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REDUCING TOBACCO-RELATED HEALTH DISPARITIES: EXPLORING THE
BARRIERS AND FACILITATORS TO SMOKING CESSATION AMONG
INDIVIDUALS EXPERIENCING HOMELESSNESS

By

Bernadette Guzman Antoon
M.P.H., University of Florida, 2012
B.S., University of Florida, 2010

A Dissertation
Submitted to the faculty of the
School of Public Health and Information Sciences
of the University of Louisville
in Partial Fulfillment of the Requirements
For the Degree of

Doctor of Philosophy in Public Health Science

Department of Health Promotion & Behavioral Sciences
University of Louisville
Louisville, Kentucky

May 2017

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DEDICATED

to

My husband

Mr. Daniel James Antoon, MBA

who continues to provide me with unconditional love and support.

Thank you for your patience, understanding, and encouragement.

My parents

Mr. Honorio Angeles Guzman

and

Mrs. Eleanor Mariano Guzman

who instilled the importance of education.

Thank you for your hard work and sacrifice

to ensure better educational and economic opportunities

for your children.

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ABSTRACT

REDUCING TOBACCO-RELATED HEALTH DISPARITIES: EXPLORING THE BARRIERS AND FACILITATORS TO SMOKING CESSATION AMONG INDIVIDUALS EXPERIENCING HOMELESSNESS

Bernadette Guzman Antoon

March 27, 2017

Although the prevalence of smoking has declined in the U.S., vulnerable populations continue to suffer from tobacco-related health disparities. An estimated 68.0-80.0% of homeless adults are current cigarette smokers compared to 15.1% in the general population. The large gap in smoking rates suggests that current tobacco cessation programs designed to reduce smoking have little impact among individuals experiencing homelessness. The purpose of this study was to explore the barriers and facilitators to smoking cessation among the homeless. The second aim of this study was to explore if the barriers and facilitators to tobacco cessation differed among male smokers experiencing homelessness depending on housing program. The researcher conducted 30 in-depth individual interviews and 30 post-interview short-answer demographic questionnaires among men residing in a Housing First program, a Treatment First program, and those living on the street in Louisville, Kentucky.

Results from this study demonstrate that homeless men in Housing First and Treatment First programs were less likely to engage in high-risk smoking behaviors,

more likely to have intentions to quit, and more likely to know where to access cessation compared to unsheltered homeless men. Additionally, results from this study demonstrate that barriers to smoking cessation are not equal across groups; unsheltered participants experienced more barriers to cessation compared to participants in the Housing First and Treatment First programs. Across groups, participants commonly reported intrapersonal struggles, such as associating smoking with personal identity and reducing stress associated with homelessness, living in a pro-tobacco environment, access and availability of cigarettes, and lack of access to care as barriers to smoking cessation. Participants commonly identified improving access, availability, and convenience to cessation interventions as a facilitator to smoking cessation. Collectively, these findings suggest an association between housing programs and barriers to smoking cessation. Findings from this study provide information for future development and tailoring of smoking cessation interventions; such interventions must be flexible, readily available, and accessible. Interventions should also consider housing programs when tailoring cessation to the homeless. Collaboration across disciplines is warranted to improve smoking cessation and reduce tobacco-related health disparities among the homeless.

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CHAPTER ONE INTRODUCTION

Context of the Problem: The Burden of Tobacco Use

After more than 50 years of growing scientific evidence showing the relationship between tobacco use and adverse health outcomes, smoking remains the leading preventable cause of premature death and disease in the United States (U.S. Department of Health and Human Services (USDHHS), 2010). The Centers for Disease Control and Prevention (CDC) estimated that smoking accounts for 443,000 premature deaths per year in the United States with an additional 8.6 million experiencing disabilities from smoking-related diseases (CDC, 2008). The World Health Organization (WHO) estimates an annual 5 million deaths worldwide and predicts the toll to increase to 10 million by 2030 because of smoking-related diseases (WHO, 2002).

The effects of tobacco use are staggering. Over 30 Surgeon General Reports have documented the adverse biological, epidemiological, and behavioral effects tobacco has on the body (USDHHS, 2010). Harming nearly every organ of the body, extensive research reports cigarette smoking as a risk factor for cardiovascular disease, acute and chronic respiratory disease, lung disease, negative reproductive effects, and cancer (USDHHS, 2004). Compared to nonsmokers, smokers are 12 to 13 times more likely to die from chronic obstructive pulmonary disease (COPD) as cigarette smoking is responsible for 80% of all COPD deaths in the U.S (USDHHS, 2001, 2014). Further,

smokers are at higher risk for cardiovascular disease (diseases that affect the heart and blood vessels) (USDHHS, 2014).

Beyond the smoker, cigarette smoking is associated with negative externalities such as second hand smoke. Despite considerable efforts to protect individuals from secondhand smoke, an estimated 58 million nonsmokers are exposed to secondhand smoke annually (CDC, 2015). Most are exposed to secondhand smoke at home, work, or in public places. Among non-smokers, secondhand smoke is linked to heart disease, lung cancer, and stroke (USDHHS, 2014; CDC, 2010). The CDC estimates that 50,000 of the 443,000 premature deaths from tobacco use are a result of second hand smoke exposure with a conservative estimate of 2.5 million nonsmoker deaths due to complications related to secondhand smoke exposure (USDHHS, 2010, 2006).

While consistent evidence based research, education, and policies on the harmful effects of tobacco-use are widespread, tobacco use, including smoking, remain a public health issue. An estimated 15.1% or 36.5 million U.S. adults 18 years or older are current smokers, defined as: “persons reported smoking at least 100 cigarettes during their lifetime and who, at the time they participated in a survey about this topic, reported smoking every day or some days” (CDC, 2016). These numbers are underestimated as discrepancies exist within the population depending on age, gender, ethnicity, geographical location, or socioeconomic status. Nearly 17.7% of adults aged 25-44 years are current smokers compared to 17.0% of adults aged 45-64 years and 8.4% of adults aged 65 and older (CDC, 2016). Men are more likely to be current cigarette smokers than women with more than 16.7% of adult men aged 18 or older are current smokers compared to 15.3% of adult women (CDC, 2016). An estimated 21.9% of Non-Hispanic

American Indians/Alaska Natives are current smokers compared to 20.2% of adult non-Hispanic Whites, 16.7% of adult non-Hispanic Blacks, and 7.0% of adult non-Hispanic Asians (CDC, 2016). Current cigarette smoking is higher in the Midwest and Southern U.S. as 18.7% and 15.3% of adults are current smokers, respectively. Comparatively, 12.4% of adults in Western U.S. and 13.5% of adults in the Northeastern U.S. are current smokers (CDC, 2016).

The Problem: Tobacco-Related Health Disparities Among the Homeless

Tobacco use is not an equal opportunity public health issue. The most vulnerable and marginalized populations disproportionately bear the burden of tobacco-related diseases and deaths as they continue to use tobacco, including smoking, at a formidably high rate. One such population is the homeless (CDC, 2014b; USDHHS, 2012). In the U.S., an estimated 68.0-80.0% of individuals experiencing homelessness are current cigarette smokers – a prevalence 4 times that in the U.S. general adult population and twice as high as those who live at or below the federal poverty line (Baggett & Rigotti, 2010; Connor, Cook, Herbert, Neal, & Williams, 2002; Okuyemi et al., 2006; Szerlip & Szerlip, 2002; Tsai & Rosenheck, 2012; USDHHS, 2004; CDC, 2014b). The large gap in current smoking rates between the general population and the homeless suggest that tobacco cessation programs designed to reduce smoking rates have had little impact among the homeless and may even have exacerbated health inequalities (Jarvis & Wardle, 1999).

In addition, individuals experiencing homelessness are more likely to smoke and less likely to quit compared to their non-homeless counterparts (Healton & Nelson, 2004). Because of this, homeless individuals are at higher risk for tobacco-related

medical illnesses such as cancer, heart disease, respiratory disease, and premature death given that their health may already be compromised by substance abuse, lack of nutrition, lack of housing, and little to no access to quality or affordable healthcare (Ferenchick, 1992; Heffron, Skipper, & Lambert, 1997; Kushel, Vittinghoff, & Hass 2001; Oliviera & Goldberg, 2002; Sachs-Ericsson, Wise, Debrody, & Paniucki, 1999). Homelessness is also associated with substantially high mortality rates, in part due to high rates of cigarette smoking and tobacco use (Baggett, Lebru-Harris, & Rigotti, 2013; Healton & Nelson, 2004; Hwang, Wilkins, Tjepkema, O'Campo, & Dunn, 2009; Szerlip & Szerlip, 2002; Torchalla et al., 2011). Adults experiencing homelessness are three to five times more likely to die prematurely compared to the general population (Barrow, Herman, Cordova & Struening, 1999; Hibbs et al., 1994; Hwang, Orav, O'Connell, Lebow, & Brennan, 1997; Hwang, Wikins, Tjepkema, O'Campo, & Dunn, 2009; Morrison, 2009; Song et al., 2007; O'Connell, 2005).

Similar to other health disparities, tobacco-related health disparities among the homeless are accentuated by unequal distributions of the social determinants of health such as income, educational attainment, and housing (American Legacy Foundation (ALF), 2015). Additionally, the homeless are more likely to use tobacco, struggle with quitting, be exposed to secondhand smoke, and thus, suffer from tobacco related diseases, disability, and death (National Coalition for the Homeless, 2009; Baggett & Rigotti, 2010; CDC 2014b). However, because high morbidity and mortality rates are due to preventable causes, such as tobacco use, smoking cessation has the potential to significantly reduce death and diseases among this population (Arnsten, Reid, Bierer, & Rigotti, 2004).

Background

The National Law Center on Homelessness and Poverty (2004) estimates that each year at least 2.5 to 3.5 million Americans are homeless. The experience of homelessness significantly impacts the health and well-being of the individual. The homeless population is a disparate population at greater risk for infectious and chronic diseases, poor mental health, substance abuse, alcohol addiction, and victims of violence compared to the general population (CDC, 2013). Due to these unfavorable conditions, individuals who are homeless are three to four times more likely to die prematurely compared to the general population (O'Connell, 2005; Morrison, 2009; Song et al., 2007).

In response to the rising prevalence and high cost of homelessness, the U.S. Department of Housing and Urban Development supports two types of shelter programs. The two common intervention shelter approaches are Continuum of Care or Treatment First and Housing First programs. Treatment First programs require individuals to be sober from drugs and alcohol and use any necessary medication or treatment for mental health issues to qualify for housing (Kertesz, Crouch, Miby, Cusimano, & Schumacher, 2009). Conversely, Housing First programs operate by immediately placing individuals in housing with available supportive services without contingency of sobriety or any medication or treatment utilization (Tsemberis, Gulcur, & Nakae, 2004). A majority of cost-effective housing research measures the impact of Housing First and Treatment First programs on substance abuse, alcohol use, hospitalization, emergency room use, and fidelity to the program. There is strong evidence demonstrating reduction in emergency room use, hospitalization, homelessness, and increased consumer satisfaction and health

and well-being among homeless individuals in Housing First programs compared to continuum of care programs (Culhane, Metraux, & Hadley, 2002; Gulcur, Stefancic, Shinn, Tsemberis, & Fischer, 2003; Clark & Rich, 2003; Stefanic & Tsemberis, 2007; Padgett, Stanhope, Henwood, & Stefancic, 2011). There is preliminary evidence suggesting Housing First programs reduce substance abuse, alcohol use and increased treatment service utilization compared to continuum of care programs (Collins et al., 2012; Kirst, Zerger, Misir, Hwang, & Steriopoulos, 2015).

Tobacco use, including smoking cigarettes, is an important preventative risk factor to consider when assessing the health-related quality of life among homeless populations. Because individuals experiencing homelessness have higher mortality rates due to treatable or preventable causes, smoking cessation has the potential to significantly reduce death and disability within this population. Specifically, quitting smoking can substantially reduce the risk of cancer, heart disease, and stroke (USDHHS, 2004, 2014; Hughes, Goldstein, Hurt, & Shiffman, 1999).

Individuals experiencing homelessness are interested in smoking cessation but have a number of barriers to access such services (Baggett & Rigotti, 2010; Garner & Ratschen, 2013; Okuyemi et al., 2006). One barrier includes tobacco use perceived as of little importance when compared to other medical, psychiatric and social concerns. These concerns overshadow the seriousness of tobacco use and its health impact. Thus, health care and service providers often neglect to offer or assist with smoking cessation resources (Baggett & Rigotti, 2010).

The United States Preventive Service Task Force (USPMTF) and the National Healthcare for the Homeless (HCH) Preventive Medicine Task Force (PMFT) both

recommend medical and service providers to ask homeless adults about tobacco use and provide tobacco cessation interventions to those who use tobacco products (Bharel et al., 2011).

In recognizing the importance of tobacco cessation as a mechanism to decrease health disparities among the homeless population, and bridging the research gap on tobacco use and cessation among the homeless, the 2009 Health Educational Council (HEC) in collaboration with Break Free Alliance, convened an expert panel to address the following goals: 1) identify the successes and challenges to addressing tobacco use in homeless populations, 2) identify current tobacco cessation practices and models for homeless populations and 3) develop targeted recommendations for dissemination among researchers, policy makers, funding agencies, state tobacco control programs, and service providers (HEC, 2009).

Results from the panel meeting led to the publication of *Addressing Tobacco Use in Homeless Populations: Recommendations of the Expert Panel* discussing future research priorities including exploration of barriers and enablers to tobacco, including smoking, cessation services and how current or developing interventions need to satisfy the needs of homeless populations (HEC, 2009). The literature review emphasized the priorities set by HEC by revealing a current and large gap in understanding barriers and enablers to tobacco cessation programs among homeless persons and smoking characteristics among this demographic. Scarcity of this information provides little to no guidance for developing or tailoring cost-effective and best practice tobacco cessation programs to the homeless.

Statement of Purpose

The purpose of this study was to explore the barriers and facilitators to smoking cessation among the homeless thus, to provide information for future development and tailoring of smoking cessation opportunities. This study will focus on male smokers experiencing homelessness for two reasons. First, men are at higher risk for homelessness in the United States. According to the most recent Annual Homeless Assessment Report (AHAR) released by the Department of Housing and Urban Development (HUD), the 2016 Point –In – Time (PIT) estimates found approximately 60.0% of individuals experiencing homelessness were men compared to 40.0% of woman and less than 1.0% of transgendered (USDHUD, 2016). Secondly, men are more likely to be current cigarette smokers compared to women (CDC, 2016). Recent data shows nearly 17 out of 100 men (16.7%) are current cigarette smokers compared to more than 13 out of 100 women (13.6%) (CDC, 2016). Thus, this study will focus on males because of their increased risk to homelessness and higher rates of cigarette smoking.

Presently, there is no research exploring cigarette use, smoking behavior characteristics, and tobacco cessation utilization in Housing First and Treatment First programs. Due to each program highlighting different organizational characteristics and strategies to reduce homelessness, it is reasonable to suggest that the type of housing programs may present different barriers and facilitators to cigarette use and smoking cessation utilization compared to those who are unsheltered. It is imperative to consider the social organizational context as programs focusing solely on individual behavior and ignoring the social organizational environment may affect the reach and effectiveness of health promotion programs (McLeroy, Bibeau, Steckler, Glanz, 1988).

Research Questions

This study was designed to investigate three basic research questions:

R1: *What are the current barriers to smoking cessation among male smokers experiencing homelessness?*

R2: *What are the current facilitators to smoking cessation among male smokers experiencing homelessness?*

R3: *Do the barriers or facilitators to smoking cessation differ among male smokers experiencing homelessness depending on shelter program?*

This exploratory study sampled of homeless male smokers living in Louisville, Kentucky. Considering the social ecological model of health promotion, it can be argued that the organizational characteristics of homeless shelters may influence cigarette smoking among its patrons. Thus, it is important to explore if the barriers and enablers to smoking cessation opportunities differ among homeless men dependent on housing programs. Participants were sampled from three groups:

- 1) Male homeless smokers residing in a Housing First program,
- 2) Male homeless smokers residing in a Treatment First program, and
- 3) Unsheltered male homeless smokers at a emergency day shelter.

Significance of the Study

Individuals experiencing homelessness remain at high risk and suffer disproportionately from tobacco-related diseases. The high prevalence of smoking rates combined with the underutilization rate of cessation among this population attribute to the gap in tobacco-related health disparities. Research on effective and appropriate intervention strategies is needed to increase smoking cessation and reduce smoking.

Results from this study will add to the paucity of research on smoking cessation interventions among the homeless. The results will provide information to better develop and tailor tobacco cessation best practices to marginalized populations.

A novelty of this study is that it will also compare the barriers and facilitators to smoking cessation across three subgroups of the homeless populations: individual male smokers in a Housing First program, a Treatment First program, and in neither program or those unsheltered. Results of this study may not be generalizable to homeless populations outside the city or state due to the convenience sample of participants. Nonetheless, results from this study will contribute to the current gap in the literature by exploring tobacco cessation barriers and facilitators among individuals experiencing homelessness.

Delimitations

A delimitation of this study is that the unit of analysis will be restricted to male homeless smokers. Thus, this study may not be applicable to female or youth homeless smokers. Further, this study considers only male homeless smokers in Louisville, Kentucky. Their experiences are unique and may not be extended to other homeless smokers in other regions of Kentucky or in other states.

Limitations

This research study utilized a qualitative research approach. A challenge to qualitative research is that it offers “limited generalizability of findings” (Cresswell, 1994, p.158). Specifically, this study explored the barriers and facilitators to smoking cessation among 30 homeless men. Findings are only accurate to the specific participants interviewed and may not be generalizable to the greater population. Additionally,

replication of this study is limited as the findings from this study are unique to this group combined with the possibility that another researcher may present and interpret findings differently.

Definitions

1. **U.S. Department of Housing and Urban Development (HUD):** A federal department active in a variety of national housing programs including urban renewal and public housing.
2. **Homelessness or Homeless Individual:** An individual who lacks housing (without regard to whether the individual is a member of a family,) including an individual whose primary residence during the night is a supervised public or private facility (e.g., shelters) that provides temporary living accommodations, and an individual who is a resident in transitional housing (Section 330 of the Public Health Service Act (42 USCS,254b))
3. **Current Smoker:** individuals who self reported smoking at least 100 cigarettes in their lifetime and, at the time of the survey reported smoking every day or some days. This definition is based on the Behavioral Risk Factor Surveillance System methodology. (Centers for Disease Control and Prevention, 2008).
4. **Smoking Cessation:** Also known as ‘quitting’, treatment or services used to help people achieve abstinence from smoking or tobacco use (Cochrane Collaboration, 2010).
5. **Housing First Programs:** An approach to end homelessness that centers on providing homeless people with housing quickly without contingency of sobriety, medication, or treatment. Assumes that assisting people access and sustain

affordable housing is the first priority. Critical elements to Housing First programs include: 1) assist individuals or families access rental housing as quickly as possible and the housing is not time-limited, 2) the housing units be 'scattered site' within the community, meaning housing units should be located across the city and scattered throughout different buildings without significant concentrations within specific buildings and 3) that sobriety and treatment for substance abuse or mental illness is voluntary (Tsemberis & Asmussen, 1999; National Alliance to end Homelessness, 2006).

6. **Continuum of Care or Treatment First Program:** The traditional approach to organize and deliver housing and services to meet the specific needs of people who are homeless as they move to stable housing and maximum self-sufficiency. A stipulation of this approach includes individuals being evaluated for 'housing readiness' before accessing housing. Individuals are required to be sober from drugs and alcohol and be willing to use any necessary medication or treatment for mental health issues (Dordick, 20002; Kertesz et al., 2009).

CHAPTER TWO REVIEW OF THE LITERATURE

Review of the Literature

In order to provide and tailor smoking cessation interventions for homeless populations, major topics and their relationships are relevant. Topics in this literature review include: 1) the burden of tobacco 2) tobacco-related health disparities among vulnerable populations including the homeless, 3) smoking behaviors among the homeless, 4) brief overview of homelessness, 5) smoking cessation characteristics among the homeless, 6) known barriers and facilitators to smoking cessation among the homeless, 7) housing as a variable to smoking cessation. Following the review of major topics, I will address gaps in the literature, the purpose of this study, the framework used for this study, and summary of chapter two.

The Burden of Tobacco

In the United States, the epidemic of tobacco use is considered one of the greatest public health catastrophes of the twentieth century. Cigarette smoking remains one of the leading modifiable risk factor for death and disability within the U.S. More than 36.5 million adults 18 years or older are current smokers, defined as persons reported smoking at least 100 cigarettes during their lifetime and who, at the time they participated in the

survey about this topic, reported smoking every day or some days (CDC, 2016; USDHHS, 2014).

Research has established cigarette smoking as a risk factor for cardiovascular disease, acute and chronic respiratory disease, lung disease, negative reproductive effects, and cancer (USDHHS, 2004). Smoking causes more deaths per year than human immunodeficiency virus (HIV), illegal drug use, alcohol use, motor vehicle injuries, and firearm-related incidents combined (Mokdad, Marks, Stroup, & Gerberding, 2004). Beyond the smoker, annual economic losses total over \$300 billion a year, including more than \$156 billion due to lost productivity and \$170 billion due to direct medical care for adults (USDHHS, 2014; Xu, Bishop, Kennedy, Simpson, and Pechacek, 2015).

The death toll from smoking is remarkable. Cigarette smoking kills about one in five individuals, causing more than 480,000 deaths each year (CDC, 2013; USDHHS, 2010, 2014). Cigarette smoking is the leading attributer of lung cancer cases as smoking causes about 90% of all lung cancer deaths (USDHHS, 2010, 2014). Compared to nonsmokers, smokers are 12 to 13 times more likely to die from chronic obstructive pulmonary disease (COPD) as cigarette smoking is responsible for 80% of all COPD deaths in the U.S (USDHHS, 2001, 2014). Additionally, compared to nonsmokers, smokers are two to four times more likely to be at risk for coronary heart disease and stroke – the leading causes of death in the United States (USDHHS, 1989, 2014).

The relationship between smoking and health extends beyond health problems; smokers are more likely to have increased healthcare costs, disability, and a greater rate of cognitive decline (Anstey, von Sanden, Salim, & O'Kearney, 2007). Additionally, smokers are more likely to experience diminished overall health. Diminished overall

health is operationalized by the recent 2014 Surgeon General Report as self-reported poor health, increased absenteeism from work, and increased health care utilization and costs (USDHHS, 2014). Finally, while cigarette smoking negatively affects the smoker, it is also associated with negative externalities such as second hand smoke exposure.

The discovery of the adverse health effects of second hand smoke exposure is a cornerstone in tobacco prevention and control as it is a key factor behind the success of smoke-free policies (Llewellyn, Lang, Langa, Naughton, & Matthews, 2009; USDHHS, 2006). In a 2006 report, the U.S. Surgeon General stated, “there is no risk-free level of secondhand smoke exposure...even brief secondhand smoke exposure can cause immediate harm” (USDHHS, 2006, p. 709).

Among non-smokers, secondhand smoke can cause heart disease, lung cancer, and stroke (USDHHS, 2014; CDC, 2010). Despite considerable efforts to protect individuals from secondhand smoke, an estimated 58 million nonsmokers are exposed to secondhand smoke annually (CDC, 2015). Most are exposed to secondhand smoke at home, work, or in public places. The CDC estimates that 50,000 of the 443,000 premature deaths from tobacco use are a result of second hand smoke exposure with a conservative estimate of 2.5 million nonsmoker deaths due to complications related to secondhand smoke exposure (USDHHS, 2010, 2006). Due to the substantial known hazards to smokers and nonsmokers alike, assisting smokers with cessation efforts is critical.

Tobacco-Related Health Disparities Among Vulnerable Populations

An estimated 15.1% of U.S. adults continue to smoke despite evidence-based scientific research and warnings from the Surgeon General about the dangers of tobacco

use (CDC, 2016). This number is underestimated, as discrepancies exist within the population depending on age, gender, ethnicity, geographical location, or socioeconomic status. Nearly 17.7% of adults aged 25-44 years are current smokers compared to 17.0% of adults aged 45-64 years and 8.4% of adults aged 65 and older (CDC, 2016). Men are more likely to be current cigarette smokers than women with more than 16.7% of adult men aged 18 or older are current smokers compared to 15.3% of adult women (CDC, 2016). An estimated 21.9% of Non-Hispanic American Indians/Alaska Natives are current smokers compared to 20.2% of adult non-Hispanic Whites, 16.7% of adult non-Hispanic Blacks, and 7.0% of adult non-Hispanic Asians (CDC, 2016). Current cigarette smoking is higher in the Midwest and Southern U.S. as 18.7% and 15.3% of adults are current smokers, respectively. Comparatively, more than 12.4% of adults in Western U.S. and 13.5% of adults in the Northeastern U.S. are current smokers (CDC, 2016).

Tobacco use is not an equal opportunity public health issue. The most vulnerable and marginalized populations disproportionally bear the burden of tobacco-related diseases and deaths (CDC, 2014; USDHHS, 2012). Cigarette smoking disproportionately affects homeless populations in the U.S. Compared to the general population, homeless individuals have significantly higher smoking rates and levels of nicotine dependence (Baggett et al., 2013; Butler et al., 2002). Specifically, an estimated 68.0-80.0% of individuals experiencing homelessness are current cigarette smokers compared to 15.1% of the general population (Baggett & Rigotti, 2010; CDC, 2014; Connor et al., 2002; Szerlip & Szerlip, 2002; Tsai & Rosenheck, 2012; USDHHS, 2004). Further, individuals experiencing homelessness are more likely to smoke and less likely to quit compared to their wealthier counterparts (Healton & Nelson, 2004). Because of this,

homeless individuals are at higher risk for tobacco-related medical illnesses such as cancer, heart disease, respiratory disease, and premature death given that their health may already be compromised by substance abuse, lack of nutrition, lack of housing, and little to no access of quality healthcare (Ferenchick, 1992; Heffron et al., 1997; Kushel et al., 2001; Oliviera & Goldberg, 2002; Sachs-Ericsson et al., 1999).

In addition to excessive morbidity, homelessness is associated with substantially high mortality rates. Adults experiencing homelessness are three to five times more likely to die prematurely compared to the general population (Barrow et al., 1999; Hibbs et al., 1994; Hwang et al., 1997, 2009; Morrison, 2009; O'Connell, 2005; Song et al., 2007). Causes for high mortality rates are primarily due to preventable causes such as alcohol and drug abuse, cancer, and heart disease (Baggett et al., 2013). In fact, cancer and cardiovascular diseases are the leading causes of death among homeless adults aged 45-64 (Baggett et al., 2013). Previous research suggests that the excessive morbidity and mortality rates among this population are attributed to high rates of cigarette smoking and tobacco use (Baggett et al., 2013; Heaton & Nelson, 2004; Hwang et al., 2009; Szerlip & Szerlip, 2002; Torchalla et al., 2011). Additionally, because high morbidity and mortality rates are due to preventable causes, such as tobacco use, smoking cessation has the potential to significantly reduce death and diseases among this population (Arnsten, Reid, Bierer, & Rigotti, 2004).

Smoking Behaviors Among the Homeless

There is a paucity of research on the intersection of cigarette smoking and homelessness. Among published studies looking at smoking behaviors among the homeless, research shows that smoking is exceedingly common among this populations.

Approximately 68.0-80.0% of individuals experiencing homelessness are current cigarette smokers (Baggett & Rigotti, 2010; CDC, 2014; Connor et al., 2002; Szerlip & Szerlip, 2002; Tsai & Rosenheck, 2012; USDHHS, 2004). Homeless adults consume an average of 10 to 13 cigarettes per day with one study finding an average as high as 25.8 cigarettes per day. Approximately half of all homeless adults considered daily, heavy smokers defined as smoking 10 or more cigarettes per day, and have been smoking for a longer duration of time compared to non-homeless smokers (Arnsten et al., 2004; Butler et al., 2002).

Homeless individuals initiate and continue to smoke cigarettes for a variety of complex reasons. At the individual level, some homeless individuals report smoking prior to becoming homeless; initiating the habit at a young age by influence of friends or family (Aloot et al., 1993; NCH, 2009; Okuyemi et al., 2006). In fact, tobacco research shows that nearly 90% of current adult smokers, regardless of demographics, first tried and smoking cigarettes before they were 18 years of age and continued to smoke since then (USDHHS 2012, 2014). Other homeless persons continue to use or initiate smoking behaviors as a coping mechanism to deal with their current circumstance of displacement and to reduce stress associated with homelessness (Butler et al., 2002; Campion, Checinski, & McNeil, 2008; Okeyumi et al, 2006).

Most homeless smokers continue the habit because of their nicotine addiction. Addiction to nicotine is a contributing factor for persistent smoking habits. The mechanism of nicotine addiction begins within 10 seconds of smoking a cigarette. First, nicotine is absorbed in the blood stream and reaches the brain (National Institute of Drug Abuse (NIDA), 2012). Once inside the brain, nicotine activates neurological reward

pathways, creating an acute and pleasurable sensation (NIDA, 2012). This activation of reward is similar to that seen with other drugs of abuse such as heroin, cocaine, or alcohol (NIDA, 2012;USDHHS, 2010, 2014). Because the neurological reward and nicotine dissipates quickly, smokers need to continue smoking to maintain the high and to prevent nicotine withdrawal (NIDA, 2012).

At the interpersonal level, some homeless individuals report initiating smoking prior to becoming homeless. Smoking behavior begins because of peer pressure while serving in the military, jail, or substance abuse treatment programs (Okuyemi et al., 2006). The influence of peer pressure to smoke cigarettes by friends or social groups is not new as researchers, Alot et al. (1993) and Butler et al. (2002) documented homeless individuals reporting initiation of cigarette smoking as a form of camaraderie when moving from shelter to shelter.

At the interpersonal and community level, cigarette smoking among homeless populations is a common social norm enabling the behavior and having little impact on influencing cessation. As stated earlier, homeless individuals use smoking as a form of camaraderie, where cigarette smoking is influenced by peer pressure and in turn contributes to the social norm. This cyclical process is an example of reciprocal causation where health behavior shapes and is shaped by the social environment.

