allows for reporting biases among participants who may view minority stressors and certain smoking behaviors as undesirable characteristics. Despite these limitations, the present findings are important because the more community competence that can be developed, the greater the possibility of successfully working with LGBT individuals to identify contributing factors to smoking inception and to target barriers for smoking cessation.

Future Research

Although social support was measured using the PRQ2000, positive or negative social support was not explicitly examined and compared due to the already lengthy survey. Exploring these concepts further is certainly a possible focus of future research for smoking behaviors in LGBT communities. As well, the connectivity to the LGBT community was not distinguished by the nature of the relationships. An individual's relationship with only the nightclub or bar community, as opposed to the Equality Center or support programs, may

play a role in the type of social support available. For instance, those individuals who are actively involved in the programs at the Equality Center may receive more positive support than someone who engages with the community primarily at the bars. Conducting qualitative focus groups would allow for the identification of specific needs for targeted smoking cessation programs among this population. Focus groups would also allow for exploring specific factors contributing to smoking behaviors as well as barriers to quitting smoking. This study is a first step in identifying the social context of smoking in this Midwest population and these findings will inform future community-based interventions that are congruent with the recent Program Announcement by the National Institutes of Health regarding the need for LGBT intervention research (http://www.nih.gov).

Implications for Practice

The findings from this study reveal the need to focus on the minority stress factors, and the subsequent experienced psychological distress, that plays a significant role in smoking behaviors of the LGBT community. In order to change the norms and health behaviors of LGBT community members, community focused intervention programs must be developed that will create healthful behavior changes (Issel, 2009). The results from this study can guide a pilot LGBT- targeted smoking cessation program in this community, with further data gathered through a variety of situation-specific social support offerings.

APPENDIX A

LETTER OF SUPPORT

The University of Missouri – Kansas City (UMKC)
Social Sciences Institutional Review Board

April 7th, 2013

To the members of the Institutional Review Board,

I am writing to express my support of the implementation of a dissertation research study conducted by Angela Sivadon. Her project, "Social Support and Smoking among LGBT Young Adults in the Midwest" is consistent with the mission of Oklahomans for Equality and the Dennis R Neill Equality Center.

As Executive Director of Oklahomans for Equality, I feel Angela's dissertation research targeting smoking behaviors in LGBT individuals in Oklahoma will provide a catalyst for the development of smoking cessation programs in our community, resulting in a decrease in health disparities of the LGBT population in Oklahoma. The Dennis R. Neill Equality Center is one of the largest LGBT centers in the heartland and is located in downtown Tulsa, Oklahoma. The center is owned and operated by Oklahomans for Equality (OkEq) and provides support and services to the LGBT communities across the region.

Providing space at the Equality Center for Angela to recruit participants will be considered a positive contribution to the community we serve. The Equality Center has a computer lab funded by the David Bohnett Family Foundation with internet service for research participants to access the online surveys if needed.

The Equality Center also has a free medical clinic for the uninsured, a transgender-medical clinic and served 47,000 individuals in 2012. I will support this project by being available to Angela for any consultation she may need for recruitment or resources. I look forward to working with Angela in her endeavors to improve the health of the LGBT community in Oklahoma.

Sincerely,

Toby Jenkins
Executive Director
Oklahomans for Equality
And the Dennis R. Neill Equality Center

Oklahomans for Equality
PO Box 2687
Tulsa OK 74101
918.743.4297

www.okeq.org

APPENDIX B

UMKC IRB APPROVAL

From: umkcirb@umkc.edu
Sent Date: Wednesday, May 01, 2013 09:43:14 AM
To: kellypj@umkc.edu, adsgz4@mail.umkc.edu
Cc:
Bcc:
Subject: IRB Protocol Approved: 13-570, Patricia J. Kelly
Message:

The SSIRB has approved the protocol with the following details.

Protocol ID: 13-570
Principal Investigator: Patricia J. Kelly

Protocol Title: Social Support and Smoking among LGBT Young Adults in Oklahoma

Review Type: Administrative Review
Department: School of Nursing

Approval Date: 05/01/2013

The formal approval letter and stamped consent forms, if applicable, can be found by accessing the protocol in the eProtocol system. Please contact the Research Compliance Office (email: umkcirb@umkc.edu; phone: (816)235-5927) if you have questions or require further information.