Research also suggests smoking behaviors are attributed to the high rates of co-occurring substance use and mental illness among the homeless (Kalman, Morissette, & George, 2005). As a sub-population of the homeless, persons with substance abuse and mental illness have disproportionately high rates of smoking as they use approximately 44% of all cigarettes smoked in the United States (Lasser et al., 2000). In addition, those

with mental illness tend to be heavier smokers, defined as those whose peak consumption exceeded 24 cigarettes a day (Lasser et al., 2000), and smoke for a greater number of years compared to the general population (Lawn & Pols, 2005). The high prevalence rate among this sub-population is due in part to the pervasive pro-tobacco culture (Lawn & Pols, 2005; Moss et al., 2010). For instance, research has established an existing group belief that cigarette smoking “self-medicates” psychiatric symptoms combined with mental health service providers enabling the habit by using cigarettes as a patient management tool (Audrain-McGovern, Rodriguez, & Kassel, 2009; Dickens, Stubbs & Haw, 2004; Kumari & Postma, 2005; Lawn & Pols, 2005; Ratschen, Britton, Doody, Phil, & McNeil, 2009). Vulnerability among this sub-group may also be due to a combination of social norms of smoking within substance abuse and mental health facilities (Bayer & Stuber, 2006), encouragement by mental health professionals (Kerr, Woods, Knussen, Watson, & Hunter, 2013; Morris, 2002), and substituting cigarettes while abstaining from drugs (Conner, Stein, Longshore, & Stacy, 1999) or alcohol use (Davila, Sanchez-Craig, & Wilkinson, 2000; Murphy & Hoffman, 1993). These determinants are parallel to individuals experiencing homelessness without a mental illness.

Further, research suggests that nonsmoking substance users who enter addiction treatment facilities are at high risk for initiating tobacco use during and following treatment (Friend & Pagano, 2004). Interestingly, a study by Friend & Pagano (2004) found that among nonsmokers who started smoking after entering a substance abuse treatment facility, a majority (54%) did so within the first three months of treatment rather than after finishing treatment. Moreover, compared to current smokers upon arrival

of the treatment facility, nonsmokers who started smoking significantly increased cigarette consumption between their 3- to 15- month follow-up (Friend & Pagano, 2004).

Due to low or no income, many homeless individuals engage in high risk smoking behaviors or alternative smoking behaviors as a method to obtain and smoke cigarettes. Alternative smoking behaviors include smoking discarded cigarette butts or used filters found on the ground, trash or in ashtrays (Aloot et al., 1993). In their seminal paper on high risk smoking behaviors, Aloot et al. (1993) found a majority of homeless smokers share used cigarettes (86.4%) and engage in alternative smoking behaviors (62.7%) as a means to access cigarettes with little to no income. Potentiating the hazards of cigarette smoking, alternative smoking behaviors and sharing cigarettes increase the likelihood for infectious disease transmission or ingesting infectious toxins trapped in filters and tobacco remains (Aloot, Vredevoe, & Brecht, 1993; Substance Abuse and Mental Health Services Administration, 2009). Further, alternative smoking behaviors have the potential to amplify already diagnosed smoking-related health problems of the smoker (Aloot et al., 1993). Other high-risk smoking behaviors to source cigarettes include panhandling for cigarettes, rolling their own cigarettes made from discarded cigarette butts, or bartering for cigarettes on the streets (Aloot, Vredevoe, & Brecht, 1993; Garner & Ratschen, 2013; Okuyemi et al., 2006).

Brief Overview on Homelessness

Based on the 2016 Point –in –Time estimates, approximately 549,928 individuals experienced homeless on a given night in January (U.S. Department of Housing and Urban Development (USDHUD), 2016). Health centers funded by the U.S. Department of Health and Human Services defines a homeless individual as

An individual who lacks housing (without regard to whether the individual is a member of a family,) including an individual whose primary residence during the night is a supervised public or private facility (e.g., shelters) that provides temporary living accommodations, and an individual who is a resident in transitional housing (Section 330 of the Public Health Service Act (42 USCS,254b)).

Individuals experiencing homelessness have a higher risk for death with a premature life expectancy between 41-52 years old and are three to five times more likely to die than those who are not homeless (Barrow et al., 1999; Hibbs et al., 1994; Hwang et al., 1997; Hwang et al., 2009; O’Connell, 2005; Morrison, 2009; Song et al., 2007). Homelessness exacerbates poor health and increases an individual’s risk of exposure to communicable diseases, substance abuse, and violence (CDC, 2013; O’Connell et al., 2010; O’Connell, 2009; Morrison, 2009). These conditions compromise their health and place homeless persons at higher risk for preventable tobacco-related health consequences (Steinberg, Schmelzer, Richardson & Foulds, 2008).

Individuals experiencing homelessness are part of a large heterogeneous population consisting of diverse races, ages, sexual orientations, and family structures. Shelter results found that individuals experiencing homelessness are 60.2% male and 39.5% female, and 0.3% transgendered. In regards to ethnicity, homeless individuals are 77.9% non-Hispanic/non-Latino and 22.1% Hispanic/Latino (USDHUD, 2016). Additionally, homeless individuals are 39.1% Black or African American, 48.3% White, 5.4% other single race, and 7.2% identify as multiple races and a majority (68.9%) are over 24 years in age (USDHUD, 2016).

Regardless of demographics, the causes of homelessness are the same. The National Law Center on Homelessness and Poverty (2015) cite two leading causes of homelessness: 1) insufficient income or poverty, and 2) lack of affordable housing. According to the U.S. Department of Housing and Urban development, shortages of affordable housing are the most severe for renters at or below poverty level. Costs for affordable rental units are on the rise as income for persons at or below poverty level is stagnant. In addition, federal funding for low-income housing has declined 49% from 1980 to 2003 further reducing viable housing options (National Low Income Housing Coalition, 2005). Consequently, this phenomenon creates high rent burdens, overcrowding, and substandard housing, sometimes forcing individuals into homelessness.

As affordable rental housing options are declining, poverty continues to burden American society. In 2015, the official poverty rate in the U.S. was 13.5%, or 43.1 million people (U.S. Census Bureau, 2016). The definition of poverty is difficult to identify, but it is academically understood as a violation of human dignity arising from deprivation of resources, capabilities, freedoms and choices necessary for the enjoyment of adequate standard of living (United Nations, 1999). The National Coalition for the Homeless (2009) cites poverty as a pervasive social occurrence due to eroding employment opportunities combined with the declining availability of public assistance. Individuals experiencing poverty, particularly for long periods of time, are at increased dangers to poor health and are likely to become homeless (Murray, 2006).

Regardless of how an individual becomes homeless, they disproportionality suffer higher rates of health problems compared to the general population. Reasons for the

disparities are in part due to or exacerbated by smoking-related behaviors. Improving health outcomes among homelessness remains a serious public health challenge that may require complex solutions.

Smoking Cessation Characteristics Among the Homeless

One way to reduce morbidity and mortality among the homeless is by the elimination or reduction of tobacco use. Because individuals experiencing homelessness have higher mortality rates due to treatable or preventable causes, smoking cessation has the potential to significantly reduce death and disability within this population. Specifically, quitting smoking can substantially reduce the risk of cancer, heart disease, and stroke (USDHHS, 2010,2014; Hughes et al., 1999).

Negative tobacco-related health consequences are significantly higher among homeless smokers given that their health is likely compromised from alcohol/substance abuse, lack of proper nutrition, lack of housing, and little to no access to quality healthcare (Ferenchick, 1992; Heffron et al.,1997; Kushel et al., 2001; Oliveira & Goldberg, 2002; Sachs-Ericson et al, 1999). These statistics are alarming considering that in the United States, an estimated 68-80% of homeless adults are current smokers (Baggett & Rigotti, 2010; Connor et al., 2002; Okuyemi et al, 2006; Szerlip & Szerlip, 2002; Tsai & Rosenchek, 2012; USDHHS, 2004), which is four times higher than the general population (17.8%) and twice as high as those who live at or below the federal poverty level (29.2%) (CDC, 2014). Despite an extraordinarily high prevalence rate, little is known about ways to reduce smoking behaviors among this marginalized population, in part, because appropriately developed evidence-based tobacco cessation interventions

or access to tobacco cessation interventions for the homeless are limited (Arangua, McCarthy, Moskowitz & Gelberg, 2007).

Evidence-based, tobacco control programs that are comprehensive, sustained, and accountable are shown to reduce smoking rates and tobacco-related diseases and deaths (CDC, 2014). According to the CDC, the quickest way to decrease tobacco-related disease, death, and health care costs are by encouraging and assisting tobacco users to quit, particularly among disparate populations (CDC, 2014).

Considered one of the ten greatest public health achievements in the 20th century; tobacco control programs, including smoking cessation, play a critical role in the prevention and reduction of not only smoking but also smoking related illnesses such as cancer, heart disease, and respiratory illness (CDC, 2004). The prevalence of U.S. adults smoking drastically declined from 42.4% in 1965 to 20.5% in 1990. But the rate of decline remained relatively unchanged from 20.5% in 1990 to 17.8% in 2013 (CDC 2014). The Centers for Disease Control and Prevention attributes the decline in the smoking rate to the implementation of evidence-based policies and interventions by federal, state, and local public health programs (CDC, 2014). While these interventions and services are accessible and available to the general population, such programming is neither tested on nor available to homeless populations. Consequently, researchers suggest that high rates of smoking among homeless individuals appear not to be related to the effectiveness or acceptability of current interventions, but more likely to their lack of access and use of tailored cessation services (Butler, 2002). Corroborating this idea, a recent report by the Surgeon General states, “looking to the future, tobacco control needs to be shaped to address an increasingly heterogeneous pattern of tobacco

products...[among vulnerable populations]. Smoking cessation needs increased attention” (USDHHS, 2014, p.846).

Individuals experiencing homelessness consistently struggle for access to immediate physical survival needs such as food, shelter, and clothing. Long-term health effects from smoking may not be known or nor perceived as a priority among this population placing smoking cessation as an afterthought. However, studies have found that individuals experiencing homelessness are interested in smoking cessation and have tried to quit (Butler et al., 2002; Connor et al., 2002; Arnsten et al., 2004; Okuyemi et al., 2006).

In a study examining smoking cessation characteristics among individuals, Connor et al. (2002) found that many homeless persons are interested in smoking cessation assistance but have no access to nicotine replacement products or were unaware of smoking cessation programs in the community. Within their study, approximately 37.0% of homeless smokers identified as intending to quit smoking within six months, a trend comparable to intention to quit statistics among the general population (DeVries, Muddle, Dijkstra, & Willemsen, 1998; USDHHS, 1989). Additionally, homeless smokers were more likely to quit if they had tried to quit smoking in the past (43.0%), and if they identified networks of social support (48.0%) (Connor et al., 2002).

Similarly, research by Arnsten et al. (2004) surveyed 98 homeless smokers and found that approximately 44.0% of her sample expressed interest in smoking cessation with 33.0% planning to quit within the next 6 months. Self-efficacy to quit and social support were also found to be the strongest independent predictive factors for readiness to quit. In another study comparing tobacco use characteristics Butler et al. (2002) surveyed

107 homeless and 491 non-homeless smokers. He found that the number of quit attempts in the past year (3.63 vs. 3.45, $p = 0.17$) and expressed level of interest in smoking cessation programs (7.40% vs. 7.85%, $p = 0.13$) were similar between homeless smokers and non-homeless smokers, respectively. Research by Okuyemi et al. (2006) corroborates these findings in his qualitative study as 51.9% of participants planned to quit smoking in the next 30 days. Collectively, all four studies concluded that homeless populations are interested in quitting but lack appropriate resources and assistance to do so. Further, researchers recommend collaboration between tobacco control programs and homeless service providers, continuing investigation on the barriers to smoking cessation, and additional studies examining strategies to enhance effectiveness of smoking cessation interventions.

Known Barriers and Facilitators to Smoking Cessation Among the Homeless

In the literature, homeless persons are interested in smoking cessation but face a number of barriers to access such services. A common barrier at the organizational level includes service and health care providers perception of tobacco use among the homeless. Many perceive the health effects of smoking as of little importance when compared to other medical, psychiatric and social concerns among the homeless. These concerns overshadow the seriousness of smoking and its health impact thus, neglecting to offer or assist with smoking cessation services (Baggett & Rigotti, 2010). Because service providers fail to recognize the serious consequences of cigarettes smoking and nicotine addiction on health, the gap of tobacco-related health disparities widens within this population.

The Okuyemi et al. (2006) study is one of the few published studies specifically examining cigarette smoking behaviors, the barriers to smoking cessation services and reasons to quit among homeless individuals. Specifically, this study analyzed qualitative data recorded from six focus groups with homeless smokers (N=62) in the Kansas City metropolitan area. Similar to the Butler et al. (2002) study, focus group members described smoking cigarettes as a “way to cope with all the pressures of being homeless or as a reward for enduring the hardships of homelessness” and as a means to “exercise personal power” (Okuyemi et al., 2006). Homeless individuals cited alcohol and drug use as triggers for smoking cigarettes or reasoned smoking to get a buzz effect while weaning off drug or alcohol use. Although participants reported high motivation to quit, low self-efficacy was a common barrier to smoking cessation. Participants also reported stress related to homelessness, limited structures or routines in their lives, little support from service providers, lack of housing, and fear of mental health imbalance as challenges to smoking cessation. Interestingly, participants recognized immediate negative effects of smoking, such as concerns about personal appearance and presentation, shortness of breath or recurrent bronchitis, reflecting a present-time orientation and facilitator for quitting.

Research by Garner and Ratschen (2013) also explored the motivations and barriers to quit smoking among homeless adults. The study conducted 15 semi-structured, in-depth individual interviews among homeless smokers with drug or alcohol abuse. Motivation to quit smoking included health consequences of smoking, though no participant could name more than two smoking related health conditions. As opposed to findings by Butler et al. (2002), Connor et al. (2002) Arnsten, Reid, Bierer, & Rigotti

(2004), Okuyemi et al. (2006), participants in this study expressed high self-efficacy and confidence to quit in the future. Similar to the previous studies participants reported lack of support by health care providers and lack of access to cessation as barriers to quitting.

Considered an organizational level of influence, homeless shelters have the ability to impact an individual's health seeking behaviors. Both studies by Okuyemi et al. (2006) and Garner and Ratschen (2013) recruited participants from local homeless community shelters. All 15 participants in Garner and Ratschen (2013) study reported sleeping in a hostel or winter shelter ($n=6$), on the streets ($n=5$), or engaged in sofa surfing ($n=4$), defined as moving from one house to another sleeping in whatever spare space is available for a night up to a few days before moving on to the next house. Participants in Okuyemi et al. (2006) study reported sleeping in emergency night shelters (43.0%), transitional living accommodations (30.2%), on the street or in abandoned buildings (16.5%), or staying with friends temporarily (8.2%). Interestingly, neither study included participants living in supportive housing programs. It is important to consider homeless adults in supportive housing programs as not all individuals experiencing homelessness exclusively live on the streets. Thus, it is possible that organizational influences such as housing program may impact an individual's behavior toward smoking cessation among this heterogeneous group.

Housing as a Variable to Smoking Cessation Interventions

Considering the social ecological model of health promotion, it can be argued that the organizational characteristics of homeless shelters may influence cigarette smoking among its patrons. Individuals experiencing homelessness frequent homeless shelters that are generally less supportive of nonsmoking and lack comprehensive smoke-free policies

(Baggett et al., 2013; Baggett et al., 2013; Heaton & Nelson, 2004; Okuyemi et al, 2006; Vijayaraghavan, Hurst, & Pierce, 2015). Thus, it would be of interest to mention smoke-free policies at the shelter level. Smoke free policies are intended to not only reduce second hand smoke exposure but also promote smoking cessation (CDC, 2014a).

There is a paucity of published research on smoke-free policies in homeless shelters. In 2015, researchers in Texas examined support and effects of a partial smoking ban in a homeless shelter. A two-wave cross sectional survey was sent to homeless residents two weeks prior to the smoking ban and two months post implementation. Of the 394 participants who completed both survey waves, they showed a reduction in expired carbon monoxide by wave two (18.2 vs. 15.8 parts per million), indicating less smoking or less exposure to secondhand smoke. In regards to smoke-free policies, 60% reported support for a larger smoke-free zone, but only 30% reported support for a comprehensive smoke-free policy. Although a majority of participants did not support a comprehensive smoke-free policy, they did believe this policy would improve resident health (Businelle et al., 2015).

Critical challenges to smoke-free homeless shelters include the pervasiveness and cultural acceptance of tobacco use within shelters, the belief of increasing suffering among their clients, and the fear of homeless persons refusing assistance from shelter providers (Apollinio & Mallone, 2005; Arangua, McCarthy, Moskowitz, & Gelberg, 2007). A recent study by Vijayaraghavan, Hurst, & Pierce (2015) explored the barriers to implementing comprehensive smoke-free policies and providing cessation services in San Diego homeless shelters. Researchers conducted in-depth individual interviews among directors and staff from transitional shelters. Smoke-free policies across shelters differed

as 25.0% shelters had a comprehensive smoke-free policy, 61.5% reported having a designated outdoor smoking area, and approximately 33.0% offered cessation services. Among directors and staff who worked at shelters without a comprehensive smoke-free policy, they expressed concerns about lack of expertise among staff and limited resources for enforcing such policies. Because of this, tobacco control advocates predicted implementation and enforcement of a smoke-free policy may be more challenging in larger shelters and shelters without pre-existing tobacco cessation services (Apollinio, 2005; Arangua, 2007). Advocates suggested providing training and incentives for staff to support and effectively implement smoke-free policies and cessation services.

Finally, researchers attribute the lack of comprehensive smoke-free policies in shelters and the high prevalence of smoking among the homeless due to direct targeting by tobacco companies (Apollonio & Malone, 2005). Once information on the hazards of tobacco use became readily available to the public, educated and wealthier people were more likely to quit. As a result, the tobacco industry decided to market towards lower income, less educated, minority sub groups as a method to increase sales (Apollonio & Malone, 2005; Heaton & Nelson, 2004). Tobacco companies developed relationships with homeless shelters and homeless service organizations through abundant monetary, cigarette, and cigarette branded labeled product donations. Researchers argue that these charitable actions resulted in positive media coverage and political support while also enabling the social acceptability of cigarettes and normalizing smoking behaviors (Apollonio & Malone, 2005; Baggett et al., 2013). The social norms of cigarette smoking within the homeless community became so overt that soon homeless shelters and service

organizations were requesting cigarettes for their clients, suggesting it is a basic need (Lucarelli, 1992).

However, not all individuals experiencing homelessness frequent a homeless shelter or live on the streets. A proportion of homeless individuals participate in supportive housing programs.

In response to the rising prevalence and to alleviate high costs of homelessness, a priority by the U.S Department of Housing and Urban Development (HUD) is to eliminate homelessness in America. With the goal of moving chronic homeless individuals and families into permanent or transitional housing, the HUD emphasized funding streams toward housing opportunities (USDHHS, 2013). Past studies have found evidence that providing permanent supportive housing to homeless individuals improves their overall health and saves taxpayers money (Larimer et al, 2009; Gulcur et al, 2003; Rosenheck, Kaspro, Frisman & Liu-Mares, 2003).

There are two types of housing programs funded by the HUD: Continuum of Care programs also known as Treatment First programs and Housing First programs. Both programs differ in their philosophy and approach to assisting individuals experiencing homelessness but have the same end goal of ending homelessness. A brief review of these two housing programs is warranted, as shelters are an important organizational level of influence that may enable or disable particular health behaviors among individuals experiencing homelessness.

Over the past several years, great enthusiasm has emerged over the development of a new model for providing housing to individuals experiencing homelessness, known as Housing First (HF). The HF model was created as an alternative to inadequate housing

programs and community services for individuals experiencing homelessness (Tsemberis & Asmussen, 1999). HF programs operate under the belief that housing is a fundamental right, utilizing a harms reduction principle where low-barrier, non-abstinence-based, permanent housing is provided to homeless individuals (Gulcur et al, 2003; Tsembereis & Eisenberg, 2000; Collins et al., 2012). All clients are offered immediate access to independent housing options of their own regardless of their mental health or addiction status (Tsemberis & Eisenber, 2000). While there are various ways to implement HF programs, Tsembeis & Asmussen (1999) emphasize three key principles of HF: 1) the client should, upon entry into a supported housing program, go directly to independent housing units in the community, 2) that these units should be considered scattered site, operationalized as housing units spread throughout the community, spread across different buildings, without significant concentration within specific buildings and 3) that sobriety and treatment for mental health or addiction disorders is voluntary upon consumer choice. Dunn, van der Meulen, O'Campo & Muntaner (2013) describe the three principles as reactionary as they were developed as a reaction to the dominated and traditional supporting housing model known as Continuums of Care or Treatment First programs (TF).

TF programs are the predominant and traditional approach to housing homeless individuals in the United States. TF programs operate under the guide of adhering to strict substance abuse or mental health treatments to demonstrate sobriety and housing readiness (Kertesz et al., 2009). Individuals experiencing homelessness need to demonstrate abstinence from substance abuse in exchange for housing. In general, most TF programs require individuals to be sober for at least 3 months and remain sober after

entry into the housing shelter. This approach is intended to increase the success of transitioning individuals from homelessness to stability within the community. TF programs have brought many homeless individuals indoor, but success has not been without problems. Service providers of TF programs have emphasized difficulty of engaging homeless individuals, particularly those with mental illness, into treatment services (USDHHS, 1994). Some have perceived the approach as demanding and intrusive (Tsemberis et al., 2004).

A number of observational and randomized trial evaluation studies on housing research measures the impact of HF and TF programs on substance abuse, alcohol use, hospitalization, emergency room use, and fidelity to the program. There is strong evidence demonstrating reduction in emergency room use, incarceration, hospitalization, homelessness, increased consumer satisfaction and increased health and well-being among homeless individuals in HF programs compared to TF programs (Culhane et al., 2002; Gulcur et al., 2003; Clark & Rich, 2003; Stefanic & Tsemberis, 2007; Padgett et al., 2011; Larimer et al., 2009; Pearson, Montgomery, & Locke, 2009; Tsemberis & Eisenberg, 2000; Tsemberis et al, 2004; Tsemberis, Kent, & Repress, 2012). There is preliminary evidence suggesting HF programs reduce substance abuse, alcohol use and increased treatment service utilization compared to TF programs (Collins et al., 2012; Kirst et al., 2015). Implications of these preliminary findings suggest that specific housing programs have an effect on health among homeless individuals whose health status is severely compromised. Because homelessness is associated with significantly poor health, housing programs provide an opportunity to improve the health and well-being of the individual.

Presently, there is no research exploring tobacco cessation utilization in HF or TF programs. Additionally, there is no research exploring cigarette use and tobacco cessation utilization among individuals experiencing homelessness in HF programs, TF programs, and those living on the street or unsheltered. Due to each program highlighting different organizational characteristics, combined with preliminary positive outcomes from HF and TF research, it is reasonable to explore if housing programs present different barriers and enablers to cigarette use and cessation utilization. Further, because research shows that supportive housing (both HF and TF) improves health outcomes for individuals experiencing homelessness, it is reasonable to explore if housing programs present different barriers and enablers to smoking cessation compared to those not residing in a program but on the streets.

Gaps in the Literature

The United States Preventive Service Task Force (USPMTF) and the National Healthcare for the Homeless (HCH) Preventive Medicine Task Force (PMFT) both recommend medical and service providers ask homeless adults about tobacco use and provide tobacco cessation interventions to those who use tobacco products (Bharel et al., 2011). However, with competing health priorities and perceptions of homeless populations being difficult to reach, tobacco prevention and cessation measures are typically not used among the homeless population. As a consequence, little intervention research examines ways to improve smoking cessation delivery to homeless people or provide guidance for future development of appropriate smoking cessation programs (Arangua et al., 2007; Fitzpatrick-Lewis et al., 2011; Connor et al., 2002; Baggett et al., 2013). Moreover, there is little knowledge on smoking cessation practices, including the

barriers and motivators toward cessation, among homeless persons in HF programs, TF programs, and on the streets. Thus, there is a need for further qualitative investigation to properly inform future smoking cessation intervention policy and development.

Purpose of This Study

To develop comprehensive and appropriate smoking cessation intervention approaches for the homeless, researchers must consider the social organizational context and smoking cessation in relation to the individual within their immediate, unique, organizational and community setting. An understanding of these ecologies may provide an opportunity for improving and tailoring evidence based smoking cessation interventions for homeless populations through the identification of barriers and facilitators to the participation of the homeless in smoking cessation interventions. Specifically, an understanding of how housing programs influence an individual experiencing homelessness with smoking cessation is warranted. At the time of this dissertation, no study has explored and compared the barriers and facilitators to smoking cessation between individuals experiencing homelessness in HT programs, TF programs, and on the street.

The ultimate purpose of this dissertation is to provide information to support the development of appropriate and tailored smoking cessation opportunities for homeless individuals. Specifically, this study will examine the unique barriers and facilitators to smoking cessation among smokers experiencing homelessness. Due to males being at higher risk to homelessness and smoking compared to females, this study will focus on homeless male smokers. A second aim of this study will be to examine if the barriers and facilitators to smoking cessation differ among male smokers experiencing homelessness

depending on shelter program. Developing tailored and appropriate smoking cessation interventions has the potential to reduce smoking among the homeless and ultimately reduce tobacco-related morbidity and mortality among this population.

Framework

Focusing solely on individual behavior and ignoring the social organizational context may affect the reach and effectiveness of health promotion programs (McLeroy et al., 1988). A theoretical framework was used to explore the individual, social, and organizational influences to smoking cessation opportunities among individuals who are homeless. The unifying theoretical framework used in this dissertation is The Social Ecological Model of Health Promotion and included select constructs from The Health Belief Model, The Transtheoretical Model, and The Theory of Planned Behavior (Figure 1).

Figure 1: Theoretical Framework

The Social Ecological Model for Health Promotion

The Social Ecological Model for Health Promotion is a framework based on two key concepts. The first concept is that health behavior affects and is affected by the individual and multiple levels of influence. The second key concept is reciprocal causation. Reciprocal causation is the idea that individual behaviors shape and is shaped by the physical and social environment. Combined, this model assumes that changes in the social and physical environment will change health behavior, and that support of individuals in the target population is critical for intervention implementation and success

(McLeroy et al., 1988). This framework is based on evidence that no single factor or level of influence can explain the true cause for why people or populations do or do not engage in certain health behaviors rather, it posits that health behavior is based on a complex interaction between several factors and the environment (McLeroy et al., 1988; WHO, 2015). Thus, the Social Ecological Model for Health Promotion allows a comprehensive examination of the situational and contextual influence of homelessness and its impact on seeking positive health behavior such as tobacco cessation opportunities and services.

The Social Ecological Model for Health Promotion (SEM) describes five levels of influence on behavior (Table 1). The five levels of influence include the intrapersonal, interpersonal, organizational, community, and policy (McLeroy et al, 1988). The intrapersonal level includes individual characteristics such as knowledge, attitudes, behaviors, skills, health status, and self-efficacy. In this study, an application of the intrapersonal level are knowledge about the consequences of smoking cigarettes and smoking cessation opportunities, attitudes towards quitting smoking, nicotine addiction, predisposition to addictions, alcoholism, or mental illness, and perceived self-efficacy to quit smoking successfully. These characteristics may influence an individuals perceived barriers to smoking cessation, perceived seriousness of the health consequences from smoking, perceived susceptibility of the health consequences and their status of being in the pre-contemplation or contemplation stage of quitting.

At the interpersonal level, the SEM identifies social and familial relationships. Specifically, relationships include any “persons closest social circle-peers, partners and family members who influence their behavior and contribute to their range of experience” (Dahlberg & Krug, 2002). An application of the interpersonal level includes peer pressure

or influence from social relationships affecting an individual's decision to continue smoking cigarettes or to engage in smoking cessation opportunities.

At the organizational level, the SEM considers social institutions or organization characteristics and formal rules for operations that may enable or influence a particular health behavior (Dahlberg & Krug, 2002). Examples of organizational characteristics include the use of incentives, management and supervisor support, or changes in rules, regulations and benefits, which may support or deter behavioral changes (McLeroy et al., 1988). This level also identifies settings in which a particular health behavior takes place. Common examples of organizational settings are churches, schools, and neighborhoods. An example of the organizational level includes the location of where smoking occurs and where homeless individuals frequently reside such as a homeless shelter. In this study, homeless shelters include the Housing First Program, Treatment First Program, and emergency day shelters. All three have varying levels of living conditions, rules, and regulations.

Homeless shelters provide an environment that has the potential to deter or enable smoking depending on their rules and regulations. For instance, homeless shelters may allow smoking within and outside the shelter, enabling an individuals' decision to smoke cigarettes. Similarly, staff or affiliated health care providers may inadvertently discourage cessation by promoting smoking as a coping mechanism, neglecting to screen for tobacco use, or encouraging clients to prioritize other mental, physical, or social issues above smoking. Conversely, a homeless shelter may prohibit smoking inside the shelter and limit smoking to designated smoking areas outside the shelter. Ideally, homeless shelters would prohibit smoking both inside and outside of buildings, as

recommended by the CDC. Such regulations create barriers for individuals to smoke cigarettes, as smoking is no longer convenient. Further, homeless shelters may provide or have a referral system for smoking cessation services as a mechanism to assist individuals to quit smoking and improve overall health.

The next level of influence is at the community level. While the concept of “community” is a central concept in public health, it historically has multiple definitions dependent on field of interest (Beauchamp, 1985). For the purposes of this framework, community refers to levels of influence from formal or informal systems with corresponding social norms or social networks. This includes mediating groups to which individuals belong such as social clubs, neighborhoods, or networks. According to the Social Ecological Model for Health Promotion, the component of community is important because group structures represent strong ties and can be a foundation for social resources and social identity (McLeroy et al., 1988). Not to be confused with the organizational level of influence, we can apply the community level of influence as groups of individuals experiencing homelessness residing in the same shelter program, frequenting emergency day shelters or living on the streets. Groups with similar experiences can create and reinforce social norms specific to a health behavior through camaraderie or shared ideas. Moreover, the community level of influence can include direct marketing from tobacco companies. Media and marketing strategies work to create, promote, and reinforce social norms of smoking among specific populations.

The final level of influence is at the policy level. This level includes local, state, and national laws or policies that do or do not support a specific health behavior. For the purposes of this paper, we can apply this to the application of a comprehensive smoke-

free policy. A comprehensive smoke-free policy is a policy that prohibits smoking from all indoor workplaces, restaurants, and bars with no exceptions (CDC, 2014a). The purpose of comprehensive smoke-free policies are not only to reduce the harms of secondhand smoke exposure, but to also encourage current smokers to quit or reduce tobacco consumption and discourage the acceptance of tobacco use (USDHHS, 2006; CDC 2014a). At the state level, Kentucky does not have a comprehensive statewide, smoke-free policy. At the local level, Louisville, Kentucky has a smoke-free ordinance restricting in-door smoking at all workplaces and buildings open to the public. The public is permitted to smoke outdoors in public places.

Table 1: *Social Ecological Model for Health Promotion (Adapted from McLeroy et al., 1988)*

Levels of Influence	Description	Application to Study
Intrapersonal	Personal and innate attributes such as knowledge, attitudes, behaviors, skills, perceptions, and self-efficacy that shape health behaviors	Personal knowledge about the consequences of smoking cigarettes and smoking cessation opportunities, attitudes towards quitting smoking, perceived self-efficacy to quit smoking successfully, predisposition to addictions, alcoholism, mental illness; perceived seriousness of health problems from smoking, perceived susceptibility to experiencing health problems of smoking; pre-contemplation or contemplation stage towards quitting
Interpersonal	Social and familial relationships	Peer pressure from friends, acquaintances, or family affecting an individual's decision to smoke cigarettes or engage in smoking cessation
Organizational	Social institutions or organization characteristics and formal rules or regulations for operations that may enable or influence a particular health behavior	Homeless shelters' indoor smoking policies; designated outdoor smoking areas; Housing First, Treatment First, and emergency day shelter or street living conditions; service providers and health care providers recommendations and influence
Community	Formal or informal systems with corresponding social norms or social networks or access to resources and media	Group of individuals experiencing homelessness residing in the same homeless shelter; camaraderie; social norms of smoking among homeless populations; tobacco industry direct targeting
Policy	Laws and practices at the local, state, and national levels that promote or regulate health behavior	Statewide or local comprehensive smoke-free policies

The Social Ecological Model for Health Promotion is favored in exploring population health behaviors because it provides a comprehensive framework for understanding multiple and interacting health determinants (Sallis, Owen & Fisher, 2008). More importantly, the model is traditionally used to guide the development of comprehensive interventions because of the explicit consideration of multiple influences and ability to target behavioral change at each level of influence (Sallis et al., 2008). The utilization success of the Social Ecological Model is credited with the major reductions of tobacco use among the general population in the United States since the 1960s, which has stimulated the application of multi-level frameworks for other public health problems (Institute of Medicine (IOM), 2001; Sallis et al, 2008).

Utilization of the Social Ecological Model for Health Promotion or other variations of ecological models presents few challenges. First, the purpose of ecological models is to address levels of variables to consider for health promotion programming, but does not provide information as to which variable within each level are more important for the health issue considered (Elder et al., 2007). Secondly, a hallmark of the social ecological model is the consideration of the social and environmental context. While focusing on a certain health behavior may be constant, the contextual setting may vary depending on the population. Thus, implementation strategies will vary dependent on population group or culture, but components of the model can be used across populations (Elder et al., 2007).

The purpose of the Social Ecological Model for Health Promotion is to inform and guide the development of comprehensive and effective intervention approaches for behavior change. Thus, the purpose of the Social Ecological Model aligns with the

ultimate purpose of this dissertation, which is to identify barriers and facilitators to support the development of appropriate and tailored smoking cessation intervention opportunities for homeless individuals.

This dissertation utilizes the Social Ecological Model for Health Promotion as the unifying theoretical framework to understand the barriers and facilitators to smoking cessation opportunities among homeless men. Grounded in this theoretical framework are select constructs from additional theoretical models. Constructs in this study include perceived barriers, perceived seriousness and perceived susceptibility from the Health Belief Model, contemplation and pre-contemplation from the Transtheoretical Model, and social norms from the Theory of Planned Behavior.

The Health Belief Model

The Health Belief Model (HBM) is one of the first and the most commonly used theories in health education and health promotion research and practice (Glanz, Rimer, & Lewis, 2002; National Cancer institute (NCI), 2003). Developed in the 1950's by a group of U.S. Public Health Service social psychologists, HBM is derived from psychological and behavioral theory used to explain, identify, and predict preventive health behavior (Hochbaum, 1958; Janz & Becker, 1984;). The HBM postulates that individual health behavior is determined by personal beliefs or perceptions about the disease and the strategies available to decrease the occurrence (Hochbaum, 1958; Rosenstock, Strecher, & Becker, 1988). An advantage of the HBM in public health research is the use of simplified health-related constructs that make it easy to implement, apply and test (Conner, 2010). The original HBM model included four theoretical constructs: perceived seriousness, perceived susceptibility, perceived benefits, and perceived barriers. In time,

the model has evolved to include other constructs such as cues to action, motivating factors, and self-efficacy. Each construct can be used individually or combined to explain health behavior. This dissertation extracts three constructs from the HBM: perceived seriousness, perceived susceptibility, and perceived barriers.

Perceived seriousness refers to an individual's belief about the seriousness, severity or consequences of developing the disease. The individual considers the extent of harm that can be caused from acquiring the disease as a result of a particular behavior (Orji, Vassileva, Mandrykk, 2012). Perceived seriousness can include medical information or knowledge but also perceptions about the difficulties a disease would create on an individuals' life (McCormick-Brown, 1999).

Perceived susceptibility refers to an individual's perception of the risk of acquiring an illness or disease. The personal perception of susceptibility or risk has been found to be an important factor in promoting and adopting positive health behaviors (Abraham & Sheeran, 2005). This construct explains that individuals will be more motivated to behave in healthy ways if they believe they are vulnerable to a negative health behavior (Rosenstock, 1966). Often, the higher the perceived risk, the higher the likelihood of an individual adopting health behaviors to reduce the risk of disease (Orji et al., 2012).

Perceived barriers refer to an individual's evaluation of the obstacles in the way of him or her adopting a new behavior (Janz & Becker, 1984). An individual self-analyzes the health behavior against the perceptions that it may be expensive, dangerous, unpleasant, time-consuming, or inconvenient. Researchers argue that perceived barriers are the most significant constructs in determining behavior change (Janz & Becker, 1984;

Glanz, Rimer, & Viswanath, 2008). For an individual to adopt a positive health behavior they must perceive the benefits to outweigh the perceived barriers (CDC, 2004).

Although the HBM is widely used in health education and health promotion research, there are several limitations of the model, which limit its utility in public health research. For instance, HBM is more of descriptive rather than explanatory model and does not suggest strategies for changing health behaviors. Additionally, HBM focuses on the individual, ignoring social and economic factors for health behavior decision-making. To maximize the utility of the model, research suggests it should be integrated with other models that account for environmental factors and suggest strategies for change (Janz & Backer, 1984; Glanz, et al., 2008).

Transtheoretical Model

The Transtheoretical Model (TTM) is an integrative model used to conceptualize the process of intentional behavior change (Prochaska & DiClemente, 1983). Developed in 1970's, the TTM originally evolved to understand the experiences of smokers who quit smoking on their own and those requiring further treatment or assistance. Now, the TTM is a general model of change that can be applied to various populations and domains of change. The model proposes that individuals do not change behaviors quickly; rather change in behavior occurs through a cyclical process (Prochaska & DiClemente, 1983). Individuals may move through the stages in a linear fashion, or move back and forth. Successful change involves passing through each stage in the proper sequence; skipping stages is likely to occur in relapse. Successful changers are likely to cycle through the TTM several times before termination (Prochaska & Prochaska, 1999).

The TTM includes six constructs: precontemplation, contemplation, preparation, action, maintenance, and termination. This dissertation extracts two constructs from the TTM: precontemplation and contemplation.

Precontemplation is the first stage of the TTM. In this stage, people do not intend to adopt a positive behavior change in the future, operationalized as within the next 6 months. Individuals are unaware of the implications of their problematic behavior or underestimate the benefits of changing behavior (Prochaska & DiClemente, 1983).

Contemplation is the second stage of the TTM. During this stage, individuals have intentions to change behavior within the next 6 months. Individuals understand that the behavior is problematic and are more thoughtful of the benefits and barriers to behavior change, presumably with equal emphasis on both (Prochaska & DiClemente, 1983). Ambivalence is common in this stage as contemplators may want to change but are unsure of their ability to do so (Lach, Evarard, Highstein & Brownson, 2004). Thus, it is possible for individuals to remain in this stage and never move beyond considering health behavior change.

There are several limitations associated with the TTM. Similar to the HBM, the TTM ignores the social and economic environments in which change occurs. The model also assumes that individuals can make logical plans in their decision-making process, when this is not true. To maximize utility, it is suggested to combine the TTM with additional constructs from behavioral theories.

Theory of Planned Behavior

The Theory of Planned behavior (TPB), developed by Icek Ajzen, attempts to predict and understand motivational influences on deliberate behavior change and to

identify how and where to target strategies for changing behavior (Ajzen, 1988). TPB has received much substantial research support as a strength of the theory is its wide applicability to a diversity of behaviors in various contexts (Ajzen, 2011; Sideridis, Kasissidis, & Padeliadu, 1998). The core of TPB is the Theory of Reasoned Action (TRA), a theory that asserts people consider the implication of behavior before acting upon them (Ajzen & Fishbein, 1977). Both TRA and TPB assume behavior is the result of a conscious decision to act in a certain way. TRA posits that an individual's attitude and subjective norms determine an individual's intention toward a particular health behavior (Ajzen & Fishbein, 1980). Ajzen' and Fishbei (1977) TPB posits that an individual's attitude toward the behavior, perceived behavioral control, and subjective norms determine an individual's intention toward a particular behavior. This dissertation extracts one construct from the TPB, subjective norms.

Subjective norms, also known as social norms, are the perceived social pressure to engage in a particular health behavior (Ajzen, 2011). The opinions of an individuals' social circle determine whether an individual has intentions of performing the health behavior.

There are several limitations to TPB. Similar to other behavior change theories, TPB does not consider environmental and economic influences on behavior change. Additionally, TPB assumes that human beings are rational and make systematic decisions based on all available information. However, extensive and revolutionary work from the field of psychology proves otherwise, as humans are inherently biased (Gilovich, Griffin, & Kahneman, 2002; Kahneman & Tversky, 1979, 2000; Tversky & Kahneman, 1981).

To maximize the utility of the model, research suggests it should be integrated with other behavior change models.

Summary

Chapter 2 provided an extensive literature review on the relationship between homelessness and smoking, including the burden of tobacco, tobacco-related health disparities, smoking behaviors, and cessation characteristics among the homeless, the barriers and facilitators of smoking cessation and identifying research gaps. As estimated 68.0-80.0% of homeless adults are current smokers compared to 15.1% of the general populations (Baggett & Rigotti, 2010; CDC, 2016; Connor, 2002; Okuyemi et al., 2006; Szerlip & Szerlip, 2002; Tsai & Rosenheck, 2012; USDHHS, 2004). Despite an extraordinarily high prevalence rate, little is known about ways to effectively reduce smoking behaviors among this marginalized population. Comprehensive tobacco control programs, including smoking cessation, are proven to reduce and improve health outcomes. Yet, there is a paucity of literature on effective and appropriate tobacco cessation services specifically for the homeless population. Thus, the purpose of this dissertation is to provide information to support the development of appropriate and tailored smoking cessation opportunities for individuals experiencing homelessness. This study explores the unique barriers and facilitators to smoking cessation among male smokers experiencing homelessness. This study focuses on males because of their increased risk to homelessness and higher rates of cigarette smoking compared to women (CDC, 2016; USDHUD, 2016). The second aim of this study is to examine if the barriers and facilitators to smoking cessation differ among male smokers experiencing homelessness depending on housing program. Specifically, this study will compare the

barriers and facilitators to smoking cessation between males smokers in Housing First programs, Treatment First programs, and those in neither program residing on the street. Examining these factors may provide an opportunity for improving and enhancing tobacco cessation services for the homeless. I have also reviewed and tailored an appropriate framework, The Social Ecological Model for Health Promotion, to examine the unique barriers and facilitators to smoking cessation.

Chapter 3 will review the methodology appropriate for this research study.

CHAPTER THREE METHODS

Introduction

The purpose of this dissertation is to explore the barriers and facilitators to smoking cessation opportunities among homeless male smokers. A second aim of this dissertation is to explore if the barriers and facilitators to smoking cessation among males experiencing homelessness differ depending on housing program. Thus, this dissertation was designed to answer the following research questions:

R1: *What are the current barriers to smoking cessation among male smokers experiencing homelessness?*

R2: *What are the current facilitators to smoking cessation among male smokers experiencing homelessness?*

R3: *Do the barriers or facilitators to smoking cessation differ among male smokers experiencing homelessness depending on housing program?*

To accomplish this, I conducted 30 semi-structured, in-depth individual interviews with homeless men in Louisville, Kentucky. This chapter presents the methodological approach and justification used to answer my research questions. Chapter three is divided into seven sections, 1) study rationale, 2) research design, 3) instruments and interview guide development, 4) in-depth individual interviews, 5) data coding and analysis, and 6) ethical considerations, data management and protection of human

subjects. To conclude this chapter, the final section will provide a summary of chapter three.

Study Rationale

A qualitative approach was the most appropriate method to answer the three research questions for several reasons. First, this research study does not have a defined hypothesis to be tested or include outcomes that can be predicted in advance. This study is exploratory, with the purpose of trying to make sense of an ongoing process or phenomenon. The intricate details and nuances of attitude, behavior, and individual experience may not be thoroughly depicted through quantitative findings. Secondly, this research study seeks to understand a phenomenon within a natural setting. There are current research findings on the barriers and facilitators to smoking cessation opportunities among the general population, but the experience may differ if an individual is homeless. Addressing and contextualizing the issue of smoking cessation utilization among the homeless is not applicable through quantitative research strategies such as surveys or experimental design. Thirdly, the population of interest, individuals experiencing homelessness, is a transient population, meaning they typically stay in one location or shelter for a short period of time and do not have a permanent place of residency. Thus, the applicability of traditional quantitative research methods such as surveys and follow up surveys are not feasible because this population is difficult to reach.

Qualitative Research

Creswell (1998) defines qualitative research as, “an inquiry process of understanding based on distinct methodological traditions of inquiry that explores a

social or human problem” (p.15). The purpose of qualitative research in health promotion is for conducting exploratory research where little is known about specific health issues (Salazar et al., 2015). The qualitative approach is often used to answer questions of human behavior, opinion, and experience that are often difficult to obtain through quantitative research methodologies (Guest, Name & Mitchell, 2013). Unlike quantitative methods, qualitative research uses descriptive data in the forms of pictures, video, notes, or narratives (Salazar et al., 2015).

An advantage to using a qualitative research approach is the use of open-ended questions. Administered with probing, open-ended questions allow participants to respond freely in their own words rather than choosing from fixed responses (Mack et al., 2005). Including open-ended questions in a methodological approach evokes responses that are meaningful and culturally salient to the participant, sometimes unanticipated by the researcher, and rich in detail (Mack et al., 2005).

A caveat to using a qualitative research approach is that the process and outcome synthesis are inherently time consuming and complex, but minimizing complexity is not the goal (Salazar et al., 2015). The researcher must “do justice to that complexity, to respect it in its own right” (Glesne & Peshkin, 1992, p.7). It is in the best interest of the researcher to be completely immersed in the process and take an insider’s point of view by facilitating several qualitative methods such as interviewing, observation, and case reviews. Facilitating and analyzing multiple modes of inquiry, such as interviews, field notes, and observations, will better unravel the complexity and validity of the health issue (Salazar et al., 2015).

Further, limitations of qualitative methods must be considered. A common limitation of this mode of inquiry is that the findings are not generalizable to the greater population; they are only accurate to the specific participants interviewed. Thus, if the study is replicated, another researcher may present and interpret different findings. However, this limitation does not minimize findings; rather it elicits further qualitative and quantitative research investigation on homelessness and smoking cessation.

This study utilized a two-phase qualitative approach. The first phase included informal interviews with caseworkers and a homeless shelter coordinator with the purpose of developing an in-depth interview guide. The second phase included in-depth individual interviews among 30 homeless male smokers in Louisville, Kentucky.

Research Design

Cross-sectional research design is one of the most common designs in health promotion research (Salazar et al., 2015). This design is described as providing a “snapshot” of health behaviors or population characteristics because samples are drawn at one point in time (Salazar et al. 2015). Advantages of this design include measuring the prevalence of a health issue, investigating correlations between variables of interest, and are relatively easy to conduct (Hennekens et al., 1987; Salzar et al., 2015). Further, cross-sectional survey design is particularly useful if manipulation of a variable is considered unfeasible or unethical (Salazar et al., 2006). However, this design is not flawless. Due to the design examining variables at a set point in time, cross-sectional studies are limited in inferring causation, meaning it is unable to establish directionality (Salazar et al., 2015). Nevertheless, cross-sectional research design is necessary as its findings provide the foundations for complex research studies.

This study used a cross-sectional survey design. Participation in two shelter programs and one emergency day shelter participated in an in-depth individual interview on smoking cessation and homelessness. Participants were recruited from homeless shelters located in Louisville, Kentucky and included one HF program, one TF program, and one emergency day shelter. Participants were homeless male smokers aged 18 years or older at the time of the survey.

Sampling

I utilized a purposive, non-probability sampling technique. There are two types of sampling techniques for designing a research study: probability or nonprobability sampling. Probability sampling is a technique widely used in quantitative research. This technique requires simple random sampling to ensure the generalizability of research findings by minimizing the risk for bias and to control for known and unknown confounders (Palinkas et al, 2013). In contrast, nonprobability sampling is a common technique used in qualitative research. This technique does not involve random sampling, thus, being vulnerable to bias and may not represent the population of interest. However, non-probability sampling is useful, particularly in social science research, when circumstances are not practical, ethical, or theoretically sensible (Salazar et al.,2015). Additionally, non-probability sampling is an appropriate method when the population of interest is narrowly defined or hard to reach (Salazar et al., 2015). Because of the transient nature of the homeless population and the research questions in the study, non-probability sampling is the most appropriate technique, specifically, purposive sampling. Purposive sampling, a common technique in qualitative research, is a sampling approach where the researcher deliberately seeks a predefined group (Mack et al., 2005).

This involves identifying and selecting groups or individuals that are especially experienced or knowledgeable with a phenomenon of interest (Creswell & Plano Clark, 2011).

An advantage to using a purposive sampling technique is cost efficiency. As opposed to performing a simple random sample on all homeless men in Louisville, I am able to allocate my resources to specific groups of interest. Another advantage to using purposive sampling is the intention to focus on specific characteristics of my population that will best answer my research question.

The advantages of purposive sampling are beneficial for exploratory research but the technique is associated with several disadvantages. Purposive samples, irrespective of the sampling design used, are highly prone to researcher bias because of researcher subjectivity and non-probability nature of the sample. In this instance, researcher bias is a disadvantage if the criteria for sample inclusion are ill-conceived or poorly researched. This disadvantage must be considered during data analysis. To mitigate this risk, specific inclusion and exclusion criteria were strategically developed for the target population. Inclusion and exclusion criteria were based on the purpose of the study, population of interest, practicality, and ethical soundness.

Participants

Within my dissertation study, participants were sampled from three intentionally identified homeless shelters: 1) Family Health Center's Housing First program, 2) Louisville Rescue Mission's Life Change Program, and 3) Louisville Rescue Mission's emergency day shelter. All three shelters are members of the Coalition for the Homeless in Louisville and provide assistance to homeless men.

To be eligible to participate in this study, the individual had to be male, 18 years or older, speak and understand English, and identified as a current smoker (smoked at least 100 cigarettes in their lifetime and at the time of the study reported smoking everyday or some days). Smoking status is a critical element of eligibility because the perceptions of barriers or facilitators to smoking cessation opportunities can potentially be very different among men who are smokers compared to men who are not smokers.

Inclusion Criteria

To be considered a potential participant for this research study, the following criteria must be met:

1. Identify as male
2. Aged 18 years or older
3. A current smoker, defined as smoking at least 100 cigarettes in their entire lifetime and at the time of the interview, reported smoking every day or some days (CDC, 2008).
4. Homeless, defined as an individual who lacks housing (without regard to whether the individual is a member of a family,) including an individual whose primary residence during the night is a supervised public or private facility (e.g., shelters) that provides temporary living accommodations, and an individual who is a resident in transitional housing (Section 330 of the Public Health Service Act (42 USCS,254b))
5. Speak and understand English
6. A resident of either:
 - a. Family Health Care Center's Housing First Program

b. Louisville Rescue Mission's Life Change Program

or

c. A patron of Louisville Rescue Mission's Emergency Day Shelter

Exclusion Criteria

Potential participants were not eligible to participate in this study if they satisfied any of the following criteria:

1. Identify as female or other
2. Aged 17 years or younger
3. A former smoker, defined as smoking at least 100 cigarettes in their lifetime and at the time of survey did not smoke at all (CDC, 2008)
4. A never smoker, defined as never having smoked 100 cigarettes and at the time of survey did not smoke at all (CDC, 2008)
5. Does not speak and understand English
7. Is not considered homeless under the definition of an individual who lacks housing (without regard to whether the individual is a member of a family,) including an individual whose primary residence during the night is a supervised public or private facility (e.g., shelters) that provides temporary living accommodations, and an individual who is a resident in transitional housing (Section 330 of the Public Health Service Act (42 USCS,254b))
6. Is not a resident of either:
 - a. Family Health Center's Housing First Program
 - b. Louisville Rescue Mission's Life Change Program

or

c. A patron of Louisville Rescue Mission's Emergency Day Shelter

7. Persons appearing to be severely intoxicated, belligerent, or perceived as a possible threat to safety towards the interviewer and others near by at the time of interview.

Recruitment

Participants from the emergency day shelter were recruited and interviewed on the same day. Due to the transient nature of unsheltered homeless individuals, research suggests recruiting and interviewing potential participants within one day or on the same day (Okuyemi et al, 2006; USDHUD, 2012). Participants were approached in the common room of the shelter, were explained the purpose of the project and asked if they were interested in participating. Those that were interested were then screened for eligibility. Only participants who were eligible to participate were interviewed.

Participants of Louisville Rescue Missions' Life Change Program were recruited a week in advance with assistance from the Life Change Program caseworkers. It is important to note that residents of the Life Change Program are under a strict educational and work schedule as a requirement to enter the program. Thus, recruitment a week in advance is a viable option for this shelter population as an interview time can be scheduled with assistance of their caseworker. Upon permission of the administration at Louisville Rescue Mission, the researcher spoke to the residents about the research study. All interested participants scheduled a date and time that satisfied both the participant and researchers schedule. Participants were screened for eligibility the day of the interview for methodological consistency.

Participants of Family Health Center's Housing First Program were recruited with assistance from program caseworkers. Unlike Louisville Rescue Mission, Family Health Centers Housing First Program utilizes a scatter site approach, meaning individuals are placed in various locations throughout the community and do not have a common residential location. To alleviate transportation issues, Housing First participants were recruited following visitation to their caseworker or group meeting at a Family Health Center's campus. I briefly explained the purpose of the project and asked the individuals if they were interested in participating. If participants were interested, they were interviewed and screened for eligibility the same day unless the participant preferred to schedule a meeting within the following week.

Interview Settings

This study took place in two locations in Louisville, Kentucky. The first location is Louisville Rescue Mission, a local shelter dedicated to homeless men. Although there are several homeless shelters exclusively dedicated to homeless men in Louisville Metro, this location was chosen because the researcher has pre-existing relationships with the administration at this shelter. These pre-existing relations allow the researcher to have access to the homeless men, as the administration is supportive of the proposed research study. Secondly, this location was chosen because Louisville Rescue Mission offers two different programs, a Treatment First program called the Life Change Program, and an emergency day shelter. Residents of the Treatment First program do not attend the emergency shelter, thereby potentially reducing the risk of sampling contamination. The Life Change Program is a nine-month residential program for homeless men with a primary goal of beginning "a living and active relationship with Jesus Christ that will

bring about transformation in every area of their life: spiritually, relationally, financially, mentally, physically, and emotionally.” The Life Change Program follows a traditional Continuum of Care or Treatment First philosophy, as sobriety is a requirement to enter and continue the program. This program has a maximum capacity of 20 residents. Interviews with Life Change Program participants occurred in a reserved classroom located within the shelter.

Separate from the Life Change Program, Louisville Rescue Mission is host to an emergency day shelter. The emergency day shelter is open exclusively to men Monday-Friday between 7am and 12pm. During these hours, homeless unsheltered men have access to restrooms, showers, mail, storage, and laundry services. The emergency day shelter located at Louisville Rescue Mission was chosen for their exclusivity to serving homeless men as women are not permitted to attend this shelter during set hours. Interviews with emergency day shelter participants occurred in a reserved private room inside the shelter.

The second location is Family Health Center’s Housing First Project for Homeless Adults, a Housing First program dedicated to providing housing as a first priority of treatment to homeless persons with mental health and/or substance abuse disorders. This location was chosen for two reasons. The first is that the researcher has pre-existing relationships with the administration, which allows access to this specific population. Second, at the time of this study, this is the only Housing First program in the city of Louisville.

Housing First participants work closely with case managers to find affordable housing within the community. Unlike a traditional homeless shelter, Family Health

Center's Housing First program utilizes a scattered-site private market approach. A scatter-site private market approach places individuals in apartment rentals throughout the community, rather than in a centralized location or facility. In this model, the individuals are not provided a lease agreement. Instead, a third party, Family Health Centers, is the leaseholder. In time, the apartment unit can be converted to permanent housing as the lease can be transferred to that individual's name. This occurs when the individual has the necessary resources to pay rent, usually transitioning into society. Thus, residents of the Housing First program are spread throughout the community, and not located in one shelter. Because of the lack of a centralized housing location, interviews with Housing First participants were held in a room located at a Family Health Centers satellite campus.

Instruments and Interview Guide Development

This dissertation utilized three instruments: an eligibility form, a semi-structured interview guide, and a short-answer demographic questionnaire. The following section will describe the development of the interview guide and then briefly discuss the eligibility form and demographic questionnaire.

Interview Guide Development

The first phase of this research study was to conduct unstructured interviews among caseworkers at Louisville Rescue Mission's Life Change Program, Family Health Centers Housing First Program and the coordinator at Louisville Rescue Mission Emergency Day Shelter with the intent of gathering information for my interview guide. Caseworkers and coordinators were elicited because of their knowledge, experience, and time spent with my population of interest. Unstructured interviews, also known as

informal interviews, is a technique developed to elicit people's social and contextual surroundings (Zhang & Wildemuth, 2009).

Unstructured interviews with caseworkers and coordinators occurred at their respective workplace and the interviews lasted no more than 30 minutes. Specifically, the researcher interviewed two caseworkers from Family Health Centers Housing First Program, two caseworkers from Louisville Rescue Mission's Life Change Program and one coordinator from Louisville Rescue Mission's Emergency Day Shelter. Louisville Rescue Mission's Emergency Day Shelter does not employ caseworkers for the shelter patrons. Instead, this location employs a coordinator who primarily works with this population.

The purpose of conducting unstructured interviews with caseworkers and the emergency day shelter coordinator was to expose myself to any unanticipated themes or information not previously considered or discussed in my literature review prior to data collection. Research suggests using an agenda in unstructured interviews to encourage consistency across interview sessions (Zhang & Wildemuth, 2009). Thus, my interviews were loosely guided by an agenda rather than actual questions to be asked. The agenda focused on topics such as tobacco use among homeless shelter residents, smoking cessation opportunities available to homeless residents, and their personal perceptions about cigarette smoking. The interviews were neither recorded nor analyzed in the final project. Instead, I took notes during their discussions. Information gained from the interview assisted in refining the interview guide for in-depth individual interviews used with study participants.

The in-depth interviews were semi-structured and developed based on an extensive literature review, notable information gathered from the unstructured interviews with case workers and the program coordinator, and several constructs from the Health Belief Model, Transtheoretical Model, and the Theory of Planned Behavior. The interview guide was designed with probes to ensure that key topics were explored with each participant. The interview guide focused on perceived barriers, perceived seriousness, perceived susceptibility, and social norms on cigarette smoking, contemplation and pre-contemplation of quitting cigarette smoking, and barriers and facilitators to smoking cessation opportunities.

Further, the semi-structured interview guide included main questions and potential probing questions (Appendix B). Not all questions were asked. The researcher included potential probing questions if, at the time of survey, it was necessary to elicit more information.

Expert Review

Prior to interviewing participants, staff members of Louisville Rescue Mission and Family Health Center's Housing First Program reviewed the final in-depth interview guide to ensure that the questions were appropriate, respectful, and ethically sound. The in-depth interview guide was also reviewed and approved by the dissertation committee and the University of Louisville Institutional Review Board.

Eligibility Form

The eligibility form included four questions (Appendix A). If the participant answered "yes" to questions 1, 3, answered "everyday" or "some days" to question 4, and answered "male" to question 2, then he is eligible to participate in the interview.

Questions 3 and 4 are based on the definition of current smokers, “individuals who have smoked at least 100 cigarettes in their lifetime and at the time of the interview smoke everyday or some days” (CDC, 2008). Further details on eligibility and inclusion criteria are discussed in a later section.

Short- Answer Demographic Questionnaire

The short-answer demographic questionnaire included 14 questions (Appendix C). This questionnaire asked about the individual’s age, race, ethnicity, educational attainment, length of homelessness, number of shelters they have lived in their lifetime, and shelter placement. This questionnaire was administered following the in-depth interview.

In-Depth Individual Interviews

The second phase of the research study was conducting in-depth interviews with male smokers. This process took two weeks to complete due to the transient nature of the population of interest.