APPENDIX C

RECRUITMENT POSTCARD

Participate in a Research Study

And have a chance to win $100 Amazon gift card

Social Support and Smoking

Among LGBT Young Adults in Oklahoma

- ❖ You do not have to be a current smoker to participate
- ❖ Participation includes a 20-30 minute online survey.

❖

Conducted by **Angela Sivadon, RN, MSN**

adsgz4@mail.umkc.edu

https://www.surveymonkey.com/s/HFBCMSB

APPENDIX D

RECRUITMENT FLYER

Participate in a Research Study

Social Support and Smoking

Among LGBT Young Adults in the Midwest

- **Do you identify as non-heterosexual?**
- **Are you between the ages of 18 and 30?**

If you answered YES to these questions, you may be eligible to participate and have a chance to win $100 Amazon gift card.

The purpose of this research study is to better understand how our social environment contributes to smoking in the lesbian, gay, bisexual, and transgender community. Results of the study may be helpful to improve future opportunities to help sexual minorities quit smoking.

- You do not have to be a current smoker to participate
- Participation includes a 20-30 minute online survey.

This study is being conducted by Angela Sivadon who is a nursing doctoral student. The study has been approved by the University of Missouri-Kansas City Institutional Review Board.

To complete the online survey go to:

https://www.surveymonkey.com/s/HFBCMSB

Please contact Angela Sivadon at **adsgz4@mail.umkc.edu** for additional information.

LGBT Smoking Study
Angela Sivadon
adsgz4@mail.umkc.edu
https://www.surveymonkey.com/s/HFBC
MSB

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MSB

APPENDIX E

CONSENT FORM

Take part in a first-time opportunity for LGBT people in Oklahoma. Help us learn more about the needs of our LGBT community! The information we gather will be used to create healthier social gathering places, design LGBT quit smoking programs, and improve the overall health of our community. At the completion of the survey you can register to win a $100 gift card from Amazon.com.

You are being asked to participate in an online research study conducted by Angela Sivadon, a PhD nursing student at the University of Missouri - Kansas City and a member of the Oklahoma LGBT community. The purpose of this research study is to better understand how our social environment contributes to smoking among lesbian, gay, bisexual, and transgender individuals. Your participation is voluntary and you may choose to withdraw your participation at any time. There is no cost to you to participate. There are also no direct benefits to you as a participant in this study.

Your participation in this study will involve completion of a survey that has 59 questions. The survey may take about 25-30 minutes to complete. You are free to discontinue the survey at any time. If you opt to not complete the survey, your responses will not be recorded in our database.

Your responses are treated anonymously and your computer IP address is not tracked.

All data is anonymous and every effort will be made to keep confidential all of the information you complete. Individuals from the University of Missouri-Kansas City Institutional Review Board (a committee that reviews and approves research studies), Research Protections Program, and Federal regulatory agencies may look at records related to this study for quality improvement and regulatory functions.

The University of Missouri-Kansas City appreciates the participation of people who help it carry out its function of developing knowledge through research. If you have any questions about the study that you are participating in you are encouraged to call Angela Sivadon, the investigator, at 918-724-5150.

Although it is not the University's policy to compensate or provide medical treatment for persons who participate in studies, if you think you have been injured as a result of participating in this study, please call the IRB Administrator of UMKC's Social Sciences Institutional Review Board at 816-235-1764.

If you have any questions about this study at any time, you may contact Angela Sivadon at the University of Missouri-Kansas City, School of Nursing, 2464 Charlotte Street, Kansas City, MO 64108 or you may phone her at 918-724-5150, or e-mail her at adsgz4@mail.umkc.edu and she will be happy to answer any of your questions.

Thank you in advance for completing the survey. If you have any questions about the study or experience technical difficulties with the survey, please email Angela Sivadon at adsgz4@mail.umkc.edu.

By completing this survey, you give your consent to participate in this research study. If you do not want to participate in this research study, please exit the survey.