Advantages and Disadvantages of In-depth Individual Interviews

An advantage of conducting in-depth interviews is that they offer a more complete picture of experiences and events that are not easily captured in quantitative methodological approaches (Boyce & Neale, 2006). Compared to other qualitative methods, this technique may provide a more comfortable and relaxed atmosphere as the participant is having a direct conversation with the researcher rather than speaking in front of a group or being observed (Boyce & Neale, 2006). Additionally, conducting in-

depth individual interviews can immediately begin following recruitment and eligibility screening in comparison to recruiting and scheduling a focus group.

However, a disadvantage of in-depth interviews is time intensity. Conducting in-depth interviews requires critical methodological planning for data collection, transcription, and analysis. Other disadvantages of in-depth interviews are response bias and limited generalizability (Boyce & Neale, 2006). Generalizability is defined as the degree to which research findings can be generalized to the entire population (Polit & Hungler, 1991). Though generalizability is limited in qualitative research, it does not discredit the rigor or integrity of the study or research findings. Rather, findings from in-depth interviews are essential for exploring a phenomenon of interest that may not adequately explain or grasp the idiosyncrasies of the situation through quantitative methods (Myers, 2000). Disadvantages of conducting in-depth interviews were taken into consideration during the research design, planning, and analysis.

Data Collection Procedures

First, interested participants were screened for eligibility. If eligible, participants were required to sign an informed consent form prior to the interview. In order to create a safe and comfortable environment, all interviews were conducted in an assigned room within the homeless shelter with the exception of Housing First participants, whose interviews were held in a room within the Family Health Center's satellite campus.

Prior to the in-depth interview and demographic questionnaire, participants were asked if they had any questions. I offered to answer any question to the best of my knowledge. Additionally, I emphasized to each participant that they are able to stop the interview at anytime for any reason. Next, I described the purpose of the study. The

purpose of the study is to understand the barriers and facilitators to smoking cessation among homeless men. This information will help design future smoking cessation programs for individuals experiencing homelessness who are interested in quitting. To avoid any risk of priming or being disrespectful, the researcher explained to interested participants that the purpose of this interview is to gather information that will be used to develop a future health promotion program aimed to help homeless persons quit smoking. All participants were notified in advance that the interview will be audio recorded for data analysis purposes and that all information collected is confidential. Participants were asked to not give their names or identifying information. Rather, participants were assigned a unique participant ID number. All interviews lasted between 40 to 90 minutes. At the end of the interview, participants were asked to verbally complete a short-answer demographic questionnaire. All participants received a \$20 gift certificate to a local grocery store for their time. Additionally, snacks and beverages were offered at the time of the interview.

Audio Recording

Prior to each interview, I checked my recording device to ensure the recorder functioned correctly and was powered fully. I recorded all interviews using a digital recording device. After each interview, I saved a copy of the audio file on my computer device. At the end of each day, I reviewed each audio recording to make sure each interview was coherent. Patton (2002) suggests checking the functionality of the digital recorder and the audio files to ensure comprehension and completeness of each interview.

Regardless of my diligence to ensure the functionality of my recording device, I had to dismiss two interviews from data analysis. Of the two interviews, one audio recording was incomplete and the second was incoherent.

Transcription

The purpose of transcribing allows the researcher to become familiar with the data and aids in recall of visual observations that took place (Reissman, 1993; Simon & Goes, 2013). Before the data was analyzed, I transcribed 16 in-depth individual interviews verbatim. The remaining 14 interviews were transcribed verbatim by a third party transcription service agency. I decided to include speech pattern fillers, such as *um*, *ah*, *you know*, for the purposes of including tone of voice or inflection. I labeled each transcription with the interview date, location, housing program, and unique participant ID. Later, each unique participant ID was assigned a pseudonym for presenting study findings and results.

To become familiar with the data transcribed by the agency, improve accuracy of the transcripts, and for reliability purposes, I listened to each audio recording and read its respective transcription. If there were any discrepancies between the audio file and transcripts, I changed the transcript to reflect the correct detail. Additionally, a volunteer public health professional randomly selected three audio recordings and reviewed its respective transcript for accuracy. Microsoft Word files were created for the interview transcriptions and saved on a password-protected, portable computer. All files were uploaded to the qualitative software Atlas.ti for data management and analysis.

Data Coding and Analysis

The design and plan of analysis depends on the general approach taken and the analytic purpose. Because this research study tends to be exploratory in nature, interviews were analyzed to reveal common trends and themes emerging from the data. Data analysis was guided by concepts derived from grounded theory, but did not exclusively adhere to the traditional grounded theory approach. I did not exclusively adhere to the traditional grounded theory methodology because the subject of interest, exploring barriers and facilitators to smoking cessation, was previously researched and the interview guide was developed using constructs from previous theoretical models. Additionally, the final output and results was not a theoretical model, a distinction of grounded theory. However, grounded theory is a flexible analysis approach, where the processes of analysis can still be applied.

Grounded Theory

Grounded theory is a set of inductive techniques designed to identify concepts and categories that emerge from the data, which are then used to form theoretical models (Corbin & Strauss, 2008; Glaser & Strauss, 1967). Grounded theory is widely used for exploration of dominant social and structural processes that account for some variation in behavior in a particular situation of interest (Wuest et al., 2002). Unlike other qualitative strategies, which are expressly descriptive in their intent, grounded theory is purposefully explanatory and is compatible with quantitative research (Baker et al., 1992). An advantage to using grounded theory is that the approach combines the depth and richness of qualitative interpretive procedures with the rigor and systematic analysis found in

quantitative research (Charmaz, 2000, 2006; Glaser & Strauss, 1967; Keddy et al., 1996). Although other qualitative approaches may be rigorous in their methodological processes, the systematic processes in grounded theory are concerned with ensuring that all interpretations are supported by the data. This approach was useful for exploring the interaction between social conditions and subjective tobacco health seeking experiences among homeless men.

Researchers have identified difficulties with using grounded theory, specifically when following coding procedures (LaRossa, 2005). Originally published by Barney Glaser and Anselm Strauss in 1967, grounded theory has evolved into two different schools of thought: Classic Grounded Theory and Strassian Grounded Theory. On the surface, both schools of thought have no recognizable differences as each include the same basic research processes: systematic gathering of data, coding, constant comparisons, and memos to generate models or theories. The difference lies in the data analysis process, specifically, the procedures utilized. Whereas Glaser and Strauss (1967) specified four phases for coding procedures, Strauss (1987) with Strauss and Corbin (1990, 1998) specified three phases and Glaser (1978, 1992) specified two phases.

Glaser (1978), or Classic Grounded Theory, divides the coding into two phases: substantive and theoretical coding. Substantive coding refers to producing categories and their properties while theoretical coding weaves the substantive codes together to create a theory. Glaser (1992) highlights the constant comparison method, viewing it as central within analytic coding. Glaser (1992) says, “using the constant comparison method gets the analyst to the desired conceptual power quickly...Categories emerge upon comparison and properties emerge upon more comparison” (p.42). An underlying

assumption of Glaser's grounded theory approach is that a literature review is not recommended prior to data collection or analysis. Glaser posits that literature reviews will inhibit, impede, or contaminate the researcher's analysis of codes emergent from the data (Glaser, 1992). Additionally, Glaser (1992) strictly highlights the importance of generating a quality theoretical model as a goal of the research project.

On the other hand, Strauss and Corbins', or the Straussian Grounded Theory, procedure for grounded theory divides coding into three phases: open, axial, and selective coding. Similar to Glaser, Strauss and Corbin (1990) highlight the importance of constant comparison but incorporate the use of tools, paradigms, and constructs from previously existent theories. Unlike Glaser, Strauss and Corbin (1998) recommend conducting a literature review prior to data collection and analysis. Conducting a literature review provides examples of similar phenomena that "stimulate our thinking about properties or dimensions that we can then use to examine the data in front of us (Strauss & Corbin, 1998, p. 45)." Strauss and Corbins' grounded theory approach aims to produce a theory that fits the situation, aids understanding, and guides action and practice (Corbin & Strauss, 2008; Strauss & Corbin, 1998). However, they recognize that not all research aims to build a theoretical model and therefore accepts researchers using Straussian Grounded Theory techniques beyond generating theory.

For the purposes of this study, I followed coding procedures of Strauss and Corbin (1990). The rationale for using Strauss and Corbin is because over time, this procedure has become the most widely accepted in the literature, aims to understand new phenomenon's, and accepts the integration of established theories and literature (LaRossa, 2005; Corbin & Strauss 2008; Strauss & Corbin 1998). However, I did not

conduct selective coding because its purpose of developing a central model based on a central relevant variable does not align with the purpose of my study.

Coding and Analysis Procedures

Coding in grounded theory is the process of analyzing the data, involving the researcher as the main instrument in the process (Walker & Myrick, 2006). Corbin & Strauss (1990) have emphasized coding as the “fundamental analytic process [in grounded theory] used by the researcher (p.12).”

First, I performed open coding, also known as coding induced from the data, to identify information-related concepts that are related to the purpose of the study. A concept is a descriptive name or label associated with an indicator. An indicator is a word, phrase, or sentence being analyzed. I used the concept-indicator model of open coding as a constant comparison method to develop concepts by identifying and comparing indicators of that said concept. The process of constant comparison method is that, while coding an indicator for a concept, I can compare that indicator with the previous indicator that has been coded in the same manner. If the two indicators belong with one another they would be classified under the same concept. If the two indicators do not belong together, a second concept is developed for that indicator. I continued this method until I had reached saturation of the text (Strauss & Corbin, 1998).

In addition to developing concepts, the open coding phase also develops categories. Strauss (1987) explained that the more detailed the analysis the greater the likelihood of discovering appropriate categories and the smaller likelihood of missing a category. Strauss and Corbin define categories as a “classification of concepts” (p.61). Categories can involve grouping in two ways, 1) grouping concepts that are similar but

not identical, analogous to the standard dictionary definition of categorization or 2) grouping concepts that are dissimilar but still allied under an abstract heading (LaRossa, 2005). Strauss & Corbin (1998) emphasize that categories should be developed in terms of their properties or dimensions.

During the open coding process, I wrote memos about developing concepts, relationships between categories, and questions that emerged during the constant comparison method. Memos provide a medium to compare data, explore ideas, and prompt data analysis early in the research process (Chamaz, 2006). Memo writing is an important aspect to open coding and highly encouraged during the coding process. Strauss (1987) highlighted the importance of frequent interruption of the coding process in order to write self-memos that move the researcher toward generating theories or understanding concepts.

Next, I used axial coding to identify relationships between concepts and categories for the purpose of contextualizing the phenomena. As opposed to open coding which is developing concepts or variables, axial coding explicitly examines the relationship among these concepts. Strauss and Corbin (1998) suggest connecting concepts or categories together through a coding paradigm, which focuses on three aspects: 1) the conditions or situations in which the phenomenon occurs, 2) the actions or interactions of the people in response to the phenomenon, and 3) the consequences of the inaction or action taken.

The final step in coding using a grounded theory approach is selective coding. As specified earlier in this chapter, I did not conduct selective coding because its purpose is to develop a model based on a central relevant variable among all emerged concepts. This

purpose does not align with the purpose of my study. Instead, I grouped axial codes into appropriate categories or themes.

Finally, quantitative data collected from the short-answer demographic questionnaires were manually inputted and analyzed using SPSS v. 24. Descriptive statistics were calculated to obtain a comparative demographic profile of the sample.

Ethical Considerations, Data Management, and Protection of Human Subjects

I was responsible for monitoring the safety, quality, and materials of the proposed study. All study participants were treated with respect and in accordance with the ethical guidelines of the University of Louisville Institutional Review Board (IRB). Participants were given the information needed to autonomously decide whether to voluntarily participate in the study and given ample time to decide free from pressure. I verbally emphasized that all information obtained from this study remained confidential. Further, because the population of interest is considered a vulnerable population, there was a possibility that participants might feel uncomfortable discussing personal experiences. To minimize feelings of discomfort, I emphasized that the interview may be terminated at anytime for any reason and that participation is completely voluntary.

Consent forms were distributed to each participant for review. To combat the possibility of illiteracy, I read all information on the forms to each participant. Consent forms included the contact information of the principal investigator and IRB of the University of Louisville for any additional questions that may emerge.

Multiple steps were taken to guarantee confidentiality. All electronic data including demographic data and audio recordings were stored in password protected computer device. This password protected computer device was accessible to only the

researcher. The University of Louisville's Institutional Review Board approved all personnel involved in the study to conduct human subject research. All data was inspected for quality assurance prior to analysis by listening to the interviews multiple times and compared them to the transcripts.

Summary

Qualitative research helps to understand the individuals' experience and to discover more profound meanings within it (Kazdin, 2003). It is used to best illustrate, understand, and obtain answers to an exploratory question. The purpose of this study is to understand the barriers and facilitators to smoking cessation opportunities among male smokers experiencing homelessness. A second aim of this study is to determine if the barriers and facilitators differ among male smokers experiencing homelessness depending on housing program. A two-phase qualitative study utilizing a cross-sectional design was proposed to identify such barriers and facilitators. The first phase entailed development of the in-depth interview guide. The guide was developed using constructs from the Health Belief Model, the Transtheoretical Model, and the Theory of Planned Behavior. The guide was also developed using contextual and social information of the target population gathered during informal interviews among caseworkers and a shelter coordinator. The second phase entailed in-depth individual interviews with the population of interest. Each individual in-depth interview lasted between 40 to 90 minutes long. All information during the in-depth interviews were audio recorded and confidential. Data collection included transcribed in-depth individual interviews, and the short-answer demographic questionnaire. Only transcribed in-depth individual interviews and answers

from the demographic questionnaire were analyzed. The data analysis methodology was guided by concepts derived from Straussian Grounded Theory.

In the next chapter I will review the application of my research design and results of the study.

CHAPTER FOUR RESULTS

Introduction

The primary purpose of this study is to explore the barriers and facilitators to smoking cessation among individuals experiencing homelessness. The following research questions informed this study:

R1: What are the current barriers to smoking cessation among male smokers experiencing homelessness?

R2: What are the current facilitators to smoking cessation among male smokers experiencing homelessness?

R3: Do the barriers or facilitators to smoking cessation differ among male smokers experiencing homelessness depending on shelter program?

A qualitative descriptive design was used to better understand the experiences, influence, and perceptions of smoking cessation among men experiencing homelessness. A qualitative design was the most appropriate design since it is amenable to obtaining minimally theorized answers to exploratory questions, meaning it is best used to capture information not conveyed through quantitative methodologies, provides context necessary to understand quantitative findings, and identify relevant variables to future studies (Pope, & Mays, 1995; Sandelowski, 2000). This qualitative study contributes to the dearth of literature on tobacco control among minority populations, specifically, the

homeless. This study identifies the barriers and facilitators to smoking cessation among men experiencing homelessness.

This chapter presents the results of 28 in-depth individual interviews and 28 post-interview short-answer demographic questionnaires with men experiencing homelessness. Of the 28 participants, eight were part of the Housing First group, nine were part of the Treatment First group, and 11 were part of the unsheltered group. Thirty men were approached and interviewed. All thirty men met eligibility criteria, agreed to participate and received a \$20 visa gift card at the completion of the interview. Two interviews were not included in the final analysis. Of the two interviews excluded from the analysis, one transcript was incoherent and one transcript was incomplete.

This chapter is divided into eight sections. Section one presents the demographic profile. Section two presents the smoking behavior characteristics, including reasons for initiating cigarette smoking and reasons for continuing cigarette smoking. Section three presents the smoking cessation characteristics of the 28 participants analyzed from the short-answer questionnaire and in-depth interview findings. The results from these three sections help describe, visualize, and understand group characteristics of the target population. The fourth section presents the emerged theme, access and availability of cigarettes. The fifth and sixth sections present the barriers and facilitators to smoking cessation, respectively. The seventh section compares and contrasts the barriers and facilitators to smoking cessation among the three groups. The final section is a summary of this chapter and an introduction to the next chapter.

Demographic Characteristics

Results from the short-answer questionnaire

Approximately a third (28.6%) of this sample was in the Housing First program, Treatment First program (32.1%), and the unsheltered (39.3%). Participants ranged from the ages of 32 to 62, with a mean age of 48. Half (50.0%) of the sample were white, all Non-Hispanic (100.0%). The largest subgroup of the sample had some college with no degree (32.1%), a high school diploma or GED (28.6%), or some high school with no diploma (25.0%). A minority of the participants had a bachelors degree or higher (7.1%), associates degree (03.6%), or a vocational certificate (3.6%). A little less than half of the participants were veterans (42.9%) and diagnosed with either a mental illness or substance abuse disorder (75.0%) by a healthcare provider. Approximately a third (35.7%) of the sample identified experiencing homelessness for less than 6 months, while a majority identified experiencing homelessness for more than 12 months (60.7%), and one individual identified experiencing homelessness between 6-12 months (3.6%). Characteristics of the study sample are presented in Table 2.

Table 2: Demographic Characteristics of Study Sample

Characteristics		Frequency n/N (%)	
Housing Status			
	Housing First	8/28	(28.6%)
	Treatment First	9/28	(32.1%)
	Unsheltered	11/28	(39.3%)
Age			
	30-39	6/28	(21.4%)
	40-49	10/28	(35.7%)
	50-59	11/28	(39.3%)
	60-69	1/28	(3.6%)
Race			
	Black	10/28	(35.7%)
	White	14/28	(50.0%)
	Other	4/28	(14.3%)
Ethnicity – Hispanic or Latino			
	Yes	0/28	(0.0%)
	No	28/28	(100.0%)
Education			
	Less than 12 years, no diploma	7/28	(25.0%)
	High School Diploma or GED	8/28	(28.6%)
	Some college, no degree	9/28	(32.1%)
	Vocational Program	1/28	(3.6%)
	Associates Degree	1/28	(3.6%)
	Bachelors Degree or higher	2/28	(7.1%)
Mental Illness or Substance Abuse		21/28	(75.0%)
Veteran		12/28	(42.9%)
Length of Homelessness			
	Less than 6 months	10/28	(35.7%)
	6-12 months	1/28	(3.6%)
	More than 12 months	17/28	(60.7%)

A listing of pseudonyms, housing program, and pre-contemplation/contemplation status for each participant is presented in Table 3. For the purposes of this study, pseudonyms, corresponding housing program, and pre-contemplation/contemplation status will be used to identify quotes with its respective author. Pseudonyms are used to preserve anonymity and promote confidentiality (Thomas & Hodges, 2010). As specified earlier, our sample is composed of 28.6% Housing First, 32.1% Treatment First and 39.3% unsheltered participants. A minority of HF (25.0%) and TF (33.3%) participants

identified being in the pre-contemplation stage of quitting, defined as not showing interest or intention towards smoking cessation within the next 6 months. Among HF participants ($N=8$), only two identified as being in the pre-contemplation stage and among TF participants ($N=9$), only three identified as being in the pre-contemplation stage. The majority of unsheltered (63.6%) participants identified being in the pre-contemplation stage of quitting. Among unsheltered participants ($N=11$), seven identified being in the pre-contemplation stage.

Table 3: Participants in In-Depth Interviews for Smoking Cessation

Pseudonym	Housing Program Housing First (HF) Treatment First(TF) Unsheltered (US)	Pre-contemplation (Pre-C) or Contemplation (C)
1 Allen	HF	C
2 Barry	HF	C
3 Christopher	HF	C
4 David	HF	Pre-C
5 Erin	HF	C
6 Felipe	HF	Pre-C
7 Gary	HF	C
8 Henry	HF	C
9 Iggy	TF	Pre-C
10 Jackson	TF	Pre-C
11 Kirk	TF	C
12 Liam	TF	C
13 Manny	TF	C
14 Nathan	TF	Pre-C
15 Octavio	TF	C
16 Perry	TF	C
17 Quinn	TF	C
18 Remy	US	C
19 Steve	US	Pre-C
20 Tanner	US	Pre-C
21 Upton	US	C
22 Vincent	US	Pre-C
23 Warner	US	Pre-C
24 Xavier	US	Pre-C
25 Yoshi	US	C
26 Zack	US	Pre-C
27 Aaron	US	C
28 Bbeiber	US	Pre-C

Smoking Behavior Characteristics

Results from the short-answer questionnaire

The reported age of starting to smoke cigarettes ranged between 5 and 38 years of age. Participant's self-reported number of cigarettes smoked per day ranged between 3 and 30 with a mean of 14.3 cigarettes. Less than half (39.3%) of the total sample reported engaging in alternative smoking behaviors, defined as sourcing used cigarette butt from the ground, dumpster, or ashtrays. Unsheltered participants were more likely to engage in alternative smoking behaviors (81.8%) than Housing First participants (12.5%) or Treatment First participants (22. 2%).

A large majority of participants reported sharing cigarettes (92.9%). Sharing cigarettes was defined as giving free cigarettes to another person including, friends, family members, or strangers. The percentage of individuals who did share cigarettes did not differ by housing status. Approximately three-fourths of the Housing First participants (75.0%) and all of the Treatment First (100.0%) and unsheltered participants (100.0%) reported currently sharing cigarettes. A majority of participants had ever tried an e-cigarette (64.3%) or smokeless tobacco products (53.6%). Smoking behavior characteristics of the study sample are presented in Table 4.

Table 4: *Smoking Behavior Characteristics of Study Sample by Housing Program*

Characteristic				Housing Status							
				Housing First		Treatment First		Unsheltered		Total population (N=28)	
				n/N (%)		n/N (%)		n/N (%)			
Age Started Smoking											
	9-15	5/8	(62.5%)	6/9	(66.7%)	7/11	(63.6%)		18/28	(64.3%)	
	16-20	3/8	(37.5%)	2/9	(22.2%)	4/11	(36.6%)		9/28	(32.1%)	
	21-25	0/8	(0.0%)	0/9	(0.0%)	0/11	(0.0%)		0/28	(0.0%)	
	26-30	0/8	(0.0%)	0/9	(0.0%)	0/11	(0.0%)		0/28	(0.0%)	
	31-35	0/8	(0.0%)	0/9	(0.0%)	0/11	(0.0%)		0/28	(0.0%)	
	36-40	0/8	(0.0%)	1/9	(11.1%)	0/11	(0.0%)		1/28	(3.6%)	
Number of Cigarettes Smoked per Day											
	0-5	2/8	(25.0%)	0/9	(0.0%)	4/11	(36.6%)		6/28	(21.4%)	
	6-10	3/8	(37.5%)	4/9	(44.4%)	2/11	(18.2%)		9/28	(32.1%)	
	11-15	1/8	(12.5%)	5/9	(55.6%)	0/11	(0.0%)		6/28	(21.4%)	
	16-20	2/8	(25.0%)	0/9	(0.0%)	2/11	(18.2%)		4/28	(14.3%)	
	21-25	0/8	(0.0%)	0/9	(0.0%)	1/11	(9.1%)		1/28	(3.6%)	
	26-30	0/8	(0.0%)	0/9	(0.0%)	2/11	(18.2%)		2/28	(7.1%)	
Currently Using Alternative Smoking Behaviors											
	Yes	1/8	(12.5%)	2/9	(22.2%)	8/11	(81.8%)		11/28	(39.3%)	
	No	7/8	(87.5%)	7/9	(77.8%)	2/11	(18.2%)		16/28	(96.4%)	
Engaged in Sharing Cigarettes											
	Yes	6/8	(75.0%)	9/9	(100.0%)	11/11	(100.0%)		26/28	(92.9%)	
	No	2/8	(25.0%)	0/9	(0.0%)	0/11	(0.0%)		2/28	(7.1%)	
Ever-use of E-cigarettes											
	Yes	6/8	(75.0%)	6/9	(66.7%)	6/11	(54.4%)		18/28	(64.3%)	
	No	2/8	(25.0%)	3/9	(33.3%)	5/11	(45.6%)		10/28	(35.7%)	
Ever-use of Smokeless Tobacco Products											
	Yes	6/8	(75.0%)	4/9	(44.4%)	5/11	(45.6%)		15/28	(53.6%)	
	No	2/8	(25.0%)	5/9	(55.6%)	6/11	(54.4%)		13/28	(46.4%)	

Results from the in-depth individual interviews

Two themes emerged from the in-depth individual interviews relating to smoking behavior characteristics of the sample including, reasons for initiating smoking, and reasons for continuing to smoke cigarettes. The following two sub-sections present the results of each theme, respectively.

Reasons for initiating cigarette smoking

This section details the results and coding analysis from the first emerged theme, reasons for initiating cigarette smoking. Participants initiated smoking at a young age due to environmental and intrapersonal influence, and access and availability of cigarettes as described below. Table 5 presents the coding analysis.

Intrapersonal influences

Participants reported a sense of being, or innate feelings as to why they started smoking cigarettes. Specifically, participants expressed boredom, curiosity, and perceived positive outcomes such as reducing stress as a reason for initiating cigarette smoking at a young age.

Everybody was doing it. I wanted to see how it was. I wanted to know what it was all about, what it made you feel like. And I wanted to fit in (Tanner; US, Pre-C).

Few participants reported boredom as a reason for initiating cigarette smoking.

One participant reported:

That's probably the reason I started. I don't know. Not to fit in or anything, just out of boredom, I think. The guys will go out and smoke in the morning or between classes or on our breaks. Instead of twiddling my thumbs and doing nothing, I started going out back with them to smoke (Liam; TF, C).

Participants also discussed personal perceptions of positive outcomes from cigarette smoking such as coping with stress. Housing First participant Henry stated:

Well, in the beginning it was a peer pressure thing of just trying to fit in and look cool with a cigarette. But it [cigarette smoking] seemed like it took some stress off and everything.

Treatment First participant Perry recalled:

My aunt use to have me light her cigarettes at the age of five when she couldn't light her own cigarettes. So I learned how to press the lighter ... then I started stealing cigarettes from her when she was passed out, when she was drunk, and I started smoking alone and because it's helping me for stress. They [cigarette smoking] help calm me down, knowing that bad stuff was happening to me, so I guess I just started smoking.

Environmental Influences

All participants iterated environment influences, both physical and social, having a significant role as to why they initiated smoking at a young age. First, participants described their physical environment as an enabler to smoking initiation, specifically, their home. Participants received cigarettes from a parent, guardian or sibling in the home environment. One participant recalled:

I guess taking cigarettes from my dad. He use to give me cigarettes when I was little...some of his friends thought it was cool watching me smoke, I guess (Vincent; US, Pre-C).

Steve, an unsheltered participant, recalled accessing or stealing cigarettes from a parental guardian or sibling in the home.

First, I stole some cigarettes from my dad. Thought I was being slick and he made me smoke a whole pack of cigarettes. I guess he thought maybe I'd get sick or something but I didn't. I just kept smoking after that and smoking all the time. I think it started when I was 16.

Octavio, a Treatment First participant, shared:

Just friends. Sneaking into the barn, stealing our uncles cigarettes or our brothers cigarettes or something like that. Best of my knowledge, that's how it started. That's when everything started.

The physical environment not only enabled them to start smoking because of access to cigarettes but also by exposure. Participants related stories of observing the behavior by family members at home. One participant described:

Both my parental figures were smokers, plus there was an element of rebellion, even though they didn't like say, "Here, try cigarettes!" The people around me, that was the age that I began to rebel against any form of authority. It [cigarette smoking] started like that, but then they're [parents] like, "If, you're going to do it, do it from home (Nathan, TF, Pre-C)."

Barry, a Housing First participant stated:

Plus I was around it with all my family smoked. And I just picked it up...like I said, I was still young, and kids and even teenagers just learn from what they see. And I was around it. My grandparents both smoked, all three of my aunts, my mom, my uncle, everybody.

Secondly, a majority of participants discussed the social environment as a significant contributor for initiating cigarette smoking. They discussed cigarette smoking as normalized behavior among their peers. Participants decided to try cigarette smoking due to peer pressure and the need for acceptance among their social circle. One participant recalled:

My friend smoked. He said, "Try it. It's good." I got sick... I didn't like it. But, I kind of started smoking anyways because it looks cool and because all these other girls liked the guys who smoked (Remy, US, C).

Another participant recalled:

I think I started around 13 years old. That was like, experimenting with cigarettes, not really smoking daily. Kind of like when I went to school with my friends, that's where I would smoke. I wouldn't inhale at the time. I was just going through the motions to be part of the group. It

wasn't until I was about 16 to 17 that I began to ask drunks to go into the store to buy cigarettes or ask older people. Then, I began smoking all the time (Felipe, HF, Pre-C).

Access and Availability to Cigarettes

Participants discussed accessibility and availability of cigarettes during their youth. The concepts of access and availability in public health are related, but are substantially different. Within social sciences, availability is a characteristic defined as the mere existence of a product that meets the needs of the individual. Access is the ease to which an individual can physically or monetarily reach the product (Penchasnsky & Thomas, 1981). For instance, a product (cigarettes) may be available to an individual at stores, but if that store is not within a certain distance or if the individual does not have money to purchase the product, then it is not accessible.

In the context of this project, availability is referred as the existence of tobacco products, including cigarettes for personal consumption. Access refers to an individual's ability to easily obtain cigarettes for personal consumption. During the in-depth individual interviews, participants were queried on where they obtained cigarettes or tobacco products and from where. As discussed in the environmental section, participants received or stole cigarettes from family or friends. In addition, participants recalled receiving free products from tobacco companies. Henry, a Housing First participant, reminisced receiving tobacco products during youth:

It was the cool thing to do. Everybody had a little Marlboro box. That's what I smoked. It was Marlboro Reds. You know when I went to school they had smoking areas in the schools. So, that was the cool thing if you got to go in the smoking area. You were in the in crowd. Plus, around here, Phillip Morris would mail you cigarettes when you turned 16. So you would get a little starter pack with six of them. Also, every year at the fair they use to give them out for free. They stopped that. Just like they stopped the smoking areas in the school.

Table 5: *Summary of Reasons for Initiating Cigarette Smoking*

Theme	Axial Codes	Open Codes: Categories	Open Codes: Initial codes
<i>Reasons for Initiating Cigarette Smoking</i>	Environmental influence	Environmental influence – physical location	<ul style="list-style-type: none">• Access to cigarettes – receiving cigarettes at home through family members
		Environmental influence – social	<ul style="list-style-type: none">• Peer pressure to try cigarettes from friends or family members• Social norms of smoking – seeing family members smoke at home and in public, seeing friends smoke at home and in public• Family members smoke cigarettes• Friends smoke cigarettes• Interpersonal relationships between individual and friends, individual and family members
	Intrapersonal influence	Sense of Being	<ul style="list-style-type: none">• Curiosity about cigarette smoking experience• Cigarettes to satiate boredom• Individual feels relaxed when smoking cigarettes
	Access and availability to cigarettes	Access to cigarettes	<ul style="list-style-type: none">• Access to cigarettes by a friend or family member
		Availability to cigarettes	<ul style="list-style-type: none">• Availability to cigarettes at the home or through social circles

Reasons for continuing to smoke cigarettes

This section details the results and coding process from the second emerged theme, reasons for continuing cigarette smoking. Participants reported continuing to smoke cigarettes due to: environmental influence enabling smoking maintenance, access and availability to cigarettes, intrapersonal struggles, lack of comprehensive smoke-free policy, cigarette smoking used to self medicate, and community engagement and social norms of cigarette smoking. At the end of this section the coding analysis is presented in Table 6.

Environmental Influence on Cigarette Smoking Maintenance

Similar to influencing cigarette smoking initiation, the physical and social environment influenced participants' decision to maintain the behavior. Participants stressed easy access and availability of cigarettes, including living in close proximity to cigarette vendors and the ability to find cigarette butts on the street, assisted in maintaining their cigarette smoking habits. Individuals residing in shelters iterated the lack of comprehensive smoke-free policies enabled their ability to continue smoking directly outside of shelters and temporary housing. It seems that the permissive smoke-free policies did not deter individuals from continuing to smoke. Smoking directly outside of shelters was commonly done among the homeless and creating an environment where smoking is the norm and part of being homeless. Thus, some described continuing to smoke cigarettes as part of their life style while being displaced. Upton, an unsheltered participant, vividly described the experience:

I feel like being on the streets or being misplaced enables me to be a smoker. Everyone I meet on the streets, in a shelter, or whoever else is misplaced like me, they all smoke. It makes me smoke because they smoke...Wherever we go, the streets, shelter, other shelters, and more shelters, they don't allow us to smoke inside but when we are inside it smells of smoke. When we are outside, everyone is smoking outside. They smoke outside the building near the door, near me. It's everywhere. It's life.

At the social level, participants were influenced to continue smoking from observing their friends, family, or peers smoke cigarettes. Participants reported being offered a cigarette when in a social setting where others are smoking. Sharing cigarettes among family and friends was described as a common occurrence and part of the social norm.

Even if I don't have intentions to smoke and I go near those people or I go to those places I am bound to have either someone offer me a cigarette or a cigarette butt or I will inevitably ask for one because I see it and my mind thinks I want it. I will want one if they are doing it because I'm bored and I want to do what they are doing. It's a weird situation (Warner, US, Pre-C).

Access and Availability to Cigarettes

As mentioned previously, access and availability of cigarettes influenced not only the initiation of cigarette smoking but also the maintenance of the habit. Participants explained that cigarettes are readily available at convenience stores, from friends or family members, the streets, ashtrays, and dumpsters. Participants are able to access cigarettes either by purchasing them at stores or by individuals on the street, having friends or family members purchase cigarettes on their behalf, stealing, or panhandling from strangers on the street.

I just don't purchase them, absolutely not. It's almost stupid to buy them because it seems everyone misplaced around here or at St. Johns or at Wayside, or wherever always has one to give. And if they don't have one to give you can just find them half smoked on the ground. You just pick them up and smoke the last little bit of it (Upton, US, C).

Intrapersonal Struggles

Intrapersonal struggles were identified as reason for maintaining smoking habits. A number of participants expressed nicotine addiction and alcohol use as behavioral triggers for smoking.

If I drink a beer, I got to have a cigarette. If I don't drink, I would hardly smoke a cigarette. Most things that make me smoke is socialized drinking. Drinking and smoking, it goes hand and hand. I don't have a drinking problem, but I do know I have a smoking problem. I guess if maybe I stopped drinking so much then I wouldn't smoke (Warner, US, C).

Others expressed cigarette smoking as a means to self medicate mental health issues such as reducing stress, providing a sense of relief, and calming nerves. Similarly,

individuals related stories of continuing to smoke cigarettes as a mechanism for minimizing anxiety and depression.

Just like when I get mad or angry or even depressed, I will smoke a cigarette...I always want one when I am in that state of depression or anger or anxiety or whatever (Steve, US, Pre-C).

Similarly, Quinn, a Treatment First participant, explained:

In a day where there is a lot on my plate, I tend to smoke a little more or if I have a lot of anxiety, which I suffer from anxiety issues. If I have a lot of anxiety or I'm having mood swings, because I'm bipolar, so I am having a lot of different mood swings, I'll probably smoke a pack and a half.

In combination, participants iterated inabilities to break daily habits or routines as a reason for continuing smoking, despite disfavoring the behavior or questioning the perceived pharmacological effects.

Truthfully? I don't really enjoy it anymore. It's just a habit. I'm under a lot of stress. I know this sounds crazy but it doesn't relieve the stress at all, but in my mind it does. Physically, it doesn't but my mind says, "Smoking cigarettes will calm you down". But it doesn't (Yoshi, US, C).

Henry, a Housing First participant, shared a similar experience:

That's (cigarette smoking) turned into a really lazy habit... It takes off some stress, or at least, I think it takes off some stress. I know its supposed to be a stimulate and speed you up but then I think it's supposed to slow me down. It's weird. I don't think about many things when I smoke them. I really like them in the morning, that's what keeps me hooked.

Further, participants experienced a positive disposition from cigarette smoking. Specifically, cigarette smoking gives a sense of enjoyment, personal possession, and is viewed as a self-reward.

You know I ain't got nothing. I don't have a home, I don't have no family, I don't have no possessions, I don't have no money. So, when I do get a cigarette its like I said, its like dessert. It's like I own something that's mine and no one else can have it...I guess if I quit cigarettes it would be

like what do I do now? What do I have? What can I say is mine? Nothing [sic] (Steve, U.S., Pre-C).

Finally, personal attitudes and beliefs about cigarette smoking justified maintaining their cigarette smoking habit. Participants favored the smell and taste of cigarettes. In addition, participants articulated the belief that cigarette smoking is a safer alternative to illicit drug and alcohol use.

I'm only smoking cigarettes just because I don't want to get, you know, tied up into maybe smoking pot or doing drugs or doing other things. I think cigarette smoking is the safest alternative to all the other crazy stuff that someone who is misplaced can do. If I feel like I'm going to get off into something else, then something bad will happen. But, if I smoke a cigarette, then I'll just get real dizzy and want to sit down. You know what I'm saying? ... It's not good but it's a better alternative to whatever else I could get on the streets (Upton, US, Pre-C).

Finally, participants associated cigarette smoking with positive feelings, balance, and structure in their lives while experiencing homelessness.

Smoking just makes you feel structured. It's like you know you have to or are going to do it when you wake up, when you eat, between classes, and before bed. It's almost like an enjoyable thing because it's the only structure in your life... It gives us some relief (Quinn, TF, C).

Lack of Comprehensive Smoke-Free Policy

Participants identified lack of comprehensive smoke-free policies and smoke-free housing policies as enablers to maintaining cigarette smoking. Lack of comprehensive smoke-free policies allows individuals to smoke directly outside or near the shelter, allowing individuals to directly observe cigarette smoking and exposing them to secondhand smoke.

You see them, you know. Lighting a cigarette that just makes you want to smoke, you know? It's just the people and the environment. I see the people smoking and I want to smoke. I'm in an environment where we can smoke so I want to smoke. That's the temptation that you have. It's harder

to do (quitting cigarette smoking) when you're around other smokers (Jackson, TF, Pre-C).

Lack of smoke-free housing policies enable participants to continue cigarette smoking inside their home.

... Being in places that allow smoking. My apartment allows smoking, so I smoke. My neighbor's smoke and my body tells me I should smoke. My place smells like smoke (Christopher, HF, C).

Cigarettes Used to Self-Medicate

A number of participants described cigarette smoking as a self-medicating method to cope with stress, anxiety, depression, anger, or withdrawals from drugs. Others explained that cigarette smoking is used a substitute for drinking alcohol or illicit drug use.

I got a lot of emotional stuff coming out now in my life since I've gotten clean that I used to hide from them with drugs and alcohol. And for me to be able to deal with stuff like this, I'm going to have to continue smoking. I mean, it's because of all that stress I cant quit (Perry, TF, C).

Community Engagement and Social Norms of Cigarette Smoking

A number of participants described cigarette smoking as a social norm. They expressed family and friends finding cigarette smoking socially acceptable and a common behavior. All participants disclosed having friends and family members who smoke cigarettes, electronic cigarettes, or use smokeless tobacco products.

Many participants linked cigarette smoking to camaraderie or as a way to foster relationships with others. Cigarette smoking provided a sense of community among individuals who are also experiencing homelessness. Remy, an unsheltered participant, details this experience:

Smoking is not just for the nicotine and addiction part. There is a social thing that is very much important. There is osmosis of congregation. There is a sharing of the smoke, sharing of things together. I mean you can share food and someone else might not agree but with smoking, everybody smokes. You will never hear, “Oh, I don’t smoke that”. There is just no such thing. We all share smoke together and we don’t care if its mental or not. There is a communal sense when we smoke together. There is a bonding. That is the most important part of smoking for homeless people.

Table 6: Analysis of Reasons for Continuing Cigarette Smoking

Theme	Axial Codes	Open Codes: Categories	Open Codes: Initial codes
<i>Reasons for Continuing Cigarette Smoking</i>	Environmental influence	Life style	<ul style="list-style-type: none"> Life style
		Environmental influence – physical location	<ul style="list-style-type: none"> Accessibility to cigarettes at home or on the streets Living in close proximity to cigarette vendors Permitted smoke breaks throughout the day Lack of a smoke-free housing policy Lack of a comprehensive smoke-free policy at shelter
	Access and availability to cigarettes	Environmental influence – social	<ul style="list-style-type: none"> Social norms of smoking – family members smoke cigarettes Social norms of smoking – family members smoke electronic cigarettes Social norms of smoking – friends smoke cigarettes Receiving or giving a cigarette as a peace offering Sharing cigarettes with friends or acquaintances Interpersonal level of influence
		Availability to cigarettes	<ul style="list-style-type: none"> Purchasing cigarettes on the street Friends or family members buying cigarettes for them Stealing cigarettes on the street Panhandling strangers for cigarettes
	Intrapersonal struggles	Psychological reasons for continuing cigarette smoking	<ul style="list-style-type: none"> Cigarettes used to satiate boredom The need to smoke cigarettes when drinking Cigarette cravings
		Inability to break daily habits	<ul style="list-style-type: none"> Individual smokes because of habit Smoking cigarettes is part of their daily

Theme	Axial Codes	Open Codes: Categories	Open Codes: Initial codes
			lifestyle routine
		Mental health issues	<ul style="list-style-type: none"> • Mental health issues • Smoking cigarettes reduce stress • Cigarette smoking produces a 'head change' • Cigarette smoking relieves nerves or reduces nervousness • Nicotine addiction • Provides a sense of relief
		Cigarettes give a positive disposition	<ul style="list-style-type: none"> • Cigarettes give a sense of enjoyment • Individual enjoys the experience of smoking a cigarette • Cigarette smoking is a self-reward • Cigarettes are part of a persons sense of identity
		Attitudes about cigarette smoking	<ul style="list-style-type: none"> • Individual believes they will die and would prefer dying by cigarettes than by anything else • Individual attitudes about the benefits of cigarette smoking • Cigarette smoking makes them feel relaxed • Individual enjoys the taste of smoking cigarettes
		Beliefs about cigarette smoking	<ul style="list-style-type: none"> • Beliefs about cigarette smoking • Cigarette smoking is a safer alternative to doing other drugs • Cigarette smoking is a substitute from drugs and alcohol
	Lack of Comprehensive Smoke-Free Policy	No smoke-free housing policy	<ul style="list-style-type: none"> • Attitudes about smoke-free policies • Beliefs about smoke-free policy • Lack of a smoke-free housing policy • Lack of a comprehensive smoke-free policy at shelter
		Smoke breaks through out the day	<ul style="list-style-type: none"> • Designated smoke breaks during the day • Designated smoking area
	Cigarettes used to self medicate	Cigarettes as a replacement for drugs or alcohol Cigarettes as a coping mechanism	<ul style="list-style-type: none"> • Cigarettes used a substitute for alcohol • Cigarettes used a drug replacement recovery tool • Cigarettes used as a coping mechanism
	Community Engagement and Social Norms of Cigarette Smoking	Sense of community/camaraderie with cigarettes	<ul style="list-style-type: none"> • Reasons to smoke -camaraderie • Community relationships/level • Designated smoking areas • Reason to smoke – giving or receiving a peace offering
		Social norms of cigarette	<ul style="list-style-type: none"> • Attitudes- friends/family approval of smoking

Theme	Axial Codes	Open Codes: Categories	Open Codes: Initial codes
		smoking	<ul style="list-style-type: none"> • Attitudes- friends/family are neutral about smoking • Personal attitudes about smoking • Family members smoke cigarettes • Friends smoke cigarettes • Family members smoke electronic cigarettes • Friends use smokeless tobacco products

Smoking Cessation Characteristics

As shown in Table 7, the majority of participants (92.9%) reported knowledge of smoking cessation (products or programs). Specifically, the number of reported smoking cessation attempts ranged between 0 to 4 with an average of 2.25. Almost all of the participants (82.1%) were able to name at least two forms of smoking cessation.

A little more than half (53.6%) of the total study ($N=28$) sample was knowledgeable about where to access smoking cessation. Participants in the unsheltered group were less likely to identify where to access smoking cessation (9.1%) compared to participants in the Housing First (87.5%) and Treatment First (77.8%) groups.

All participants were able to identify at least one health harm from smoking cigarettes. Participants in the Housing First (100.0%) and Treatment First (77.8%) group were significantly more likely to name 3 or more health harms compared to the unsheltered group (18.2%).

The majority (71.4%) of the sample reported trying to quit cigarettes in the past. Specifically, 50.0% of the Housing First, 77.8% of the Treatment First and 81.8% of the unsheltered group reported a past quit attempt. Of those that reported a past quit attempt, 50% reported one past quit attempt, 40% reported at least two quit attempts and 10%

reported three or more past quit attempts. Additionally, of those who reported a past quit attempt, only 30% tried quitting in the past 12 months.

When queried, a majority (71.5%) of the study sample said they are interested in quitting cigarette smoking. Specifically, individuals in the Housing First group (75.0%) and Treatment First group (100.0%) were more likely to report interest in quitting cigarettes compared to those in the unsheltered group (45.5%). Additionally, of those who were interested in quitting smoking ($n=20$), the majority (80.0%) indicated interest in quitting cigarette smoking in the next 6 months.

Table 7: *Smoking Cessation Characteristics of Study Sample by Housing Program*

Characteristics	Housing Status							
	Housing First (N=8)		Treatment First (N=9)		Unsheltered n/N (%)		Total Population (N=28)	
	n/N	%	n/N	%	n/N	%	n/N	%
Knowledge of Smoking Cessation								
Yes	7/8	(87.5%)	9/9	(100.0%)	10/11	(90.9%)	26/28	(92.9%)
No	1/8	(12.5%)	0/9	(0.00%)	1/11	(9.1%)	2/28	(7.10%)
Number of Smoking Cessation Known								
0	1/8	(12.5%)	0/9	(0.00%)	1/11	(9.1%)	2/28	(7.10%)
1	0/8	(0.0%)	1/9	(11.1%)	2/11	(18.2%)	3/28	(10.7%)
2	7/8	(87.5%)	8/9	(88.9%)	8/11	(72.7%)	23/28	(82.1%)
Knowledge of Where to Access Smoking Cessation								
Yes	7/8	(87.5%)	7/9	(77.8%)	1/11	(9.1%)	15/28	(53.6%)
No	1/8	(12.5%)	2/9	(22.2%)	10/11	(90.9%)	13/28	(46.4%)
Knowledge of Health Harms from Cigarette Smoking								
Yes	8/8	(100.0%)	9/9	(100.0%)	11/11	(100.0%)	28/28	(100.0%)
No	0/8	(0.0%)	0/9	(0.0%)	0/11	(0.0%)	0/28	(0.0%)

Characteristics				Housing Status							
				Housing First (N=8)		Treatment First (N=9)		Unsheltered n/N (%)		Total Population (N=28)	
				n/N	%	n/N	%	n/N	%	n/N	%
Number of Health Harms From Cigarette Smoking											
0-2				0/8	(0.0%)	2/9	(22.2%)	9/11	(81.8%)	11/28	(39.3%)
3 or more				8/8	(100.0%)	7/9	(77.8%)	2/11	(18.2%)	17/28	(60.7%)
Past Quit Attempt											
Yes				4/8	(50.0%)	7/9	(77.8%)	9/11	(81.8%)	20/28	(71.4%)
No				4/8	(50.0%)	2/9	(22.2%)	2/11	(18.2%)	8/28	(28.6%)
Number of Quit Attempts											
1				2/4	(50.0%)	2/7	(28.6%)	6/9	(66.7%)	10/20	(50.0%)
2				1/4	(25.0%)	4/7	(57.1%)	3/9	(33.3%)	8/20	(40.0%)
3 or more				1/4	(25.0%)	1/7	(14.3%)	0/9	(0.0%)	2/20	(10.0%)
Quit Attempt in past 12 Months											
Yes				1/4	(25.0%)	3/7	(42.9%)	2/9	(22.3%)	6/20	(30.0%)
No				3/4	(75.0%)	4/7	(57.2%)	7/9	(77.8%)	14/20	(70.0%)
Interest in Quitting Cigarette Smoking											
Yes				6/8	(75.0%)	9/9	(100.0%)	5/11	(45.5%)	20/28	(71.5%)
No				2/8	(25.0%)	0/9	(0.0%)	6/11	(54.6%)	8/28	(28.6%)
Interest in Quitting Cigarette Smoking in the Next 6 Months											
Yes				6/6	(100.0%)	6/9	(66.7%)	4/5	(80.0%)	16/20	(80.0%)
No				0/6	(0.0%)	3/9	(33.3%)	1/5	(20.0%)	4/20	(20.0%)

Access and Availability of Cigarettes

Access and availability of cigarettes was a repetitive concept and the third theme that emerged from the data. Participants attributed initiating and continuing to smoke

cigarettes in part due to the easy access and availability of cigarettes. Easily accessing and the abundant availability of cigarettes contributes to a pro-tobacco environment.

Easy access and availability of cigarettes emerged as a major concept when discussing the barriers to smoking cessation. Lack of access and availability of cigarettes was identified as a facilitator to smoking cessation. Due to the plethora of information and the consistent repetition throughout data analysis, access and availability to cigarettes is a worthy theme on its own.

This section details the results and coding process from the third emerged theme, access and availability of cigarettes. The section is presented in five subsections: alternative smoking behaviors, sharing cigarettes with friends, peers, or family members, panhandling for cigarettes, quarter cigarettes, and roll your own cigarettes. Following this section is the coding process presented in Table 8.

Alternative Smoking Behaviors

Participants shared experiences with observing and participating in alternative smoking behaviors. Virtually all participants engaged in alternative smoking behaviors either currently or in the past. Participants described easily accessing and smoking available cigarettes or cigarette butts found on the ground, ashtrays, or trashcans. In many cases, participants engaged in this behavior because of desperation for a cigarette and described the behavior as shameful.

I've gone to the courthouse because they have those ashtray stands outside. I would go through and pick out some cigarette butts. If the butts are long enough I will just smoke them right there... I mean, it's embarrassing, but sometimes you got to do what you got to do (Tanner, US, Pre-C).

You pick them up (used cigarettes) and smoke the last little bit of it. Sometimes you can find ones that are like three-fourths full. Those are

gold. Some people don't like doing it but let me tell you, everyone does it. Everyone smokes and everyone will do anything to get that fix (Upton, US,C).

Sharing Cigarettes with Friends, Peers, or Family Members

A majority of participants explained accessing and receiving cigarettes from friends, peers, or family members. Sharing cigarettes amongst each other was an easy way to access cigarettes at no cost and perceived as a form of caring.

We all kind of look out for each other and you know, if somebody gets some, we share. New guy comes in, we'll look out for him (Octavio, TF, C).

...They just give you a cigarette. I see a couple of long ones (cigarettes) in there (ashtray) like somebody just put it out and I was going to get it. Then one of my buddies was like, "What are you doing? You don't need to do that. Here, just take this one." We're pretty good like that...share with each other, make sure everybody got something. If it's a new guy and he needs to smoke, then we will help. If a smoke is all you need to get through this day then so be it. We share...It's not a big deal (Quinn, TF, C)

A majority of participants also reported giving spare cigarettes to others in need. They described sharing cigarettes as common courtesy and associated the behavior as a means for giving back to the community. Remy, an Unsheltered participant, explains:

We always bum one off of each other. I will get a pack and its like I got to give some away because they gave some to me before. It's a sharing thing.

If a person asks me for a cigarette and I don't know them, I will probably give them one because I know what it feels like to need one. I share because I don't want them to feel like I do (Xavier, US, Pre-C).

Panhandling for Cigarettes

If cigarettes were unavailable from friends, peers, or family members, participants panhandled for cigarettes from strangers. This was a common avenue for accessing

cigarettes on the street. In many cases, participants received cigarettes for free from strangers.

If they don't have one then you can always ask someone on the street and there is a good chance they will share (Aaron, US, Pre-C).

Provided I have money, I buy a pack. I don't have money now. So, I'm bumming cigarettes off people off the street...I bummed maybe five or six...this morning (David, HF, Pre-C).

Quarter Cigarettes

In a few cases, accessing cigarettes on the street came at a price. Participants described bartering or purchasing single cigarettes from strangers for a quarter.

Conversely, participants described selling single cigarettes to make a profit. Octavio, a Treatment First participant, stated:

On the streets you can buy a single cigarette for like a quarter. A quarter! Can you believe that? Imagine all the quarters they can get from selling their food stamps. It's a crazy market out there.

Roll your own Cigarettes

Participants described rolling their own cigarettes as a means of accessing and smoking cigarettes. This process refers to cigarettes made from loose tobacco and rolling paper. Participants purchase loose tobacco in stores or use scraps of tobacco from cigarette butts found on the street. A few participants roll their own cigarettes with rolling paper purchased in stores, found on the streets, or recycled from used cigarette butts. Participants explained that this method is a cheaper alternative to quarter cigarettes or packs of cigarettes purchased in stores.

I would go through and pick out some cigarette butts. If the butts are long enough, I will just smoke them right there. If there aren't any long enough then I collect a few and take the tobacco out and re-roll them in some paper and smoke them. It's a lot cheaper. I mean, it's a bit embarrassing, but sometimes you got to do what you got to do (Tanner, US, Pre-C).

Table 8: *Analysis of Access and Availability of Cigarettes*

Theme	Axial Codes	Open Codes: Categories	Open Codes: Initial codes
<i>Access and Availability of Cigarettes</i>	Access and availability to cigarettes	Alternative Smoking Behaviors	<ul style="list-style-type: none"> Desperation- The only way to get a cigarette is from the ground Describing others engage in alternative smoking behaviors Participating in alternative smoking behaviors in the past Ashamed to engage in alternative smoking behaviors Currently engages in Alternative smoking behaviors
		Sharing cigarettes with friends, peers, or family members	<ul style="list-style-type: none"> Currently engages in some form of sharing cigarettes Sharing cigarettes as a means to give back to others Describing others sharing cigarettes Panhandling strangers for cigarettes Describing past experiences of sharing cigarettes with others Selling cigarettes to others
		Panhandling for cigarettes	<ul style="list-style-type: none"> Panhandling strangers for cigarettes Accessing cigarettes on the streets
		Quarter cigarettes	<ul style="list-style-type: none"> Purchasing or selling cigarettes on the street for a quarter
		Roll your own cigarettes	<ul style="list-style-type: none"> Currently rolling your own cigarettes – experience Describing others who roll their own cigarettes Describing past experiences of rolling your own cigarettes

Barriers to Smoking Cessation

This section details the results and coding process from the fourth emerged theme, barriers to smoking cessation. The section is presented in nine subsections: environmental influence, access and availability to cigarettes, intrapersonal struggles, limited access to care, inaccessibility to smoking cessation, community engagement and social norms of cigarette smoking, policy, cigarettes used to self medicate, and low priority.

Barriers to smoking cessation were varied between participants identified in the Housing First, Treatment First, and unsheltered group with a few exceptions.

Comparisons of the barriers to smoking cessation between groups are presented in section seven. At the end of this section is the coding analysis presented in Table 9.

Environmental Influence

Participants reported both the social and physical environment as negatively impacting their decision to quit smoking. As discussed earlier, participants stressed easy access to cigarettes both in proximity to cigarette vendors and availability from friends, family, or strangers. Participants believed easy access and availability to cigarettes created temptations to smoke. This situation is escalated by normality of smoking cigarettes among participant's social circles. Observing other people smoke cigarettes increases temptation to smoke a cigarette themselves, hindering them from smoking cessation.

Further, participants discussed the physical environment as fostering cigarette smoking temptation. Specifically, shelters and temporary program housing do not implement comprehensive-smoke free housing. Participants explained that they are not permitted to smoke inside the building but may smoke outside the building. Regardless of where they smoke, the residual smell of cigarettes follows smokers inside buildings, creating an additional layer of temptation. The residual cigarette smoke smell combined with observing others smoke cigarettes creates an enabling environment for participants to continue smoking and disables them from smoking cessation. Octavio described the experience:

Since I smell it (cigarette smoke), I want it. It's the temptation of it all around me. I think I would think of it less if other people didn't smoke it

so much around me. And its like, they all smoke it, then they smell of it, then they come inside and the inside of the building smells like it. It's just everywhere. It's the environment.

Liam, a Treatment First participant, shared a similar sentiment:

The hardest part for me just, you know, if I go outside and everybody's out there smoking that just makes me want to smoke even more.

Access and Availability to Cigarettes

As detailed in the previous sections, access and availability to cigarettes influenced the initiation and maintenance to continue cigarette smoking, posing a threat to smoking cessation. Easy access and availability to cigarettes was not only identified by participants in the traditional sense of the ability to purchase cigarettes or receiving them from friends and family members but also in unconventional and unsafe ways such as engaging in alternative smoking behaviors, sharing cigarettes, and rolling their own cigarettes. Additional avenues for easily accessing cigarettes included panhandling on the streets, purchasing and selling single cigarettes on the street, and bartering and stealing cigarettes. The pervasiveness of these behaviors was identified as barriers to smoking cessation by consistently presenting temptation to indulge in the behavior. Henry, a Housing First participant, explained:

I would like to get off of them (smoking cigarettes) because it's doing nothing but tearing me up. It's just real... I don't know, its just such an easy thing to give into because everybody smokes around here. I know I can walk down 4th street and within four or five people I will have a couple of cigarettes.

Intrapersonal Struggles

Intrapersonal struggles emerged as a common theme when queried about barriers to smoking cessation. Participants discussed psychological and mental health barriers to

quitting including cigarette cravings, nicotine addiction, and smoking cigarettes to cope with stress, depression, and anxiety. Participants describe enjoying the experience of smoking for its relaxing effects and associates the behavior with self-reward. Similarly, cigarette smoking provided a sense of being by giving participants a possession they can call theirs, preventing feelings of ‘losing control’, and lessen the reality of experiencing homelessness. Other participants struggled with quitting because smoking cigarettes were identified as part of their identity and added value to their lives. Felipe explained that smoking cigarettes was “part of my persona, without smoking, I am nothing”. These perceived benefits of smoking conflict with knowing its negative impact on health. Steve, an unsheltered participant, illustrated the conflict:

I know I’d feel better if I quit smoking, save my lungs and everything else. So, that’s it. I know what it feels like to be off of cigarettes and it feels good. But, I don’t know if it’s a good time for me to back off of it. Cigarettes and chewing tobacco are like my dessert. It’s my security blanket. It’s my crutch, I guess. I know that I don’t need it but it need it. My body says no but my mind says yes.

Another unsheltered participant, Xavier, describes the struggle:

There something that can ease your mind from all your troubles out here if its not just for that little second of a day... When I do smoke, I can sit back and smoke a cigarette and relax for a moment. I wont be thinking about the day today, what’s going on, where I’m going to be at tomorrow because I don’t know what I’ve got to go through with these people... I know its not good for you but if you take that away from me right now, I would be a little bit more mentally ill than I am now... I’m not trying to say cigarettes are good for you...it might be killing me but they relax me and keeps me out of a lot of trouble sometimes.

Some explained that cigarette smoking is part of their daily life style, a habit, and as an activity to satiate boredom. They stressed the difficulty of breaking habits.

I’ve been smoking for so long, but its like breathing. So when you talk about quitting cigarettes its like me talking to you about quitting breathing.

It just seems impossible and if you were to stop doing it and succeed, then you would die (Aaron, US, C).

A number of participants expressed negative attitudes towards smoking cessation. Participants expressed distaste or ambivalence towards trying smoking cessation based on unsuccessful past experience or negative experiences from friends and family members. A minority of participants articulated low perceived seriousness of health problems from smoking, meaning they did not perceive the health consequences of smoking to be an issue. However, participants agreed that the health consequences of smoking would become an issue in the future.

You know I've read a lot of literature about the repercussions about smoking cigarettes and I guess I must be exceedingly stubborn because I don't even care what the health issues are. That is not my concern. My only concern is until I am affected by any of those issues is when can I get another cigarette (Felipe, HF, Pre-C).

Some participants held negative beliefs about smoking cessation. Specifically, a number of individuals questioned the effectiveness of smoking cessation and were concerned of the potential side effects.

My mom tried to take that Chantix stuff, you know, that smoking cessation pill. She had a bad reaction to that. She was hallucinating and everything else. That scared me. I was like, "I think I will just take my chances with cigarettes! (Henry, HF, C)."

A few described having a low perceived susceptibility of the health problems from cigarette smoking, meaning they did not believe they would personally experience any health consequences from cigarette smoking.