APPENDIX F

LGBT QUESTIONNAIRE

Demographic Information

In this first section, you will answer a few questions about yourself so that we can know something about the participants who complete our study.

1. **What is your age? ___**

2. **Which group best represents your race?**
   - **____ African American/Black**
   - **____ American Indian, Alaska Native**
   - **____Asian**
   - **____Latino**
   - **____Native Hawaiian, or other Pacific Islander**
   - **____White**
   - **____Other, specify_____**
3. **What is the highest grade or year of school you have completed?**
   - **____Some high school**
   - **____High school graduate or GED certificate**
   - **____Some technical school graduate**
   - **____Technical school graduate**
   - **____ Some college**
   - **____ College graduate**
   - **____Postgraduate or professional degree**
4. **Are you currently:**
   - **____Employed for wages**
   - **____Self-employed**
   - **____Out of work for more than 1 year**
   - **____Out of work for less than 1 year**
   - **____A homemaker**
   - **____A student**
   - **____Retired**
5. **What is your relationship status?**
   - **____Single**
   - **____Partnered/Committed relationship**
   - **____Married**
   - **____Civil Union**
6. **What is your annual household income from all sources?**
   - **____Less than $10,000**
   - **____$10,000 to less than $15,000**
   - **____$15,000 to less than $20,000**
   - **____$20,000 to less than $25,000**
   - **____$25,000 to less than $35,000**
   - **____$35,000 to less than $50,000**
   - **____$50,000 to less than $75,000**
   - **____More than $75,000**
7. **What is the zip code where you live? _____**

8. What is your current height? _____
9. What is your current weight? _____
10. Would you say that in general your health is:
____Excellent
____Very good
____Good
____Fair
11. Do you have one person you think of as your personal doctor or healthcare provider?
____Yes, only one
____More than one
____No

12. Do you have any kind of health care coverage, including health insurance, prepaid plans such as HMOs, or government plans such as Medicare or Indian Health Services?
____Yes
____No
____Not sure

The next few questions will help us know more about the sexual orientation and/or gender identity of those completing this survey.

13. Do you consider yourself to be:
____Female
____Male or
____Something else
14. Do you consider yourself to be:
____Homosexual (gay or lesbian)
____Heterosexual (straight)
____Bisexual
____Other_____
15. Some people consider themselves as transgender when they experience a different gender identity from their sex at birth. For example, a person born into a male body but who feels female or lives as a woman. Do you consider yourself to be transgender?
____Yes
____Yes, Male to Female (MtF)
____Yes, Female to Male (FtM)
____Yes, Neither male nor female
____No
16. In terms of your physical appearance, how masculine/feminine are you?
____Very masculine
____Very feminine
____Somewhat masculine
____Somewhat feminine

____Neither specifically masculine/feminine

17. Do you try to change your behavior and/or appearance to conform to social expectations for boys or girls?

____Never
____Rarely
____Often
____Always

18. Have you ever been harassed for being too masculine or feminine?

____Never
____Rarely
____Often
____Always

Use the following rating scale to indicate how open you are about your sexual orientation to the people listed below. Try to respond to all of the items, but leave items blank if they do not apply to you.

1 =person definitely does NOT know about your sexual orientation status
2 =person might know about your sexual orientation status, but it is NEVER talked about
3 =person probably knows about your sexual orientation status, but it is NEVER talked about
4 =person probably knows about your sexual orientation status, but it is RARELY talked about
5 =person definitely knows about your sexual orientation status, but it is RARELY talked about
6 =person definitely knows about your sexual orientation status, and it is SOMETIMES talked about
7 =person definitely knows about your sexual orientation status, and it is OPENLY talked about
0 =not applicable to your situation; there is no such person or group of people in your life

1. mother	1	2	3	4	5	6	7	0
2. father	1	2	3	4	5	6	7	0
3. siblings (sisters, brothers)	1	2	3	4	5	6	7	0
4. extended family/relatives	1	2	3	4	5	6	7	0
5. my new straight friends	1	2	3	4	5	6	7	0
6. my work peers	1	2	3	4	5	6	7	0
7. my work supervisor(s)	1	2	3	4	5	6	7	0
8. members of my religious community (e.g., church, temple)	1	2	3	4	5	6	7	0
9. leaders of my religious community (e.g., church, temple)	1	2	3	4	5	6	7	0
10. strangers, new acquaintances	1	2	3	4	5	6	7	0
11. my old heterosexual friends	1	2	3	4	5	6	7	0

19. At what age did you first come out about your sexual orientation/gender identity to another person?

____Age in years
____I have not come out to another person

This next section is going to ask about how you and others like you are treated.