You know everybody always says, "Oh, that will never happen to me", and those are the people usually it happens to. I don't want to say it like that, but I want to say that I think that because I don't smoke that often, and this sounds crazy, that I don't know, I guess I probably won't have that big of a problem (Upton, US, C).

Finally, a number of participants identified as being in the pre-contemplation stage of smoking cessation. Indicators to identify this stage are participants stating they have never tried to quit smoking in the past, are not currently interested or perceived to be ready to quit in the immediate future, dismay because of a failed attempt or relapse to smoking cessation in the past, or the belief that they intend to quit further than 6 months in time.

Limited Access to Care

Participants identified lack of staff, medical, and community encouragement to quit smoking. Participants were unable to identify community events, programs, or outreach related to smoking cessation, but were able to identify health events or programs throughout the community. A majority of participants reported lack of staff encouragement or empathy to quit smoking. Kirk, a Treatment First participant, stated:

There was one staff (member) I remember he was wanting me to quit, JC, but he's here no longer, but the rest of them, they don't really seem to care.

A few participants reported lack of medical provider encouragement to quit smoking due to lack of access to a medical provider.

Inaccessibility to Smoking Cessation

Participants identified three factors to their inaccessibility to smoking cessation: cost of smoking cessation, inconvenience of smoking cessation, and lacking knowledge on where to access smoking cessation. A few participants had predisposed beliefs that smoking cessation products are expensive and programs are too time consuming. In addition to cost, smoking cessation programs and products are viewed as inconvenient for

their life style. For instance, participants believed smoking cessation programs meet too frequently, conflicting with their ability to travel from shelter to class. Most notably, participants did not know where to access smoking cessation programs and believed that smoking cessation products are only available at the store. Remy summed up the issue:

How do I get it? I don't know. Where to get it? At the store. How much is it? Probably too much. That's why no one homeless quits cigarettes. You can't afford the habit and you can't afford to break the habit.

Community Engagement and Social Norms of Cigarette Smoking

As discussed in the previous section, reasons for continuing cigarette smoking, community engagement and social norms of cigarette smoking are major reasons why participants maintain their smoking behavior and disable their decision toward smoking cessation. Participants discussed having a sense of community and forming camaraderie when smoking cigarettes with others. Individuals engaged in conversation, received acceptance, and formed friendships with other individuals experiencing homelessness or isolation.

You know like here we just bond over smoking. We don't really know anyone when we first arrive and so you go out back with the guys. They all smoking and offer a cigarette. It's like a peace offering or something or like a drink at a party (Kirk, TF, C)

Some participant's valued companionship from smoking cigarettes more than benefits from quitting. Zack, an unsheltered participant, explained:

When I'm with people I'm familiar with who smoke, it makes me smoke. I'd have to cut those people out of my life and I can't do that. Those are the only guys I have. I would be alone. I don't want to be alone.

Others illustrated cigarette smoking as a prominent social norm among their friends, families, and community. Almost all participants stated having friends and family

members who use some form of tobacco, either smoking cigarettes, electronic cigarettes, or using smokeless tobacco products. A number of participants explained that cigarette smoking was widely accepted among their family and social circles as well. The social norm of smoking adds another layer of temptation to engage in cigarette smoking and disengage in smoking cessation.

I have some distant cousins that smoke. I have immediate family members that smoke. My sister smokes... I don't think they care. But I got a couple of uncles and aunts that won't let you smoke in the car and stuff like that. It's really not – I don't think they have an issue with it at all (cigarette smoking). I don't – No one has ever – None of my family members have ever said, "You know you need to quit that smoke". Nobody ever said anything remotely negative about it (cigarette smoking) or the smell or anything. I think it's pretty common (Felipe, HF, Pre-C).

Policy

Participants discussed the difficulty to quit smoking cigarettes due to the policies implemented at the shelter or in temporary housing. For instance, participants in the Treatment First program explained that the administrators allow for several smoke breaks throughout the day. During these smoke breaks, participants have a choice to stay in the room or smoke outside the shelter. Most take advantage of this opportunity as a means to step outside, socialize with others, and smoke cigarettes. Quinn, a treatment first participant, stated:

But yeah, when we go out there we do it together. We talk, we laugh, we smoke. It's whatever. It's like recess. Sometimes guys will go out there any not smoke but just to hang out. But usually everyone smokes.

Participants discussed lack of comprehensive smoke-free policies enabling them to continue smoking cigarettes. Participants noted that they were not permitted to smoke inside the shelter but were able to smoke immediately outside. Exposure to the site and

smell of other individuals smoking outside created temptation to continue smoking.

Quinn described the situation as:

Out there in the back is where everyone smokes. That's where the ashtrays are, that's where the benches are, that's where everyone convenes and wants to smoke and mingle and talk and share... But out back its like you see the cigarettes, you smell the cigarettes, then you end up tasting the cigarettes. And its like we are allowed to smoke out there. There are no rules against it. There are no policies against it... The buildings rules and ashtrays make it easy.

Participants in temporary housing units described similar situations with the lack of smoke-free housing policies. In fact, a number of individuals explained that they were permitted to smoke inside their home.

My apartment allows smoking, so I smoke. My neighbor's smoke and my body tells me I should smoke. My place smells like smoke. It's everywhere (Christopher, HF, C).

Cigarettes Used to Self-Medicate

As referenced in earlier sections, participants discussed using cigarettes as a coping mechanism. Participants discussed using cigarettes as a substitute for drugs or alcohol or to cope with the effects of mental health issues, as suggested by their healthcare providers.

Low priority

Participants emphasized the need to focus on abstaining from other drug and alcohol addictions rather than cigarette smoking. Healthcare providers supported those attitudes by suggesting not abstaining from all addictions at once, rather focusing on reducing one addiction at a time. Participants further iterated smoking cessation as low priority compared to other pressing needs, highlighting the need to access housing, food, and jobs. Steve, an unsheltered participant, stated:

I can't see myself working on giving up something that I love when I'm trying to do other things in my life get sorted out. I have other priorities besides that, I mean, my health is a priority but quitting smoking is not. Maybe it will become a priority once I get all my other priorities in line.

Table 9: *Barriers to Smoking Cessation*

Theme	Axial Codes	Open Codes: Categories	Open Codes: Initial codes
<i>Barriers to Smoking Cessation</i>	Environmental Influence	Lifestyle	<ul style="list-style-type: none"> • Lifestyle
		Homelessness Environment – physical or social	<ul style="list-style-type: none"> • Homelessness • Environment – physical or social • Cigarettes are easily and readily accessible
		Smoke breaks throughout the day	<ul style="list-style-type: none"> • Smoke breaks throughout the day
	Access and Availability to Cigarettes	Alternative Smoking Behaviors	<ul style="list-style-type: none"> • Desperation- The only way to get a cigarette is from the ground • Describing others engage in alternative smoking behaviors • Participating in alternative smoking behaviors in the past • Ashamed to engage in alternative smoking behaviors • Currently engages in Alternative smoking behaviors
		Sharing cigarettes	<ul style="list-style-type: none"> • Currently engages in some form of sharing cigarettes • Sharing cigarettes as a means to give back to others • Describing others sharing cigarettes • Panhandling strangers for cigarettes • Describing past experiences of sharing cigarettes with others • Selling cigarettes to others

Theme	Axial Codes	Open Codes: Categories	Open Codes: Initial codes
		Access to cigarettes	<ul style="list-style-type: none"> • Purchasing cigarettes on the street • Fighting others to get cigarettes • Friends or family members buying cigarettes for them • Purchasing cigarettes from a store • Rationing cigarettes to make the pack last longer • Stealing cigarettes from others on the street • Accessing cigarettes on the street • Drawbacks of smoking – readily accessible
		Panhandling for cigarettes	<ul style="list-style-type: none"> • Panhandling strangers for cigarettes • Accessing cigarettes on the streets
		Quarter cigarettes	<ul style="list-style-type: none"> • Purchasing or selling cigarettes on the street for a quarter
		Roll your own cigarettes	<ul style="list-style-type: none"> • Currently rolling your own cigarettes – experience • Describing others who roll their own cigarettes • Describing past experiences of rolling your own cigarettes
		Availability of cigarettes	<ul style="list-style-type: none"> • Proximity to cigarette vendors • Drawbacks of smoking: readily available
	Intrapersonal Struggles	Psychological barriers to quitting cigarette smoking	<ul style="list-style-type: none"> • Cigarette cravings • Psychological • Co-occurring behaviors-smoking when drinking alcohol or doing other addictions
		Inability to break daily habits	<ul style="list-style-type: none"> • Intrapersonal level of influence • Cigarette smoking habits • Daily lifestyle routine

Theme	Axial Codes	Open Codes: Categories	Open Codes: Initial codes
		Mental health issues	<ul style="list-style-type: none"> • Mental health issues • Smoking cigarettes reduces stress, depression, and anxiety • Provides a sense of relief • Nicotine addiction
		Sense of being	<ul style="list-style-type: none"> • Cigarettes give a sense of identity • Having a cigarette gives a sense of ownership; fear of losing the sense of ownership • Cigarettes used to satiate boredom • Preventing the feeling of 'losing control' of oneself
		Negative attitudes about smoking cessation	<ul style="list-style-type: none"> • Negative attitudes about smoking cessation • Attitudes – feeling ambivalent about cigarette smoking • Negative attitudes – about quitting • Perceived seriousness of health problems from smoking • Perceived susceptibility of health problems from cigarette smoking
		Negative beliefs about smoking cessation	<ul style="list-style-type: none"> • Negative beliefs about quitting smoking • Negative beliefs about smoking cessation • Beliefs about quitting in the future • Beliefs about cigarette smoking • Perceived seriousness of health problems from cigarette smoking • Perceived susceptibility of health problems from cigarette smoking
		Pre-contemplation stage	<ul style="list-style-type: none"> • Participant has never tried to quit smoking in the past • Participant is not currently interested or ready in quitting cigarette smoking • Participant has experienced relapse from quitting cigarette smoking in the past • Beliefs – participant will quit in the future (defined as further than 6 months in time)

Theme	Axial Codes	Open Codes: Categories	Open Codes: Initial codes
	Limited Access to Care	Lack of staff encouragement to quit smoking	<ul style="list-style-type: none"> • Lack of staff encouragement to quit smoking • Organizational level of influence disabling smoking cessation
		Lack of medical encouragement to quit smoking	<ul style="list-style-type: none"> • Lack of medical encouragement to quit smoking • Organizational level of influence disabling smoking cessation
		Lack of community outreach	<ul style="list-style-type: none"> • Lack of community outreach • Community level of influence disabling smoking cessation
	Inaccessibility to Smoking Cessation	Cost of smoking cessation	<ul style="list-style-type: none"> • Cost of smoking cessation • Attitudes about smoking cessation • Beliefs about smoking cessation
		Inconvenience of smoking cessation	<ul style="list-style-type: none"> • Lack of convenience related to smoking cessation • Attitudes about smoking cessation • Beliefs about smoking cessation
		Uninformed on where to access smoking cessation	<ul style="list-style-type: none"> • Lack of knowledge about where to access smoking cessation • Attitudes about quitting cigarette smoking • Lack of community outreach • Organizational level of influence disabling smoking cessation
	Community Engagement and Social Norms of Cigarette Smoking	Sense of community/ camaraderie with cigarettes	<ul style="list-style-type: none"> • Reasons to smoke - camaraderie • Community relationships/level • Designated smoking areas • Reason to smoke – peace offering

Theme	Axial Codes	Open Codes: Categories	Open Codes: Initial codes
		Social norms of cigarette smoking	<ul style="list-style-type: none"> • Attitudes- friends/family approval of smoking • Attitudes- friends/family are neutral about smoking • Personal attitudes about smoking • Family members smoke cigarettes • Friends smoke cigarettes • Family members smoke electronic cigarettes • Friends use smokeless tobacco products • Reason for starting smoking: peer pressure • Reason for starting smoking: social norms • Reasons to smoke – interpersonal relationships/level • Social norms of smoking
	Policy	No smoke-free housing policy	<ul style="list-style-type: none"> • Attitudes about smoke-free policies • Beliefs about smoke-free policy • No Smoke-free housing policy • No comprehensive smoke-free policy at shelter
		Smoke breaks throughout the day	<ul style="list-style-type: none"> • Designated smoke breaks during the day • Designated smoking area
	Cigarettes used to self-medicate	Cigarettes as a replacement for drugs or alcohol	<ul style="list-style-type: none"> • Cigarettes used as a substitute for alcohol • Cigarettes used as a drug replacement recovery tool
		Cigarettes as a coping mechanism Healthcare provider suggesting not to give up all addictions at once	<ul style="list-style-type: none"> • Cigarettes used as a coping mechanism • Healthcare provider suggesting not to give up all addictions at once
	Low Priority	Quitting smoking cigarettes is not a high priority	<ul style="list-style-type: none"> • Attitudes about quitting cigarette smoking • Low priority for quitting smoking
		Healthcare provider suggesting not to give up all addictions at once	<ul style="list-style-type: none"> • Healthcare provider suggesting not to give up all addictions at once

Facilitators to Smoking Cessation

This section details the results and coding process from the fifth emerged theme, facilitators to smoking cessation. Participants described facilitators to smoking cessation they experienced in the past and suggested facilitators that would assist them in the future. The section is presented in six subsections: environmental influence, access and availability to smoking cessation, health, financial stability, intrapersonal influences, and access to care. Following descriptions in this section is the coding analysis presented in Table 10.

Facilitators to smoking cessation were varied between participants in the Housing First, Treatment First, and unsheltered group with a few exceptions. Comparisons of the facilitators to smoking cessation between each group are presented in the next section.

Environmental Influence

Participants expressed positive physical and social influence towards smoking cessation. In regards to physical, participants indicated mandatory smoking cessation during institutional stays such as incarceration, military, or hospital and mental health care facilities. However, the experience of smoking cessation varied from mandating quitting cigarettes without any assistance to being offered nicotine replacement therapy.

For instance, participants who were incarcerated stated:

...If I am in the county jail again. They make you quit. They do wean you off. They just make you quit. By default, you are quitting [sic] (Yoshi, US, C)

When they take you in the holding tank in county jail everybody does it. Everybody quits because jail doesn't give you anything to help you quit. So it's a bad excuse when people say they cant quit. (Remy, US, C).

Conversely, participants with experiences in the hospital stated:

I was in the hospital several times. You can't smoke in the hospital, so they give you patches. It...well, I would be willing to try those again if they upped the dosage (Gary, HF,C).

Further, participants noted that while they are serving time in an institution they are also unable to access cigarettes from friends, family, or on the street.

Participants described having temporary or permanent housing as facilitating smoking cessation. Simply having housing eliminates the daily uncertainty and stress of experiencing homelessness.

I really believe that once my homelessness ends that if I put all my effort into quitting smoking then I could do cold turkey. I'm really stressed out about my life and the direction it is going (Yoshi, US, C).

Further, participants suggested finding housing in an area that is distant from cigarette vendors to eliminate temptation created by easy access and availability of cigarettes.

If there is no stores within walking distance for me to buy cigarettes, then I think I would be able to quit easily because I have no choice... I guess I can place myself in the middle of nowhere, high in the mountains so I wont be tempted [sic] (Remy, US, C)

The concept of having structure or a daily routine in their life was identified as a facilitator to smoking cessation. Similar to having housing, structure or routine in their life style was associated with maintaining balance in their life, stability, and eliminating stressors related to homelessness.

Like I said, I am down to maybe just like one every two days if that (cigarette smoking)... But before I was smoking probably still a –maybe a pack a week. I cut back when I was in this program...It puts a little structure in our life from when you're homeless out there...(Nathan, TF, Pre-C).

Participants identified having a positive social environment as facilitating smoking cessation. When queried on what can make it easier for them to quit,

participants suggested avoiding smokers and places that permit smoking. Surrounding themselves with other individuals who do not smoke eliminates the temptation of observing others smoke. Upton, an unsheltered participant described:

If I stopped hanging around people who smoke, I'll quit smoking. If I stop going to places that allow smoke, I'll quit smoking. And if I ask a person for a cigarette and they don't give it to me, I'll quit smoking.

Bbeiber, an unsheltered participant, also described:

My lifestyle. If I don't drink then I won't smoke. If I don't hang around people that smoke then I won't smoke. It won't cause any temptation you know?

Medical provider and shelter staff support or encouragement to quit cigarette smoking was identified as an environmental influence. The majority of participants reported their healthcare providers recommending and encouraging them to quit smoking.

When queried, Gary, a Housing First participant answered:

All the time! All the time they want you to quit and not smoke.

Another participant said:

Well, my doctor's keep saying, "You need to go ahead and quit that smoking. It's not good and your health is bad". That makes me think of it. Sooner or later, I might (Warner, US, Pre-C).

A minority of participants reported shelter staff encouraging them to quit smoking.

...you know, encouraging me to stop. They were saying, you know, maybe my health will improve if I, you know, tried to quit...They're nice about it. They always, you know try to encourage me [to quit] (Jackson, TF, Pre-C).

Participants specified family support and encouragement as a facilitator to smoking cessation. Likewise, participants identified wanting to quit because family members disapprove the behavior.

Another thing is caring for my sons feelings more. That he doesn't want me to smoke. I love my son and it sometimes hurts when I think about when I smoke and my son doesn't want me to (Manny, TF, C).

A number of participants identified faith or assistance from a higher being as a form of social support. They described the possibility of drug and alcohol recovery, including quitting smoking through the help of a higher being.

I ask Him every day (to help quit smoking) but you know, there is just some things that take a little longer than others (Jackson, TF, Pre-C).

Participants described the changing social norms of cigarette smoking outside the homeless community. They recognized that cigarette smoking is no longer an attractive habit; rather society has placed a stigma against it.

A lot of people now a days are trying to go green and go health. Society does not like the smoker now... It's like smokers are ostracized. Just like put in their own box like, "Oh, you go over there" (Quinn, TF, C).

Finally, when queried about what can make quitting smoking easier among the homeless, participants identified social support. Participants suggested for smoking cessation programs to include a social component such as being paired with another person interested in quitting and having a facilitator assisting them with quitting. Specifically, participants suggested a smoking cessation program modeled after Alcoholics Anonymous, a social support group working together to solve their problems with and help from others to recover from alcoholism.

It's just going to have to be something that you want to do and you will just have to do it. Maybe if you were around people who weren't smoking

and you say those people on a regular basis like you do at AA or NA, maybe that would help (Gary, HF, C).

Access and Availability to Smoking Cessation

Access and availability to smoking cessation was identified as a facilitator to smoking cessation. Most participants stressed that smoking cessation needs to be accessible, affordable, and convenient. More than half (53.5%) of the participants knew where to access smoking cessation. A number of participants recalled healthcare providers offering free smoking cessation products. A few participants recalled an organization that offered smoking cessation programs.

No, that was through Phoenix. My mental health –she prescribed –no I take that back, Sarah, who use to be my doctor ... she prescribed it for me. I took it for 3 months which is the most Passport (health insurance) will pay for (Barry, HF, C).

The majority (82.1%) of participants were able to name at least two methods of smoking cessation. The most commonly recalled smoking cessation products included nicotine patches (78.5%) and gum (64.3%). A number of participants identified Chantix (17.8%) and smoking cessation programs (14.3%) as methods to quit smoking. Half of all participants identified ‘going cold turkey’ (50.0%), or quitting without any assistance as a form of smoking cessation. A number of participants specified hypnotism (25.0%) or electronic cigarettes (21.4%) as alternative methods to quit smoking. Two individuals identified using smokeless tobacco products as an alternative method to quit smoking. One individual identified acupuncture as an alternative method to quit smoking.

When queried about what will motivate the homeless to engage in smoking cessation, participants suggested incentives. Participants suggested financial incentives, providing free nicotine replacement therapy (NRT) products, offering free candy to

substitute for cigarettes, or creating activities to “keep busy”. Though, participant’s emphasized smoking cessation must be affordable and readily available.

If it’s convenient, yes. Like we go to some group meetings here at Hotel Louisville, so if it was part of that then that would help. If there was some sort of incentive, I’d go too...I don’t know what this smoking cessation class could do but if there was something I could get out of it then yeah, I don’t mind trying it out (Allen, HF, C).

Health

Improving individual health was cited as a motivator to smoking cessation.

A few participants discussed currently experiencing health problems of smoking.

When I walk to the store and walk back, I get tired quicker than I use to. And I know it’s from smoking (Erin, HF, C).

A few participants stressed the importance of wanting to live a healthy and long life while others stressed receiving fatal health scares as the only motivation to quit.

If the doctor said, “If you smoke one more cigarette, you are going to die.” If he said that, then that would, that would scare me into like, okay, I’m done. You know what I’m saying? But there ain’t no doctor that’s going to say that [sic] (Quinn, TF, C).

Most participants were able to name at least three health consequences related to smoking (60.7%) and stated that they consider those consequences to be serious or very serious (82.1%). A majority (78.6%) of the sample believed they were likely to experience those health consequences in the future while a minority believed they are not likely to experience health consequences of smoking (17.9%) and one stated that they were unsure (3.6%). The possibility of experiencing the health problems of smoking was identified as motivation to quit and acknowledged that quitting smoking would relieve those health problems. All participants reported either knowing a friend or family member currently experiencing or have experienced the health consequences of smoking.

Interestingly, a minority of participants stated the negative effects of secondhand smoke on others was reason enough to quit smoking.

It's (second hand smoke) just as bad as smoking... I will hold my cigarette down or move over when other people walk by because I don't want to give them anything. It's their right not to be subjected to it, you know (Gary, HF, C).

When asked on the seriousness of secondhand smoke on health, a few participants expressed a high perception of the negative consequences from secondhand smoke.

A lot... Very serious. They did a good thing when they stopped people from smoking in buildings cause when I get around people when I ain't smoking, like if somebody is over in my house and I let them smoke, I don't even like smoking in the house, because you know, it...it...Then they are affecting me when I don't smoke that much (Erin, TF, C).

Financial Stability

When queried about facilitators to smoking cessation, participants reported improving ones' financial stability. Participants discussed the importance of saving money and identified the high cost of cigarettes as a major drawback to smoking.

At first I thought it was cool. But now, it ain't cool because that's where pretty much all my money goes, to smoking... I'm just smoking it away [sic] (Steve, US, Pre-C).

Intrapersonal Influence

Self-will and will power were identified as two necessary components for smoking cessation. Participants stressed that in order for someone experiencing homelessness to pursue smoking cessation, they must have the self-will to want to quit and the will power to continue the process while being in a shelter.

I don't know if you can really make it easy to quit. It's just going to have to be something you want to do and you will have to do it (Henry, HF, C).

Tanner, an unsheltered participant, stated:

It will not be easy quitting and it wont be easy quitting in a shelter. You would have to have a lot of will power to quit in the shelter.

Secondly, as discussed in the previous section, identifying the drawbacks of smoking and knowing the health consequences of smoking are also considered facilitators to smoking cessation. Knowing the health consequences and identifying the drawbacks of smoking originated from personal experience or by observing friends or family members experience. For instance, several participants identified the smell and destruction of cigarette smoking as motivation to quit. Iggy, a Treatment First participant, described it as:

More than the fact that it makes your clothes and your hair and your skin, its your breath... No matter what you do, mints, pro-health floss, brush, it doesn't matter. It really means you smell atrocious –it does.

Later, Iggy discusses the drawbacks again:

Like I said, it smells, and you got a smell on your clothes. It stinks. Stinks up your house. That's the one thing I don't like, I don't like smoking in your house. And you have to repaint all the walls and all that and wipe the walls down –it's just a mess.

Allen, a Housing First participant, discussed the smell and how it impacts his likeability by others:

It stinks [cigarettes] , you know what I'm saying? And, I know me personally, a lot of times, you know if a, if there's a lady that I'm trying to speak to and she doesn't smoke she might find it a little unattractive.

Attitudes and beliefs about smoking cessation had little influence on whether the individual was willing to try smoking cessation. Few participants formed positive attitudes and beliefs about smoking cessation, namely smoking cessation programs,

electronic cigarettes, and having a buddy system, based on successful quit experiences among friends or family members. Other participants formed neutral attitudes and beliefs about smoking cessation products because of their pre-existing knowledge of where to access smoking cessation and various methods to quit cigarettes.

I know that they were offering some (smoking cessation programs) through Phoenix... I've heard of others talking about it but I never checked it out... I would check it out if it was around here. I don't want to travel too much ... There's this guy in this program that quit and he had been smoking all his life. He quit through Phoenix. That's how we found out (Henry, HF, C).

A minority formed negative or neutral attitudes and beliefs on the effectiveness of smoking cessation products (nicotine patch and gum) based on information gathered from friends, family, or their own past experience. Regardless, participants reported that they were still willing to try smoking cessation products or attend smoking cessation programs. Steve, an unsheltered participant, stated:

I'd probably try and go on the patch. I'd try to go on one of those. My dad tried it too. He said it didn't work. I don't know. If I found it hard for me to quit (cold turkey), I'd definitely try both of those things, the gum or the patch.

Christopher, a Housing First participant, stated:

Well, I never tried the patch, but my doctor She said she doesn't believe in the patches. I don't know. I've never tried them or the gum. I've never tried that either. I would try them though.

As specified earlier, 71.5% of the sample ($n = 28$) expressed interest in quitting cigarette smoking. Of those interested, 80.0% ($n = 16$) identified as being in the contemplation stage, defined as having interest and intention to quit smoking within the next 6 months. Among the total sample, 57.1% ($n = 28$) identified as being in the contemplation stage. Indicators to identify this stage are participants stating they have

tried to quit smoking in the past, are currently interested in quitting in the immediate future, and have intentions to quit within the next 6 months.

Access to Care

Finally, access to care was identified as a facilitator to smoking cessation. As discussed in the previous section, encouragement to quit smoking cessation from health care providers, shelter staff, and community outreach can positively influenced an individual's decision to quit smoking. Simply recommending or offering resources makes pursuing smoking cessation easier and attainable to participants.

Just start helping people on the streets that want to quit, or helping people in here that wants to quit. I think a lot of us have the will we just don't have the way (Liam, US, C).

Further, among the participants who identified receiving staff or healthcare provider encouragement, did so through a healthcare provider. Participants suggested community support in the forms of health events or promotions as a means to reach the homeless and help them consider quitting smoking. Participants articulated that the homeless community often feels invisible or disposable; having the public show that they care and want to help makes a difference in their motivation to care for themselves. Kirk, a Treatment First participant, summed up his feelings on the issue:

Well, its just most homeless people –I think a lot might be invisible. We smoke so much but no one sees us or no one helps us. They don't care. Maybe if people cared to help we could stop. It's stressful on the street. When you are on the street you are in survival mode. You do what you do. You do what you do because you feel like no one wants to help you. I think maybe if more people were out there helping the homeless it would make it easier for them to quit. They need outreach –to do more on the streets.

Table 10: *Analysis of Facilitators to Smoking Cessation*

Theme	Axial Codes	Open Codes: Categories	Open Codes: Initial codes
<i>Facilitators to Smoking Cessation</i>	Environmental influence	Environmental support – physical location	<ul style="list-style-type: none"> • Serving jail or prison time – the organization mandates no smoking • Hospital stay – the organization mandates no smoking • Housing – being placed in housing eliminates the stressors of finding a place to live. Thus, focusing on other priorities • Physically residing in an area that is far from cigarette vendors • Having structure in their life – whether from assistance from Housing First staff or Treatment First staff Housing complex implements a smoke-free housing policy
		Social support or influence to quit smoking	<ul style="list-style-type: none"> • Friends and family members have positive attitudes about smoking cessation • Acknowledgement that the social norms of cigarette smoking is changing from positive to negative • Acknowledgement of stigma against cigarette smoking • Community level of influence • Interpersonal level of influence
		Family support or influence to quit smoking	<ul style="list-style-type: none"> • Friends and family members have positive attitudes about smoking cessation • Community level of influence • Interpersonal level of influence
		Life style	<ul style="list-style-type: none"> • Life style of being in a program, providing structure
		Healthcare provider support or influence to quit smoking	<ul style="list-style-type: none"> • Healthcare provider support or influence to quit smoking • Organization level of influence • Participant in the Housing First program receive encouragement from a healthcare provider • Participant in the Treatment First program received encouragement from shelter staff member
		Staff support or influence to quit smoking	<ul style="list-style-type: none"> • Interpersonal level of influence • Staff support or influence to quit smoking • Organizational level of influence • Participant in the Housing First program • Participant in the Treatment First program • Interpersonal level of influence
		Support from a higher being	<ul style="list-style-type: none"> • Support from a higher being

Theme	Axial Codes	Open Codes: Categories	Open Codes: Initial codes
		Lack of access to cigarettes	<ul style="list-style-type: none"> • Serving jail or prison time – the organization mandates no smoking • Hospital stay – the organization mandates no smoking
	Access and Availability to Smoking Cessation	Availability and accessibility of smoking cessation	<ul style="list-style-type: none"> • Smoking cessation is easily affordable • Smoking cessation is convenient to access, use, and store • Smoking cessation is easily accessible
		Incentives to motivate individuals to participate in or use smoking cessation	<ul style="list-style-type: none"> • Incentives to motivate individuals to participate in smoking cessation • Providing candy as a substitute for smoking cigarettes • Individual finds ways to ‘keep busy’ to substitute smoking cigarettes
		Knowledge of where to access smoking cessation	<ul style="list-style-type: none"> • Individual can recall an organization that provides smoking cessation
		Knowledge of different methods to assist quitting smoking	<ul style="list-style-type: none"> • Individual can recall several smoking cessation products • Individual can recall untraditional smoking cessation methods: acupuncture, e-cigarettes, hypnosis, cold turkey, smokeless tobacco • Individual can recall smoking cessation opportunities • Individual can recall an organization that provides smoking cessation
	Health	Improving individual health	<ul style="list-style-type: none"> • Improving individual health • Health scare by a medical provider • Beliefs about the drawbacks of secondhand smoke • Beliefs about smokeless tobacco being healthier than cigarette smoking • Drawbacks – the health consequences of cigarette smoking • Individual has personally experienced health problems from cigarette smoking • Perceived seriousness of health problems from cigarette smoking • Perceived susceptibility of health problems from cigarette smoking
		Improving the health of others	<ul style="list-style-type: none"> • Improving the health of others • Beliefs about the drawbacks of secondhand smoke towards others
		Knowledge of the health consequences	<ul style="list-style-type: none"> • Individuals can recall possible health consequences from cigarette smoking • Individual has friends or family members

Theme	Axial Codes	Open Codes: Categories	Open Codes: Initial codes
		from cigarette smoking	<p>who have suffered from the health consequences of cigarette smoking</p> <ul style="list-style-type: none"> • Individual has personally experienced health problems from cigarette smoking
	Financial Stability	Improving financial stability	<ul style="list-style-type: none"> • Financial stability • Saving money • Drawbacks of smoking - cost of cigarettes
		Cost of cigarettes	<ul style="list-style-type: none"> • Drawbacks of smoking - cigarettes are expensive
	Intrapersonal Influences	Self will	<ul style="list-style-type: none"> • Self will to want to quit cigarette smoking
		Will Power	<ul style="list-style-type: none"> • Will power to want to quit or continue quitting cigarette smoking
		Drawbacks of smoking cigarettes	<ul style="list-style-type: none"> • A negative attribute to smoking cigarettes is the addiction • A negative attribute to smoking is the cost • A negative attribute to smoking is the destruction on personal items • A negative to smoking is the health consequences • A negative to smoking is the unpleasant smell
		Knowledge of the health consequences from cigarette smoking	<ul style="list-style-type: none"> • Individuals can recall possible health consequences from cigarette smoking • Individual has personally experienced health consequences from cigarette smoking
		Beliefs about smoking cessation	<ul style="list-style-type: none"> • Positive beliefs about quitting smoking • Positive beliefs about smoking cessation • Beliefs about quitting in the near future (defined as within the next 6 months) • Beliefs about the drawbacks of cigarette smoking • Beliefs about the health consequences of cigarette smoking • Perceived seriousness of health problems from cigarette smoking • Perceived susceptibility of health problems from cigarette smoking
		Attitudes about smoking cessation	<ul style="list-style-type: none"> • Positive attitudes about smoking cessation • Negative attitudes about cigarette smoking • Negative attitudes towards the drawbacks of cigarette smoking • Negative attitudes towards the health consequences of cigarette smoking • Attitudes – about quitting cigarette smoking • Perceived seriousness of health problems

Theme	Axial Codes	Open Codes: Categories	Open Codes: Initial codes
			<ul style="list-style-type: none"> from smoking Perceived susceptibility of health problems from cigarette smoking
		Contemplation stage	<ul style="list-style-type: none"> Positive beliefs about quitting smoking Positive beliefs about smoking cessation Perceived seriousness of health problems from cigarette smoking Perceived susceptibility of health problems from cigarette smoking Beliefs about quitting cigarette smoking in the fear future (defined as within the next 6 months) Interested in quitting cigarette smoking within the next 6 months Interest in participating in a smoking cessation program within the next 6 months
		Knowledge of where to access smoking cessation	<ul style="list-style-type: none"> Individual can recall an organization that provides smoking cessation
		Knowledge of different methods to assist quitting smoking	<ul style="list-style-type: none"> Individual can recall several smoking cessation products Individual can recall untraditional smoking cessation methods: acupuncture, e-cigarettes, hypnosis, cold turkey, smokeless tobacco Individual can recall smoking cessation opportunities Individual can recall an organization that provides smoking cessation
	Access to Care	Staff encouragement to quit cigarette smoking	<ul style="list-style-type: none"> Staff encouragement to quit cigarette smoking Organizational level of influence enabling smoking cessation
		Healthcare provider encouragement to quit cigarette smoking	<ul style="list-style-type: none"> Healthcare provider encouragement to quit cigarette smoking Organizational level of influence enabling smoking cessation
		Community outreach to assist quitting cigarette smoking	<ul style="list-style-type: none"> Community outreach Community level of influence enabling smoking cessation
		Knowledge of where to access smoking cessation	<ul style="list-style-type: none"> Individual can recall an organization that provides smoking cessation

Comparison between the Barriers and Facilitators to Smoking Cessation

This section compares the barriers and facilitators to smoking cessation by housing group. The section is presented in two subsections: barriers to smoking cessation comparison by housing program, and facilitators to smoking cessation comparison by housing program. Each subsection details the similarities and differences of barriers and facilitators to smoking cessation, respectively. Detailed discussion, comparisons, and public health implications of the barriers and facilitators to smoking cessation between each group will be addressed in chapter five.

Barriers to Smoking Cessation Comparison by Housing Program

Barriers to smoking cessation varied among groups. All three groups shared seven barriers to smoking cessation. The Treatment First and Unsheltered groups shared five barriers and Housing First and Unsheltered shared one barrier to smoking cessation. Interestingly, Treatment First and Housing First did not identify any common barriers. Individually, both Housing First and Treatment First participants identified one barrier unique their own group. Conversely, the unsheltered group identified 16 barriers unique to their circumstance.

Housing First, Treatment First, and Unsheltered

Barriers to smoking cessation differed among groups. However, as shown in Figure 2, seven barriers to smoking cessation were common between all three groups. When queried, a majority of participants in each group described sharing cigarettes, being in close proximity to cigarette vendors, nicotine addiction, the inability to break daily habits, providing a sense of identity, lack of staff encouragement, and a sense of community/camaraderie developed by cigarette smoking as barriers to smoking cessation.

Figure 2: *Shared Barriers to Smoking Cessation Between Programs*

Treatment First and Unsheltered

Participants in the unsheltered and Treatment First group shared five barriers to smoking cessation including: stress, lack of community outreach, cost of smoking cessation, cigarettes as a coping mechanism, and cigarettes as a replacement for drugs. Shared barriers to smoking cessation between the two groups are shown in Figure 3.

Figure 3: *Shared Barriers to Smoking Cessation Between Treatment First and Unsheltered Participants*

Housing First and Unsheltered

Participants in the unsheltered and Housing First program commonly identified one barrier to smoking cessation: panhandling as shown in Figure 4.

Figure 4: *Shared Barriers to Smoking Cessation Between Unsheltered and Housing First Participants*

Treatment First and Housing First

No barriers to smoking cessation were shared between Housing First and Treatment First groups.

Housing First

Each group identified barriers to smoking cessation seemingly unique to their own situation. Participants in the Housing First group identified one unique barrier: boredom as shown in Figure 5.

Figure 5: *Unique Barriers to Smoking Cessation Among Housing First Participants*

Treatment First

Participants in the Treatment First program identified one unique barrier: smoke breaks as shown in Figure 6.

Figure 6: *Unique Barriers to Smoking Cessation Among Treatment First Participants*

Unsheltered

Participants in the unsheltered group experienced significantly more barriers to smoking cessation compared to the other two groups. Specifically, participants in the unsheltered group identified 16 barriers to smoking cessation unique to their situation as shown in Figure 7.

Figure 7: *Unique Barriers to Smoking Cessation Among Unsheltered Participants*

Facilitators to Smoking Cessation Comparison by Housing Program

Facilitators to smoking cessation varied among groups. All three groups commonly identified six facilitators to smoking cessation. Housing First and Unsheltered groups commonly identified two facilitators and Housing First and Treatment First groups identified seven facilitators to smoking cessation. Conversely, Treatment First and Unsheltered did not commonly identify any facilitators. Individually, Housing First and Treatment First groups identified two facilitators to smoking cessation, respectively. Participants in the Unsheltered group identified five facilitators to smoking cessation.

Housing First, Treatment First, and Unsheltered

As shown in Figure 8, participants from each housing group commonly identified six facilitators to smoking cessation including the suggestion that cessation needs to be 1) convenient, 2) accessible, and 3) available, 4) improving individual health, 5) understanding the health consequences of smoking, and 6) identifying the drawbacks of cigarettes (high cost, destruction, addiction, and smell).

Figure 8: *Shared Facilitators to Smoking Cessation Between Programs*

Treatment First and Unsheltered

No facilitators to smoking cessation were commonly shared between the Treatment First group and Unsheltered.

Housing First and Unsheltered

Participants in the Housing First and unsheltered group commonly suggested 1) providing incentives to quit and 2) having the will power to quit as facilitators to smoking cessation (Figure 9).

Figure 9: *Shared Facilitators to Smoking Cessation Between Unsheltered and Housing First Programs*

Treatment First and Housing First

As shown in Figure 10, the majority of participants in the Housing First and Treatment First group commonly identified seven facilitators to smoking cessation including 1) improving the health of others, 2) high cost of cigarettes, 3) family support, 4) knowledge of where to access smoking cessation, 5) identifying as being in the contemplation stage of change, 6) having positive attitudes about smoking cessation, and 7) having positive beliefs about smoking cessation.

Figure 10: *Shared Facilitators to Smoking Cessation Between Housing First and Treatment First Programs*

Housing First

Uniquely, the majority of participants in the Housing First program identified 1) encouragement to quit from friends and family, and suggested 2) incorporating a social support element to future smoking cessation programs (Figure 11).

Figure 11: *Unique Facilitators to Smoking Cessation Among Housing First Participants*

Treatment First

The majority of participants in the Treatment First program repeatedly discussed 1) lifestyle (structure) and 2) support from a higher being as facilitators to smoking cessation as shown in Figure 12.

Figure 12: *Unique Facilitators to Smoking Cessation Among Treatment First Participants*

Unsheltered First

Finally, the unsheltered participants frequently identified or suggested 1) housing support, 2) lack of access to cigarettes, 3) affordability of smoking cessation, 4) improving financial stability, and 5) community outreach as facilitators to smoking cessation (Figure 13).

Figure 13: *Common Facilitators to Smoking Cessation Among Unsheltered Participants*

Summary

This study explored the barriers and facilitators to smoking cessation among a largely ignored and socially segregated population, male individuals experiencing homelessness. In addition, this study explored if the barriers and facilitators differed among this population depending on housing program (Housing First, Treatment First, and unsheltered). The results of this study demonstrate that the barriers and facilitators to smoking cessation do differ among male individuals experiencing homelessness depending on housing program. Qualitative results provide suggestive evidence that supportive housing or lack thereof, influences the barriers and facilitators of smoking cessation. Providing housing has the potential to impact the social environmental by decreasing the barriers to smoking cessation. Analysis of the interview data show that individuals experiencing homelessness who are unsheltered experience more barriers to smoking cessation compared homeless persons with supportive housing. Qualitative analysis also reveals that alternative smoking behaviors, the act of smoking used cigarette

butts found on the ground, trash, or ashtrays, frequently occur among unsheltered homeless persons compared to homeless individuals with housing.

Quantitative results from this study show participants in Housing First and Treatment First programs are more likely to know where to access smoking cessation and identify three or more health consequences from cigarette smoking, compared to those in the unsheltered group. Additionally, participants in the Housing First and Treatment First group are more likely to be interested in quitting cigarette smoking compared to those in the unsheltered group. Finally, participants in the Housing First and Treatment First program are less likely to engage in alternative smoking behaviors compared to the unsheltered group. The results of this study are applicable to public health policy and future research about reducing tobacco-related health disparities among the homeless.

The next and final chapter will discuss in detail the study results in relation to the literature review and reducing tobacco-related health disparities.

CHAPTER FIVE DISCUSSION, LIMITATIONS, RECOMMENDATIONS

Introduction

The purpose of this study was to explore the barriers and facilitators to smoking cessation among male smokers experiencing homelessness. The second aim of this study was to explore if the barriers and facilitators to smoking cessation differed among male smokers experiencing homelessness depending on housing program. The primary research consisted of 28 in-depth interviews and 28 short-answer questionnaires with male, homeless, smokers. The qualitative study relied upon concepts derived from the Straussian grounded-theory model.

This chapter reviews the research questions that guided this study. Then this chapter reviews and discusses the answers to each research question. This chapter concludes with limitations of this research study, public health policy implications, public health practice implications, and recommendations for future research.

Discussion of the Research Findings

The purpose of this research study was driven by three questions:

R1: What are the current barriers to smoking cessation among male smokers experiencing homelessness?

R2: What are the current facilitators to smoking cessation among male smokers experiencing homelessness?

R3: Do the barriers or facilitators to smoking cessation differ among male smokers experiencing homelessness depending on shelter program?

Answering R1: Barriers to Smoking Cessation

In this study, I explored the barriers to smoking cessation among male homeless smokers in three housing groups. This study revealed much about this group of male smokers experiencing homelessness, their smoking behaviors and their barriers to smoking cessation. Many of the identified reasons for continuing to smoke cigarettes overlapped with identified barriers to smoking cessation. Further, barriers to smoking cessation ranged across the social-ecological spectrum, meaning participants identified challenges to smoking cessation at the intrapersonal, interpersonal, organizational, community, and policy levels.

Our findings present a diverse and challenging list of barriers to smoking cessation within the social context of homelessness. Not surprisingly, many of the challenges to smoking cessation are unique to this vulnerable population as the homeless experience a high burden of nicotine dependence, mental illness, substance-use disorders, communicable diseases, lack access to care (Arnsten et al., 2004; Baggett et al., 2013; CDC, 2013; O'Connell, 2004; O'Connell et al., 2009; Morrison, 2009). The findings in our study corroborate with barriers found in previous research but also identified new barriers unique to our sample.

The barriers to smoking cessation identified by our study not only challenge participants to seek cessation, but also influence them to continue the smoking habit. Thus, tobacco-related health disparities are indirectly related to the barriers to smoking cessation. Reducing or eliminating barriers to smoking cessation has the potential to reduce the gap in tobacco-related health disparities among this vulnerable population.

Significant barriers identified in this study related to the impact of homelessness, pro-tobacco environments, access and availability to cigarettes, the need for relationships and community, and lack of access to care.

Impact of Homelessness

The idea of homelessness and its associated effects seemed to impact the target population both mentally and physically. Smoking was perceived as part of the homeless identity, as a way to cope with homelessness, and as a means to provide structure during the unpredictability of homelessness. Participants struggled to separate homelessness from smoking.

For instance, one participant in the study, Kirk, described cigarette smoking as “...just who I am...smoking cigarettes is just part of me.” Other participants held similar views, describing smoking as an intrinsic characteristic in their lifestyle, routine, and identity while experiencing homelessness. Somewhat surprisingly, perceiving smoking as part of their homeless identity served as a barrier to smoking cessation because participants suggested cigarettes gave value to their lives; eliminating smoking would eliminate their self-worth.

Others struggled with the idea of smoking cessation because smoking was used as a means to cope with problems from being homeless. Similar to findings by Okuyemi et al. (2006), cigarettes were perceived as a self-reward for coping with homelessness. Thus, participants commonly addressed the difficulty to give up something that provided pleasure.

Further, participants linked smoking cigarettes as a form of structure in their unpredictable lives. Participants discussed their inability or undesirability to break their

daily habits of smoking, mainly because it is part of their daily routine and provided structure to their lives. The fear of losing any form structure in their current circumstance was heavily weighted in comparison to any perceived benefits of smoking cessation. As Quinn explains, smoking becomes “...enjoyable... because it’s the only structure in your life. I mean most of these guys including me have been on the streets. We ain’t got no structure. We ain’t got no stability [sic].”

Reducing stress was a common reason for why participants continued to smoke cigarettes and overlapped as a barrier to quit cigarettes. Just as Steve compared cigarettes to “dessert”, others described smoking as an enjoyable part of their day because of its’ stress reducing effects. Interestingly, a few participants such as Yoshi, Nathan, Manny, and Barry continued to smoke cigarettes because of the perceived benefits of reducing stress but admitted that smoking cigarettes does not seem to reduce their stress but does seem satisfy the urge to “light up.” It is unclear on whether they continue to smoke because the motions of smoking a cigarette makes them feel better or because of an underlying nicotine addiction.

Besides using cigarettes to reduce stress, participants expressed smoking as their only means to self medicate mental health issues by calming nerves and providing a sense of relief. Individuals related stories of continuing to smoke cigarettes to minimize anxiety and depression, aligning with current research on cigarette smoking amongst those with mental illness or homelessness (Campion, Checinski, & McNeil, 2008; Okuyemi et al., 2006). As Upton justified cigarettes as a “safer alternative”, other participants used cigarettes as a recovery tool while abstaining from drug and alcohol abuse. This misconception is common among those with mental health illness, as the culture of the

mental health system has perpetuated tobacco use as a way to cope with psychiatric symptoms and prevent relapse to other substances of abuse (Prochaska, 2010).

Living in a Pro-Tobacco Environment

Cigarette smoking is a community norm and considered a barrier to smoking cessation. Steve described smoking as being “everywhere I go...Just walking down the street and somebody is smoking a cigarette. I smell it.... I want it.” Other participants held similar views and claimed the frequent exposure to the sight and smell of cigarettes in and around homeless shelters as a barrier to smoking cessation. Previous research identifies lack of comprehensive smoke-free policies at shelters as a barrier to smoking cessation by promoting social cues to smoke among the homeless (Baggett et al., 2013; Businelle et al., 2015).

At the time of this study, the state of Kentucky does not have a comprehensive smoke-free policy but the city of Louisville does have a local smoke-free ordinance. These laws do not include smoke-free housing policies. Louisville Rescue Mission abides by the local smoke-free ordinance, as smoking is not permitted to smoke inside shelters. However, the smoking is permitted directly outside the building. Thus, participants observed other individuals smoking outside the shelter and report the smell of cigarette smoke lingering inside. Participants placed in dwellings through out the city are similarly exposed to smoking in their housing community. These factors contribute to creating a pro-smoking environment and act as triggers for smoking. Indeed, studies have shown that pro-smoking environments and high exposure to cigarette smoking make smoking cessation difficult to achieve (Okuyemi et al., 2006; Stead, MacAskill, MacKintosh Reece, & Eadie, 2001; Vijayaraghaven et al., 2016).

Access and Availability of Cigarettes

As discussed earlier, access and availability of cigarettes was an emergent theme throughout the analysis. A majority of participants discussed easy access and availability of cigarettes as factor of influence for why they initiated and continued to smoke. In addition easy access and availability was identified as factor of influence on smoking cessation behaviors, mainly as a barrier to smoking cessation. This finding differs from the literature as previous research does not specifically cite easy access to cigarettes and high availability of cigarettes as a barrier to smoking cessation among the homeless.

Among our sample, easy access and abundant availability of cigarettes was due to high risk smoking behaviors such as alternative smoking behaviors, sharing cigarettes, and panhandling. Similar to previous research, these methods were commonly cited as ways to access cigarettes with little to no income.

Sharing cigarettes was frequently discussed and commonly done among our sample. This was not expected as homeless individuals tend to have little to no income or resources to have an excess of cigarettes to share. Previous research cites sharing as a common behavior but does not explain why sharing cigarettes is a common gesture among the homeless. Among our sample, sharing cigarettes amongst peers and strangers was perceived as an act of altruism, or a way to give back to the community. Participants spare extra cigarettes to others in need as an act of kindness because as Xavier explains it, “I don’t want them to feel like I do.” This altruistic behavior enabled smoking behaviors by providing free cigarettes to the homeless thus turning other smokers into a viable source of cigarettes for others. As Steve says, “I’m just around it and then [when] I want it...somebody will give me a cigarette. That’s just how it goes.” This was apparent in all

three groups as 92.9% of our sample reported sharing cigarettes. This altruism phenomenon for sharing cigarettes has not been discussed in previous research or mentioned in other vulnerable subgroups. Further social science research on this topic may be warranted, as it is a common form of accessing cigarettes among the homeless and indirectly aids maintaining tobacco-related health disparities specifically among this population.

The Need for Relationships and Community

Previous research shows cigarette smoking as a social phenomenon heavily influenced by peer interactions (Baggett et al., 2013). Findings in this study shared a similar sentiment. In this study, participants explained and preferred the social and beneficial aspect of smoking cigarettes. For instance, Zach, Jackson, and Octavio described smoking as form of camaraderie, as a shared activity for inclusiveness, and as a way to develop relationships with other homeless smokers. Other participants, such as Remy, described offering cigarettes as an easy method to initiate social interactions or a sign of good will. It seems like a majority of the participants weighted the social benefits and connections gained from smoking more than the potential health improvement from quitting, suggesting a fear of being alone or excluded from the homeless community.

Lack of Access to Care

As anticipated, limited access to health care and inaccessibility to smoking cessation was identified as a barrier to smoking cessation. When queried, the majority of participants reported lack of staff and medical encouragement to quit smoking, in part due to limited access to health care. Consistent with previous scientific literature, limited access to health care negatively impacts the health of homeless persons and removes the

possibility of being screened for and offered assistance to smoking cessation (Okuyemi et al., 2006; Heffron et al., 1997; Ferencick, 1992; Gelberg, Linn, Usatine & Smith, 1990; O'Toole, Gibbon, Hanusa, & Fine, 1999). The reported lack of medical encouragement to quit smoking among our sample mirrors previous research among other vulnerable populations. Current research highlights that healthcare providers are not an identified source of cessation support among persons with mental illness (Altoot et al., 1993; Garner & Ratschen, 2013; Kerr et al, 2013), contrasting guideline recommendations that physicians should screen smoking status, encourage quitting, and prescribe cessation to all patients (American Psychiatric Association (APA), 2006; Bauman, 2008; Fiore et al., 2008). To mitigate this issue, community outreach programs can potential target homeless populations for tobacco use screening and cessation promotion.

Given the limited monetary resources of our population, we anticipated and our participants confirmed, that inaccessibility to smoking cessation as a major barrier to smoking cessation. Smoking cessation products were identified as costly, inconvenient, and unavailable. Some participants believed smoking cessation products were only available at stores suggesting that participants did not know of free products or programs offered through health centers. A little less than half of the participants were unable to identify where to access smoking cessation programs or products. Remy described the circumstance as:

How do I get it? I don't know. Where to get it? At the store. How much is it? Probably too much. That's why no one homeless quits cigarettes. You can't afford the habit and you can't afford to break the habit.

Answering R2: Facilitators to smoking cessation

This study revealed much about this group of male smokers experiencing homelessness and their identified facilitators to smoking cessation. Facilitators to smoking cessation varied among our sample, in part due to personal experience or inexperience with smoking cessation and ranged across the social ecological spectrum. However, self-improvement, an anti-tobacco environment, and easy access and availability to smoking cessation were the most significant facilitators to smoking cessation among our study population.

Self-Improvement

Improving individual health was commonly discussed as facilitators to quitting, mirroring previous research on smoking and homelessness (Okuyemi et al., 2006). A majority of the participants expressed concern about their health as they were currently suffering from tobacco-related diseases. They believed that quitting smoking would improve their health status, serving as a motivation to quit. However, only a few identified it as reason to quit within the next 6 months; suggesting health is a concern for quitting but is not weighted as heavily compared to other motivating factors.

Unlike in previous research, a number of participants in our group reported safeguarding the health of others as motivation to quit. The problems associated with secondhand smoke were described as an unnecessary health burden on others. Gary explained,

It's just as bad as smoking. I've tried when I'm smoking out there and someone passes me I try when I am walking, especially downtown, I'll hold my cigarette down or move over when other people walk by because I don't want to give them anything. It's their right not to be subjected to it. You know?

Iggy felt successful smoking cessation is about “will power...and determination.” Others similarly believed developing will power as critical to successfully quit smoking. They attributed lack of will power and their ability to quit based on their perceived behavioral control of quitting, meaning the act of smoking cessation was perceived as strenuous and unlikely to be achieved during their current circumstances. Acknowledging smoking cessation as a difficult and taxing process, participants identified needing inner strength or increasing their self-efficacy to pursue quitting. Previous research has identified increasing self-efficacy as essential when designing smoking cessation programs to vulnerable populations (Forchuk et al., 2002; Woods, Kerr et al., 2013).

Anti-Tobacco Environment

Social science research has well established the profound impact of the physical environment on individual behavior and motivation to act (McLeroy et al., 1988; Smedley & Syme, 2001). The physical and social environment influence and reinforce one another; meaning aspects of the physical environment such as non-restrictive smoking policies at homeless shelters may contribute to the social norms of smoking, which in turn promotes smoking as an accepted behavior among the homeless community. As discussed previously, our sample identified their physical environment (homeless shelters or on the street) as a barrier to smoking cessation due to non-restrictive smoking policies, constant exposure to the sight and smell of smoking, and the social acceptability of smoking within their community. They believed an environment free from the pervasiveness of tobacco would positively impact their ability to quit smoking. Removing themselves from both the social and physical influences of smoking

were regarded as a facilitator to cessation, but one that is not easily attainable. They desired a smoke-free community. Upton said it best:

If I stopped hanging around people who smoke, I'll quit smoking. If I stop going to places that allow smoke, I'll quit smoking. And if I ask a person for a cigarette and they don't give it to me, I'll quit smoking. I feel like being on the streets or being misplaced enables me to be a smoker. Everyone I meet on the streets, in a shelter, or whoever else is misplaced like me, they all smoke. It makes me smoke because they all smoke. Wherever we go, the streets, shelters, other shelters, and more shelters, they don't allow us to smoke inside but when we are inside is smells of smoke. When we are outside, everyone is smoking outside. They smoke outside the building, near the door, near me. It's everywhere. Even if I don't have intentions to smoke, and I go near those people, or I go to those places, I am bound to have either someone offer me a cigarette or a cigarette butt or I will inevitably ask for one because I see it and my mind thinks I want it.

Others described the changing social norms of cigarette smoking outside the homeless community as a motivator to quit. This factor suggests that participants do not foresee their homelessness to last forever; rather they expect to reintegrate themselves back into society and desire to abide by societal norms. Outside the homeless community, participants recognized cigarette smoking as no longer an appealing habit; rather society has placed a stigma against it. As Xavier stated, "a lot of people don't like smoke [but] they did a long time ago." Cigarette smoking was described as unattractive and the smell of smoke as distasteful. Others disliked how the smell of cigarettes lingered on their clothes and belongings. Participants addressed concerns of others disliking them for smoking and the lingering scent of smoke as motivation to quit.

Participants identified family and social support as a motivator to quit smoking and as a way to build an anti-tobacco community environment. As Henry suggested, "If you surround yourself with people or friends or acquaintances who didn't smoke or who

were also serious about trying to quit, that would help.” Other participants expressed wanting to quit because of family members disapproval of the behavior and encouragement to stop. Others believed peer support and encouragement would make quitting smoking easier. When queried about what to include in a smoking cessation program for the homeless, several participants suggested a social component such as being paired with a partner or professional to help with accountability, encouragement, and support.

Easy Access and Availability of Smoking Cessation

Easy access and availability of smoking cessation products or programs was frequently discussed to help people quit smoking. Henry suggested smoking cessation products or programs targeting homeless persons needs to be “cheap and readily available.” Paralleling with previous research, participants specified that smoking cessation needed to be accessible, convenient, and affordable suggesting current smoking cessation interventions are not accommodating to the needs or circumstances of individuals experiencing homelessness (Okuyemi et al., 2006). Additionally, participants suggested incentives as a way for them to stay compliant. Monetary incentives were preferred, but other items were acceptable as long as they were perceived as valuable. Others suggested a responsive tobacco support service or social support component, such as group meetings with other homeless individuals trying to quit smoking. These findings are similar to the recommendations found by Okuyemi et al. (2006).

Answer R3: Similarities and Differences Among Male Smokers in Housing First, Treatment First, and unsheltered programs

A novelty of this study examined the barriers to smoking cessation among the homeless in the context of their housing program or lack thereof. This study compared the barriers of smoking cessation among homeless smokers living in three different housing contexts: a Housing First program, a Treatment First program, and those that are unsheltered. After comparing the barriers to smoking cessation among groups, it is clear that housing plays a significant role towards homeless individuals seeking smoking cessation.

Differences between Groups

The findings of this research study demonstrate that homeless male smokers living in Housing First or Treatment First programs are significantly more likely to express interest in smoking cessation compared to smokers without housing, suggesting tobacco prevention and public health efforts should consider housing provisions as a prerequisite or part of tobacco control interventions. A majority of Housing First (75.0%) and Treatment First (66.7%) participants identified being in the contemplation stage of behavior change, meaning they are interested and have intentions to quit within the next six months compared to a minority of unsheltered participants (36.6%). A possibility for this discrepancy may be due unsheltered participants prioritized finding housing, employment, and food over effort to improve one's health, as suggested by previous research (Baggett, Tobey & Rigotti, 2013; Okuyemi et al., 2006). Regardless, knowing the stages of change for your population is critical as implementing smoking cessation interventions designed for individuals in the contemplation stage may not be as effective towards individuals in the pre-contemplation stage.

Noteworthy, the results from this study demonstrate that homeless male smokers living in Housing First (87.5%) and Treatment First (77.8%) programs were significantly more likely to know where to access smoking cessation compared to those in the unsheltered group (09.1%). Reasons for not knowing where to access cessation resources vary, but can be attributed to lack of access to medical care, lack of attention from social service providers, or lack of community health outreach. Among the participants who were able to identify where to access smoking cessation did so through their healthcare provider, suggesting that participants in both housing programs are more likely to have access to medical care. To properly address this issue, appropriate outreach and awareness of available smoking cessation resources are warranted for homeless shelters and in particular, emergency day shelters.

In addition, the results from this study find that individuals in Housing First and Treatment First programs are less likely to engage in alternative smoking behaviors compared to those without housing, suggesting additional effort is needed to reduce these behaviors among individuals living on the street or visiting emergency day shelters than those with temporary housing. A majority of unsheltered participants cited alternative smoking behaviors, purchasing single cigarettes for a quarter, and rolling their own cigarettes as barriers to quitting paralleling methods described in the literature (Aloot et al., 1993; Okuyemi et al., 2006). Among our sample, 81.8% of the unsheltered group participated in alternative smoking behaviors, in comparison to 12.5% of Housing First and 22.2% of Treatment First participants. Participants in the unsheltered group described alternative smoking behaviors as a desperate and shameful attempt to source cigarettes and satiate their nicotine fix.

Interestingly, participants in the Housing First and Treatment First program observed others participating in alternative smoking behaviors and admitted to using this method in the past. Housing First and Treatment First participants discontinued alternative smoking behaviors once they obtained temporary housing, suggesting housing as a protective factor against the associated harms of alternative smoking behaviors.