Have you ever experienced discrimination, been prevented from doing something or been hassled or made to feel inferior in any of the following situations because of your sexual orientation or gender identity/gender presentation? Select all that apply.

____At school
____Getting hired or getting a job
____At work
____ Getting housing
____Getting medical care
____Getting service in a store or restaurant
____Getting credit, bank loans or a mortgage
____On the street or in a public setting
____From the police or in the courts

If you feel you are being treated unfairly based on your sexual orientation or gender identity, do you usually:

____Accept it as a fact of life
____Try to do something about it

If you have been treated unfairly based on your sexual orientation or gender identity, do you usually:

____Talk to other people about it
____Keep it to yourself

In this section, we would like to know about the time you spend with others in the LGBT community.

20. How often do you go out to gay bars or clubs?

____Never
____Occasionally
____Once a month
____Once a week
____Several times a week

21. Are you involved in any projects or programs in the LGBT community?

____Yes
____No

Please indicate to what extent you agree with the following statements.

1= strongly agree
2=agree
3=disagree
4=strongly disagree

1. **You feel you're a part of the Oklahoma LGBT community.**
2. **Participating in Oklahoma's LGBT community is a positive thing for you.**
3. **You feel a bond with the LGBT community.**
4. **You are proud of Oklahoma's LGBT community.**

5. **It is important for you to be politically active in Oklahoma's LGBT community.**
6. **If we work together, gay, bisexual and lesbian people can solve problems in Oklahoma's LGBT community.**
7. **You really feel that any problems faced by Oklahoma's LGBT community are also your own problems.**
8. **You feel a bond with other LGBT people.**

The questions in this section ask you about your feeling, thoughts or behaviors during a certain period of time.

Below is a list of ways you may have felt or behaved. Please select how often you have felt each way during the past week.

	Rarely or none of the time (less than one day)	Some or little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	Most or all of the time (5-7 days)
I felt depressed.				
I felt that everything I did was an effort.				
My sleep was restless.				
I felt lonely.				
I had crying spells.				
I felt sad.				
I could not get "going"				

In each of the following cases, you will be asked to indicate by circling how often you felt or thought a certain way during the last month.

0 = Never 1 = Almost Never 2 = Sometimes 3 = Fairly Often 4 = Very Often

1. **In the last month, how often have you felt that you were unable to control the important things in your life?..... 0 1 2 3 4**

2. **In the last month, how often have you felt confident about your ability to handle your personal problems? 0 1 2 3 4**

3. **In the last month, how often have you felt that things were going your way?..... 0 1 2 3 4**

4. **In the last month, how often have you felt difficulties were piling up so high that you could not overcome them? 0 1 2 3 4**

Over the last 2 weeks, how often have you been bothered by the following problems?

	Not at all	Several days	More than half the days	Nearly every day
Feeling anxious or on edge	0	1	2	3
Not being able to stop or control worrying	0	1	2	3
Worrying too much about different things	0	1	2	3
Trouble relaxing	0	1	2	3
Being so restless that it's hard to sit still	0	1	2	3
Becoming easily annoyed or irritated	0	1	2	3
Feeling afraid as if something awful might happen	0	1	2	3

The following set of questions deals with how you feel about yourself and your life. Please remember that there are no right or wrong answers.