An unexpected and unique barrier identified by the Treatment First group was permitted smoke-breaks through out the day as participants in this program are the only ones on a strict schedule. Participants described having class and work activities throughout the day with very little time in-between. Besides times designated for breakfast, lunch, and dinner, the only permitted personal time is smoke-breaks instituted by program management. A majority of Treatment First participants described designated smoke-breaks as a time to unwind from class, socialize with peers, and relieve stress related to the program by smoking cigarettes. This finding further supports the idea of organizational characteristics of housing having an impact on smoking behaviors and cessation.

Finally, the findings from this study show barriers to smoking cessation are not equal across groups. Participants in the unsheltered group identified significantly more barriers to smoking cessation in comparison to the Housing First and Treatment First group; further suggesting housing as a positive influence towards reducing barriers to smoking cessation. Unsheltered participants specifically cite their lifestyle and homelessness as a barrier to smoking cessation. Undergoing chronic stress, the struggle to meet basic survival needs trumps any effort towards improving their health status. In comparison, participants in the other groups, while categorized as homeless, are receiving

supportive housing, which in turn eliminates stress induced by uncertainty of meeting basic needs. Living on the streets can be unpredictable and limited. Thus, participants in the unsheltered group associated smoking as a way to exercise control and have a sense of ownership. Some participants smoked cigarettes as a co-occurring behavior with drugs or alcohol while others cited strong cigarette cravings, a sensation induced by nicotine addiction.

In relation to facilitators to smoking cessation, two unexpected and unique facilitators to smoking cessation included the structure of housing programs and the needed support from a higher being. Treatment First participants described their rigid program schedule as motivation to quit, as it provided structure to their life. Prior to participating in the Treatment First program, participants were unsheltered with limited structure or routine in their lives, feeling useless and invaluable. Thus, having structure in their lives was associated with feeling productive and valued. This finding also aligns with importance of structure and routine. As discussed earlier, participants in the unsheltered group enjoyed smoking because of its symbolism of providing them with a daily routine and form of structure. Furthermore, support from higher being exclusively emerged among discussions with Treatment First participants. They characterized support from a higher being as an additional level of social support. Participant believed that without a higher beings support, they would lack the capacity to successfully quit. It can be speculated that discussions of a higher being were uniquely identified by Treatment First programs due to the Life Change Programs religious framework.

Interestingly, only the unsheltered participants suggested community outreach as a facilitator towards smoking cessation. Participants expressed feeling invisible outside

the homeless community. They described themselves as an ignored population despite being within walking distance to a major research university, community centers, and churches. They acknowledged the assistance from the emergency day shelters but noted that day shelters focus on short-term social services not health services. Considering participants in the unsheltered group lack housing they also lack the individual attention from case managers and staff affiliated participants in Housing First and Treatment First programs.

Similarities Between Groups

Findings from our study revealed all three groups experienced common barriers across the social ecological spectrum, suggesting that regardless of housing program, homeless smokers face similar circumstances that impact their ability and confidence to successfully quit.

Nicotine addiction and the fear of losing their sense of identity were two underlying issues among the majority of participants. Our anecdotal evidence suggests cigarette smoking functioned as a mediator to obtaining a sense of being or self-value among homeless persons during a time of self-despair regardless of housing provisions. Focusing on nicotine addiction and building self-efficacy to break habits would be a necessary strategy to include in cessation interventions as these two barriers are common among homeless persons and the general population alike (Connor et al., 2002; Okuyemi et al., 2006; USDHHS, 2010, 2014; NIDA, 2012; American Society of Addiction Medicine (ASAM), 2008).

Having a sense of community, camaraderie, and sharing cigarettes are barriers to smoking cessation previously identified in the literature (Baggett, et al., 2013; Garner &

Ratschen, 2013; Okuyemi et al., 2006). In our study, almost all participants practiced sharing cigarettes with friends, family, or strangers regardless of their housing group. This method was perceived as an economical solution to maintain their nicotine addiction and form social relationships. Described as a shared activity, smoking was the preferred strategy to meet other homeless persons, develop and maintain relationships, and feel as if they are part of a community. Unique to our study, participants across all groups frequently referred to sharing cigarettes as a form of good will or an act of volunteerism. Sharing cigarettes among fellow homeless individuals was perceived as the moral thing to do, perpetuating easy access and availability of cigarettes among this community.

Interestingly, all three groups expressed lack of staff encouragement to quit smoking. Participants in the Housing First program reported caseworkers focusing on other physical and mental health needs rather than smoking cessation. Participants in the Treatment First program shared similar sentiment and reported that program staff heavily focused on maintaining alcohol and substance use (a requirement to obtain housing) while unsheltered participants reported shelter staff never discussed any health issues. This data reflects current research describing smoking as a rare focus of social support efforts and further highlights the need to change service provider's views on smoking as a serious health issue among the homeless (Baggett et al., 2013; Garner & Ratschen, 2013; Okuyemi et al., 2006).

In relation to facilitators to smoking cessation, our findings present a range of facilitators to smoking cessation within the context of homelessness. Many of the facilitators identified in our sample corroborate with data from previous qualitative research among the homeless (Okuyemi et al., Baggett et al., 2013; Garner & Ratschen,

2013) and those experienced by other disparate populations (Davis, Brunnette, Vorhies, Ferron, & Whitley, 2010; Solway, 2011; Lucksted, Dixon, & Sembly, 2000; Snyder, McDevitt, & Painter, 2007; Nawaz, Frounfelker, Ferron, Carpenter-Song, Davis, & Brunette, 2012; Esterberg & Compton, 2005). Although 71.5% of our sample expressed interest in smoking cessation and 53% knew where to access cessation, all of our participants are current smokers.

Tailoring smoking cessation to be flexible, accessible, and available could improve smoking cessation success. Due to the facilitators touching on various levels of influence, developing cessation interventions should involve a multi-level approach and strengthen facilitators that work. The most significant common facilitator among the three groups included improving access and availability of smoking cessation.

Our sample unanimously suggested improving the convenience, accessibility, and availability of smoking cessation. A possible reason for this consensus is the lack of smoking cessation offered at homeless shelters and at supportive housing units. Another reason, as emphasized by Treatment First and unsheltered participants, is due to lack of community outreach and cost of smoking cessation as a barrier to quitting. Participants in both groups believed smoking cessation to be unaffordable, as they don't have a stable job or reliable income. In addition, both groups expressed lack of community outreach or encouragement to quit smoking. Individuals reported no knowledge of outreach efforts concerning smoking cessation but were able to identify community health programs promoting other health issues. This information further insinuates that within community health outreach programs the perception of smoking cessation is considered a low priority in comparison to other health and life priorities, a common misconception among the

homeless and mental health community (Baggett et al., 2013; Garner & Ratschen, 2013; Okuyemi et al., 2006).

Limitations

In interpreting the results of this study, three limitations based on sampling should be considered. First, the sample was restricted to male homeless smokers living in Louisville, Kentucky. Thus, this study represents a relatively small sample of male homeless smokers and cannot be generalized to other homeless males in Kentucky or the United States. In-depth individual interview participants may not be representative of the general population, potentially leading to voluntary and selective bias. However, the demographic profile of our sample was similar to those in previous studies on homelessness and tobacco use. Secondly, smoking status was self-reported and not biochemically validated with a cotinine test, potentially invalidating results if participants were non-smokers. However, past research finds self-reported smoking status correlates highly with cotinine levels (Binnie, McHugh, Macpherson, Borland, Moir, & Malik, 2004). Finally, this study was conducted in Kentucky, a state with strong tobacco norms; it is possible that homeless adults in other states may have different perceptions and experiences to the barriers and facilitators to tobacco cessation.

Public Health Policy Implications

Opportunities to improve tobacco-related health disparities among the homeless exist through health and housing policy. Such policies can create an environment free from tobacco and promote smoking cessation.

The CDC recommends implementation of appropriately funded, comprehensive tobacco control programs to reduce tobacco-related health disparities, diseases, death,

and economic costs (CDC, 2014a; USDHHS, 2014). Based on previous research and anecdotal evidence from this study, one step towards reducing tobacco-related health disparities among the homeless is creating an anti-tobacco environment. Tobacco control programs should focus on implementing comprehensive smoke-free homeless shelters, including eliminating smoking outside the building and providing smoking cessation resources to those interested in quitting. As discussed previously, permissive smoking policies indirectly promotes a pro-tobacco culture and exposes shelter patrons to cigarettes. Implementing a comprehensive smoke-free homeless shelter may reduce barriers to smoking cessation by limiting exposure and reducing environmental smoke. Previous research suggests comprehensive smoking restriction at homeless shelters is associated with increased interest to quit and decreased exposure to secondhand smoke (Calo & Kransy, 2013; Vijayaraghaven, 2015a).

Similarly, implementation of smoke-free housing has power to protect smokers and non-smokers alike. Due to a large portion of our study population living in housing programs, smoke-free housing can further create an anti-tobacco environment as emphasized earlier by the participants.

In addition, our study highlights the ease of accessing and abundant availability of cigarettes among the homeless community. Access and availability of cigarettes in the form of alternative smoking behaviors, panhandling, and sharing cigarettes amongst each other creates a pervasive tobacco environment and accepts smoking as a social norm. Public health policy should focus on solutions to deter easy access and availability of cigarettes as a means to eliminate a pro-tobacco community and decrease alternative smoking behaviors.

Finally, results from our study can significantly influence future public health and housing policy regarding tobacco cessation interventions. Because the barriers and facilitators to smoking cessation vary among our subgroups, public health policy should focus outreach at local day shelters, promote supportive housing, and improve access and availability to cessation at homeless shelters, as the homeless are in great need for assistance.

Public Health Practice Implications

This study adds the current public health literature reinforcing prior evidence that homeless smokers are similar to non-homeless smokers in their interest to quit smoking (Okuyemi et al., 2006). The desire to quit suggests homeless smokers perceive the behavior as undesirable and justifies the need for targeted and tailored tobacco cessation programming among this population. However, homeless smokers face unique and complex circumstances that challenge successful smoking cessation.

Tobacco control public health practitioners cannot face this issue alone. Collective action and collaboration is needed across disciplines to effectively reach and positively impact the homeless population. Such efforts should include developing a relationship between tobacco control practitioners, homeless shelter organizations, and healthcare providers.

Our study highlights that barriers to smoking cessation are not equal across the homeless community; supportive housing acts as a protective factor against smoking behaviors. Compared to participants in a Housing First and Treatment First program, those who are unsheltered face a disproportional amount of barriers to cessation, are less

likely to know where to access smoking cessation, and are more likely to engage in alternative smoking behaviors.

Future tobacco control interventions should consider tailoring smoking cessation interventions among the homelessness with consideration of housing program. An intervention that works with individuals in the Housing First program may not be as effective on unsheltered participants.

Further, proving supportive housing to all homeless individuals may be an expensive and impractical solution and does not guarantee individuals will quit smoking or will reduce tobacco-related health disparities. Instead, promoting cessation to reduce tobacco-related disparities requires a multidisciplinary approach. Collaboration should focus on creating innovative solutions to minimize alternative smoking behaviors, increase smoking cessation community outreach at homeless shelters and housing programs, and improving access to healthcare. Most importantly, efforts to reduce smoking among the homeless should focus on tailoring smoking cessation interventions to be accessible, affordable, and readily available with consideration to housing programs. Addressing these issues may have profound impact on reducing tobacco-related health disparities among the homeless.

Finally, the complexity of homelessness and smoking is vast requiring additional research to best identify and develop effective smoking cessation intervention strategies. Public health practitioners should be cognizant of the socio-environmental influence and its' impact on smoking cessation. Due to varying factors that promote smoking among the homeless population, this issue will require intervention strategies targeting multiple levels of influence to increase effectiveness as recommended by the CDC. Simply

focusing interventions on one level of influence may not be sufficient. As stated by Smedley & Syme (2000, p.4) in an Institute of Medicine report, “It is unreasonable to expect that people will change their behavior easily when so many forces in the social, cultural, and physical environment conspire against such change.”

Recommendations for Future Research

This present study explored issues of smoking cessation access and availability in an effort to inform tobacco control intervention research and reduce health-disparities among the homeless. This study did not explore preference to smoking cessation products or programs among male homeless smokers nor did it explore if the identified barriers are similar among homeless women and youth smokers. This information may be considered valuable and should be considered for future research.

Collectively, these finding suggests that housing is an important factor in the socio-environmental life circumstances among the homeless and their relationship with smoking and smoking cessation. However, because this study is exploratory, additional qualitative and quantitative research is needed to support this association.

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APPENDICES

Appendix A: Eligibility Form

Participant ID: _____ **Date:** _____

1. Are you 18 years or older?

a. If no, then **INELIGIBLE**

2. Do you identify as male, female, or other?

a. If female or other, then **INELIGIBLE**

3. Have you ever smoked at least 100 cigarettes in your lifetime?

a. If no, then **INELIGIBLE**

4. Do you currently smoke everyday, some days, rarely, or not at all?

a. If rarely or not at all, then **INELIGIBLE**

Appendix B: Interview Guide

The following script will guide the in-depth interviews; however all questions will not be asked. Questions will be determined based on participant's responses.

I. Introduction

Good afternoon. Thank you for taking the time to speak with me about cigarette smoking and health. My name is Bernadette Guzman. I am a student at The University of Louisville's School of Public Health and Information Sciences.

I've invited to this meeting because you identify as a current smoker and are currently residing at [insert name of homeless shelter]. I am interested in designing a health promotion program to help homeless people quit smoking, and would like your opinions to help make the program a success. There are no known risks for your participation in this research study. The information collected may not benefit you directly. The information learned in this study may be helpful to others.

I will ask you a number of questions and give you a chance to respond. I would appreciate honest opinions, so feel free to say whatever you would like about the topic. I am interested in what you have to say. As far as I am concerned, there are no right or wrong answers.

If you consent to this study, this interview will be tape recorded so that I can refer back to your comments, which will help me organize all information. The information from this interview will be used for designing a health promotion program. Our interview will last between 45-90 minutes. Do you have any questions? [*If there are any questions, I will answer them accordingly*]

Following the interview, I will ask several demographic questions. The demographic questionnaire will last between 1 and 3 minutes. The demographic questionnaire will conclude the interview process.

I will not share your comments with anyone who works here and your comments will not jeopardize your shelter status.

Okay, let's start by taking a few minutes to review more about this research study. This is a consent form [**SHOW CONSENT FORM**]. If you need help with the form for any reason, please let me know. I will read the consent form out loud. If, after reviewing the form you do not want to participate, you will be allowed to leave. If you agree and still want to participate, I ask you to sign the form. At the end of the interview I will give you a copy of the consent form. As you review the form, please feel free to ask any questions.

[Give informed consent form to the participant, give them a few minutes to read and sign. Proceed to read out loud the consent form.]

If you understand the informed consent and would like to continue participating in this interview, please sign and date the form. If you do not agree or do not understand the nature of the informed consent, please ask me any questions about the form. If you do not understand and do not wish to further participate, you are allowed to leave.

II. Smoking Experiences

1. When did you start smoking?

[Potential probing questions]

- i. How did you start smoking?
- ii. How many cigarettes do you smoke in a typical day?
- iii. Where do you purchase or obtain your cigarettes?
- iv. Have you ever used electronic cigarettes, even just one time in your life?
If Yes then, ask the following:
 1. How often do you use electronic cigarettes?
 2. Where do you purchase or obtain electronic cigarettes?
- v. Have you ever used smokeless tobacco such as chewing tobacco, snuff, or snus, even just once time in your life?
If Yes, then ask the following:
 1. How often do you use smokeless tobacco?
 2. Where do you purchase or obtain smokeless tobacco products?

III. Social Norms

1. To the best of your knowledge, do any of your family members, friends, or peers smoke cigarettes or use tobacco products?

[Potential probing questions]

- i. How often would you say that those persons smoke cigarettes or use tobacco products?
 - ii. To the best of your knowledge, where would you say they purchase or obtain their cigarettes or tobacco products?
- ### **2. To the best of your knowledge, what do you think your family members feel about smoking cigarettes?**

3. To the best of your knowledge, what do you think your friends or peers feel about smoking cigarettes?

IV. Perceived Seriousness

1. What do you believe are the drawbacks of smoking?

[*Potential probing questions*]

- i. Do you know of any health problems that smoking might cause?
- ii. Have you or someone that you know had any problems from smoking?
- iii. How serious do you consider this health problem to be?

V. Perceived Susceptibility

1. How likely do you think it is that you will experience any health problems from smoking?

Now, I would like to discuss your opinions about quitting smoking including any attempts that you have made to quit smoking in the past.

VI. Smoking cessation, experiences, knowledge, attitudes, beliefs, barriers and Facilitators

1. Have you ever tried to quit smoking cigarettes? Tell me about your experience.

[*Potential probing questions*]

- i. Was this in the past 12 months?
- ii. What are some things do you think made it hard to quit?
- iii. What are some things do you think made it easy to quit?

2. Have you ever thought about quitting?

[*Potential probing questions*]

- i. What are some reasons why you would want to quit?
- ii. What are some things do you think would make it hard for you to quit?
- iii. What are some things that would make it easy for you to quit?
- iv. Are you interested in quitting in the next 6 months?

3. If you are not considering quitting anytime soon, what are your general thoughts on the idea of quitting smoking. I am interested in knowing some of the reasons for your decision.

4. Is there anything else you would like to share?

VII. Closing Remarks

Thank you for your time, opinions, and patience during this interview. My ultimate goal is to help people who are homeless and want to give up smoking to quit successfully. We have discussed your opinions and experiences with cigarette smoking and quitting smoking. Your answers will help develop future smoking cessation programs for homeless individuals. Do you have anything else to add or want to share? Do you have any questions for me? *[if there are questions, I will answer accordingly]*

Finally, once I am finished organizing and analyzing all interview responses, would you be interested in reviewing my work? Would you be interested in providing feedback or opinions? If yes, I will return to [insert name of shelter] in a month and a half. I will notify [insert name of staff member] and tell them the exact date I will be returning. You can contact me through [insert name of staff member] or from the contact information listed on the copy of your informed consent sheet.

Thank you again for your time. It was a pleasure meeting you.

Appendix C: Demographic Form

Participant ID _____

Date _____

AGE

1. What is your age?

_____AGE IN YEARS

RACE

2. What is your race?

- ☐ White
- ☐ Black or African American
- ☐ Asian
- ☐ Native Hawaiian or Other Pacific Islander
- ☐ American Indian or Alaska Native
- ☐ Some other racial category
- ☐ Specify _____
- ☐ Refusal
- ☐ Don't Know

ETHNICITY

3. Are you Hispanic or Latino?

- ☐ Yes
- ☐ No

EDUCATION

4. What is the highest level of education you have received?

- ☐ 5th grade or less
- ☐ 6th grade
- ☐ 7th grade
- ☐ 8th grade
- ☐ 9th grade
- ☐ 10th grade
- ☐ 11th grade
- ☐ 12th grade, no diploma
- ☐ GED or Equivalent
- ☐ Highschool Diploma
- ☐ Some College, No Degree
- ☐ Certificate, Diploma, or Associate Degree: Occupational, Technical, or Vocational Program
- ☐ Associate Degree
- ☐ Bachelors Degree
- ☐ Masters Degree

- ☐ Professional School Degree
- ☐ Doctoral Degree

5. How long have you currently been homeless?

Years _____

Months _____

Days _____

If the person was homeless for **LESS than 1 year**, ask the following:

6. How many times during the past 12 months were you NOT homeless?
_____ times

If the person was homeless for **MORE than 1 year**, ask the following:

7. Was there a time when, during this homeless period, you were NOT homeless?

- ☐ Yes
- ☐ No

8. If YES, for how long? _____

9. Has a doctor, nurse, or other health professional ever diagnosed you with a mental or emotional disorder?

- ☐ Yes
- ☐ No

10. Have you taken any prescribed medications for mental or emotional problems?

- ☐ Yes
- ☐ No

11. Have you had a prescription you could not fill?

- ☐ Yes
- ☐ No

12. Has a doctor, nurse, or other health professional ever diagnosed you with a substance use disorder?

- ☐ Yes
- ☐ No

13. Have you ever served on active duty in the United States Armed Forces, either in the regular military or in a National Guard or military reserve unit?

- ☐ Yes
- ☐ No

For Researcher Use:

HOUSING STATUS

14. Shelter Placement:

- ☐ Louisville Rescue Mission (Treatment first)
- ☐ Family Health Centers (Housing first)
- ☐ Louisville Rescue Mission Emergency Day Shelter (unsheltered)

CURRICULUM VITAE

Bernadette Guzman Antoon

Contact: Bernadette.antoon@gmail.com

Phone: 202-714-7896

Department of Health Promotion and Behavioral
Sciences School of Public Health and Information
Sciences University of Louisville
Louisville, KY 40203

EDUCATION

PhD(c), Health Promotion and Behavioral Sciences,
University of Louisville (exp. 2016)
M.P.H., Health Management and Policy,
University of Florida (2012)
B.S., Health Education
Minor in Organizational Leadership for non-profits,
University of Florida (2010)

DISSERTATION TOPIC:

Reducing Tobacco Related Health Disparities: Exploring the barriers and
facilitators to tobacco cessation among individuals experiencing homelessness.

RESEARCH INTERESTS:

My research interests include: tobacco use among disparate populations, in
particular, individuals experiencing mental illness or homelessness;
tobacco prevention through community, systems, and policy changes in
mental health workforce and education; public health infrastructure
sustainability as public health issues.

TEACHING EXPERIENCE

Co-instructor at University of Louisville

PHPB 615: Advanced Public Health Program Evaluation (graduate level)
Fall 2014

Teaching Assistantships at University of Louisville

PHPH 101: Introduction to Public Health (undergraduate level)
Fall 2012, Spring 2013, Fall 2013, Spring 2014, Fall 2014, Spring 2015

PHUN 405: Community, Culture, and Health Equity
(undergraduate level)
Spring 2015

PHUN 440: Biology for Population Health
(undergraduate level)
Fall 2014

PHPB 614: Critical Thinking and Program Evaluation
(graduate level)
Spring 2013, Spring 2014

PHPB 615: Advanced Public Health Program Evaluation
(graduate level)
Fall 2013

Teaching Assistantships at University of Florida
HSC 3102: Personal and Family Health
(Undergraduate level)
Fall 2009

RESEARCH EXPERIENCE

Research Assistantships at University of Louisville
Department of Health Promotion and Behavioral Sciences
Research Assistant
Fall 2012, Spring 2013, Fall 2013, Spring 2014

Research Assistantships at University of Florida
Shands Hospital Department of Nursing Research and
Education
Neurology Health Education Research Assistant
Spring 2010

Department of Health Education and
Behavior
Research Assistant
Fall 2009, Spring 2010, Summer 2010

WORK EXPERIENCE

Centers for Disease Control and Prevention,
Office on Smoking and Health
Evaluation Fellow
January 2012 - August 2012

UF Multidisciplinary Diagnostic and Training Program
Program Coordinator
November 2011- January 2012

Shands Healthcare Community Relations and Education Coordination
Community Relations and Education Coordinator
January 2009 – December 2010

PUBLICATIONS

Antoon, B.G., Wilson, R.W. (2016). Are clinical and counseling psychology students interested in tobacco education and cessation training: an exploratory study. *Psychology and Education Journal*, 53 (2),1-14.

Guzman, B.M. (2014). Smoking and mental health: a call for advocacy”. APHA Student Assembly Newsletter. P. 16.

PRESENTATIONS AND MEDIA INTERVIEWS

Invited Presentations

Guzman, B.M. “Evaluation Reporting”. University of Louisville School of Public Health and Information sciences, KY. April 2, 2014, Louisville, KY (Guest Lecture).

Guzman, B.M. “Evaluation Basics and Critical Thinking”. University of Louisville School of Public Health and Information Sciences, KY. February 5, 2014, Louisville, KY (Guest Lecture).

Guzman, B.M. “Needs Assessments and Critical Thinking”. University of Louisville School of Public Health and Information Sciences, KY. January 22, 2014, Louisville, KY (Guest Lecture).

Guzman, B.M. “Smoking and Mental Illness- a Systems Perspective”. University of Louisville School of Public Health and Information Sciences. PhD Seminar Series, November 2013, Louisville, KY (Oral Presentation).

Guzman, B.M. “Evaluation Recommendations and Reporting”. University of Louisville School of Public Health and Information Sciences. Guest Lecture, April, 2013, Louisville, KY (Oral Presentation).

Guzman, B.M. “Idaho: A CPPW Success Story”. Centers for Disease Control and Prevention’s Office on Smoking and Health Brown Bag Lunch Lecture Series, April 2012, Atlanta, Georgia (Oral Presentation).

Conference Presentations

Guzman, B.M., Wilson, R.W. "An Exploratory Study of Clinical and Counseling Psychology Doctoral Students Characteristics, Perceptions,

and Intention to Address Tobacco with Future Clients". American Public Health Association's 143rd Annual meeting, November 2015, Chicago, IL (Poster Presentation).

Guzman, B.M., Wilson, R.W. (2014). "An Exploratory Study of Clinical and Counseling Psychology Doctoral Student Characteristics, Perceptions, and Intention to Address Tobacco with Future Clients". Research!Louisville. October, 2014 (Poster Presentation).

Guzman, B.M., Jackson, T. "Developing Seasonal Flu Communication Materials for College students Using a Mental Models Approach for Risk Communication. A Pilot Study". 66th Annual Kentucky Public Health Association Conference, April 16, 2014, Louisville, KY (Poster Presentation).

Guzman, B.M., Lavinghouze, R., Riker, P., Andrews, S. "Engaging your Data: Using Process Success Stories to Promote Program Achievements and Report Interim Results". American Evaluation Association 27th Annual Conference, October 2013, Washington, D.C (Poster Presentation).

Guzman, B.M., Jackson, T. "Developing Seasonal Flu Communication Materials for College students Using a Mental Models Approach for Risk Communication-A Pilot Study". Research!Louisville, September, 2013, Louisville, KY (Poster Presentation).

Guzman, B.M., Hazel, D., Botones, M. "Total Employee Health: A Needs Assessment of Louisville's Water Billing Company". American Psychological Association, May, 2013, Los Angeles, CA (Poster Presentation).

Lavinghouze, S.R., Reiker, P., **Guzman, B.M.** "How to communicate the progress and value of your program through a story". National Conference on Tobacco or Health, August 2012, Kansas City, MO (Oral Presentation).

Sheu, J. J., Chen, W. W., **Guzman, B. M.,** & Weng, C. B. The Relationship between Diffusion Incentives and Adoption Intentions of Online Tobacco Prevention Education Program among School Districts in Florida. Manuscript submitted to Journal of Drug Education, under review.

Sheu, J.J. Chen, W.W., **Guzman, B.M.,** Weng, C.B. "Relationship between Diffusion Incentives and Adoption intentions of Online Tobacco Prevention Education Programs among School Districts in Florida. American Public Health Association 139th Annual Meeting, October 2011, Washington, D.C (Poster Presentation).

Weng, C.B., Chen, W.W., Sheu, J.J., **Guzman, B.M.** “Needs, Barriers, and Challenges in Tobacco Prevention and Intervention Teacher Training Program among School Districts in Florida”. American Public Health Association 139th Annual Meeting, November 2011, Washington,DC (Poster Presentation).

Sheu,J.J., **Guzman,B.M.** “ The Prevention Spectrum as a Theoretical Framework for Reducing Health Disparities”. Society for Public Health Education and The Prevention Research Centers Joint 2010 Conference, April 2010, Atlanta, GA (Poster Presentation).

Media Interview

Guzman,B.M. “Smoking and Mental Illness: News You Can Use”. Interview Guest on Louisville, KY’s local news channel, WHAS-11. December 19, 2013. <http://www.whas11.com/community/INTERVIEW-Smoking-and-mental-illness-236578221.html>

CERTIFICATIONS

LGBT Health and Wellness Competency
March 2015-present

AWARDS/GRANTS RECEIVED

University of Louisville Awards

2014 Commission on Diversity and Racial Equality/School of Graduate Studies Diversity Grant Recipient (\$1,000)
2014 Golden Key Honor Society Recipient
2014 Council on Post Secondary Education - Idea Festival Scholarship Recipient
2013 Chris Labyk Award for Promising Student Health Initiatives (\$1,000) 2013 Kentucky Public Health Association Conference Scholarship Recipient

University of Florida Awards

Florida Medallion Scholarship Recipient (financed 75% of undergraduate tuition) Fall 2006, Spring 2007, Fall 2007, Spring 2008, Fall 2009, Spring 2010

DEPARTMENTAL AND UNIVERSITY SERVICE

Service at University of Louisville

SPHIS ad hoc Grievance Committee Member – Student Representative
Summer 2014

SIGS Learning Community- Graduate Student Member
Fall 2012, Spring 2013

Service at University of Florida

UF Public Health Executive Committee – Graduate Student Representative Spring 2011, Summer 2011, Fall 2011

UF Public Health Student Association –
President Fall 2010, Spring 2011, Summer 2011

UF Student Health Interdisciplinary Program – Student
Educator Fall 2010, Spring 2011

UF Student Health Interdisciplinary Program – Community Service
Chair Fall 2011

UF Friends for Life of American –
President Fall 2003, Spring 2004

Service at the Centers for Disease Control and Prevention

CDC

Ambassador

Summer 2012

CDCs Epidemiology Branch Seminar Series Working Group
Member Spring 2012, Summer 2012

COMMUNITY SERVICE/ INVOLVEMENT

DC Paws Rescue

Volunteer Social Media Specialist

February 2016- present

Skimm'assador – Brand

representative theSkimm

March 2015- present

Louisville Metro Department of Public Health and Wellness Healthy Hometown

Tobacco-Free Living Community Member

Fall 2012, Spring 2013

Jefferson Street Baptist Center Community

Volunteer Spring 2014, Summer 2014

TRAININGS/CONTINUING EDUCATION/CERTIFICATIONS

University of Louisville Graduate Teaching Academy

Fall 2012

AEA/CDC Summer Evaluation Institute – Project Management, Theory
to Improve evaluation Practice, Qualitative interviewing, Visual
Qualitative Analysis

Summer 2012

PROFESSIONAL AFFILIATIONS

American Evaluation Association-
Student Member Fall 2012- Present

American Public Health Association-
Student Member Fall 2011- Present