Circle the number that best describes your present agreement or disagreement with each statement.	Strongly Disagree	Disagree Somewhat	Disagree Slightly	Agree Slightly	Agree Somewhat	Strongly Agree
In general, I feel I am in charge of the situation in which I live.	1	2	3	4	5	6
When I look at the story of my life, I am pleased with how things have turned out.	1	2	3	4	5	6
Maintaining close relationships has been difficult and frustrating for me.	1	2	3	4	5	6
The demands of everyday life often get me down.	1	2	3	4	5	6
I live life one day at a time and don't really think about the future.	1	2	3	4	5	6
I am quite good at managing the many responsibilities of my daily life.	1	2	3	4	5	6
I think it is important to have new experiences that challenge how you think about yourself and the world.	1	2	3	4	5	6
I like most aspects of my personality.	1	2	3	4	5	6
I tend to be influenced by people with strong opinions.	1	2	3	4	5	6
In many ways, I feel disappointed about my achievements in life.	1	2	3	4	5	6
People would describe me as a giving person, willing to share my time with others.	1	2	3	4	5	6
I have confidence in my opinions, even if they are contrary to the general consensus.	1	2	3	4	5	6
I have not experienced many warm and trusting relationships with others.	1	2	3	4	5	6
Some people wander aimlessly through life,	1	2	3	4	5	6

but I am not one of them. For me, life has been a continuous process of learning, changing, and growth.	1	2	3	4	5	6
I sometimes feel as if I've done all there is to do in life.	1	2	3	4	5	6
I gave up trying to make big improvements or changes in my life a long time ago.	1	2	3	4	5	6
I judge myself by what I think is important, not by the values of what others think is important.	1	2	3	4	5	6

In this next section, we are interested in learning more about the smoking behaviors of LGBT people living in OK.

22. Which of the following best describes your smoking status?

____I smoke cigarettes every day or on some days
____I have smoked before but have not smoked in the last 30 days
____I have never smoked (skip to question # 38)

23. At what age did you smoke your first cigarette?

____Age in years

24. How soon after you first wake up do you smoke your first cigarette?

____Within 5 minutes
____5-30 minutes
____31-60 minutes
____After 60 minutes

25. Do you find it difficult to refrain from smoking in places where it is forbidden, e.g. in church, at the library, in the cinema?

____Yes
____No

26. Which cigarette would you hate most to give up?

____The first one in the morning
____All others

27. Do you smoke more frequently during the first hours after waking than during the rest of the day?

____Yes
____No

28. Do you smoke if you are so ill that you are in bed most of the day?

____Yes
____No

29. Do you usually smoke menthol cigarettes?

____Always
____Occasionally
____Never

30. On the average, about how many cigarettes a day do you smoke now?

Number of cigarettes____

31. On how many of the past 30 days have you smoked cigarettes?

Number of days____

32. During the past 12 months, have you stopped smoking for one day or longer because you were trying to quit smoking?

____Yes
____No

33. Do you expect that you will stop smoking one day?

____Yes
____No
____Not sure

34. Are you seriously considering quitting smoking in the next 6 months?

____Yes
____No
____Not sure

35. Are you seriously considering quitting smoking in the next 30 days?

____Yes
____No
____Not sure

36. Are you currently trying to quit smoking?

____Yes
____No

37. During the past 12 months has a medical care provider advised you to quit smoking?

____Yes
____No

Please rate HOW IMPORTANT each statement **is to your decision to smoke** using the following scale.

1 2 3 4 5
Not important Moderately important Extremely important

Smoking cigarettes is pleasurable. _____
My smoking affects the health of others. _____
I like the image of a cigarette smoker. _____
Others close to me would suffer if I became ill from smoking. _____
I am relaxed and therefore more pleasant when smoking. _____
Because I continue to smoke, some people I know think I lack the character to quit. _____
If I try to stop smoking I'll be irritable and a pain to be around. _____
Smoking cigarettes is hazardous to my health. _____
My family and friends like me better when I am happily smoking than when I'm miserably trying to quit. _____
I'm embarrassed to have to smoke. _____
I like myself better when I smoke. _____
My cigarette smoking bothers other people. _____
Smoking helps me concentrate and do better work. _____
People think I'm foolish for ignoring the warnings about cigarette smoking. _____

Smoking cigarettes relieves tension.

_____

People close to me disapprove of my smoking.

_____

By continuing to smoke I feel I am making my own decisions. _____

I'm foolish to ignore the warnings about cigarettes. _____

After not smoking for a while a cigarette makes me feel great.

_____

I would be more energetic right now if I didn't smoke.

_____

38. Have you ever smoked a cigar, even one or two puffs?

____Yes

____No

39. Have you ever smoked tobacco in a pipe, even one or two puffs?

____Yes

____No

40. Have you ever used or tried any smokeless tobacco products such as chewing tobacco or snuff?

____Yes

____No

41. Have you ever smoked a bidi (a flavored cigarette from India), even one or two puffs?

____Yes

____No

42. Have you ever smoked kretels, or clove cigarettes, even one or two puffs?

____Yes

____No

43. Have you ever smoked an e-cigarette, even one or two puffs?

____Yes

____No

In the following section, we are interest in the use of alcohol or illicit drugs

44. During the past 30 days, how many days per week or month did you have at least one drink of any alcoholic beverage such as beer, wine, a malted beverage, or liquor?

____Days per week

____Days in past month

____No drinks in past 30 days (skip to question # 46)

45. One drink is equivalent to a 12-ounce beer, a 5-ounce glass of wine, or a drink with one shot of liquor. During the past 30 days, on the days when you drank, about how many drinks did you drink on the average?

____Number of drinks

____Don't know/not sure

46. During the past 30 days, on how many days did you use marijuana?

____Number of days

____Did not use
____Don't know/not sure

47. During the past 30 days, on how many days did you use and other illegal drug?
____Number of days
____Did not use
____Don't know/not sure

In this last segment, we would like to know about your relationships with others.

PERSONAL RESOURCE QUESTIONNAIRE (PRQ2000)

Below are some statements with which some people agree and others disagree. Please read each
statement and **SELECT** the response most appropriate for you. There is no right or wrong answer.

1 STRONGLY DISAGREE
2 DISAGREE
3 SOMEWHAT DISAGREE
4 NEUTRAL
5 SOMEWHAT AGREE
6 AGREE
7 STRONGLY AGREE

Q-1. There is someone I feel close to who makes
me feel secure 1 2 3 4 5 6 7
Q-2. I belong to a group in which I feel important .. 1 2 3 4 5 6 7
Q-3. People let me know that I do well at my work
(job, homemaking) 1 2 3 4 5 6 7
Q-4. I have enough contact with the person who
makes me feel special 1 2 3 4 5 6 7
Q-5. I spend time with others who have the same
interests that I do 1 2 3 4 5 6 7
Q-6. Others let me know that they enjoy working
with me (job, committees, projects) 1 2 3 4 5 6 7
Q-7. There are people who are available if I need
help over an extended period of time. 1 2 3 4 5 6 7
Q-8. Among my group of friends we do favors for
each other. 1 2 3 4 5 6 7
Q-9. I have the opportunity to encourage others to
develop their interests and skills. 1 2 3 4 5 6 7
Q-10. I have relatives or friends that will help me out
even if I can't pay them back 1 2 3 4 5 6 7
Q-11. When I am upset, there is someone I can be
with who lets me be myself 1 2 3 4 5 6 7
Q-12. I know that others appreciate me as a person . .1 2 3 4 5 6 7

Q-13. There is someone who loves and cares about me 1 2 3 4 5 6 7

Q-14. I have people to share social events and fun activities with 1 2 3 4 5 6 7

Q-15. I have a sense of being needed by another person 1 2 3 4 5 6 7

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VITA

Angela Denise Sivadon was born and raised in Sapulpa, Oklahoma. After meeting her partner, Mary (who is a nurse), she decided to pursue a career in nursing. After graduating with an Associate's degree in nursing from Tulsa Junior College, Angela worked in the field of cardiology for 12 years before returning to school to further her education. She completed her Bachelor's and Master's degrees in Nursing within the next three years and began her doctoral degree pursuit six months later. At the time Angela began the PhD program at UMKC she also made a career change from the hospital setting to teaching in the nursing program of her alma mater, now known as Tulsa Community College (TCC). Angela continues to work at TCC and is designing and implementing a new cardiovascular technology program for the college in the Fall of 2014. She lives with her partner of 25 years on 12 acres in the country along with their rescue lab, Hank, and whoodle dog, Ziva.