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Smoking Among Youth Living with HIV: The Intersection of Behavioral Health and Chronic Disease

Todd Wells

University of South Florida, twells1@health.usf.edu

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Smoking Among Youth Living with HIV:
The Intersection of Behavioral Health and Chronic Disease

by

Todd Wells

A dissertation submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy
Community and Family Health
College of Public Health
University of South Florida

Co-Major Professor: Oliver T. Massey, Ph.D.
Co-Major Professor: Julie Baldwin, Ph.D.
Patricia Emmanuel, M.D.
Julianne Serovich, Ph.D.
Dinorah Martinez Tyson, Ph.D.

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computers

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Dedication

I would like to dedicate this dissertation to my uncle A.G. He lost his life to complications related to HIV/AIDS during my formative years, which was a great loss for my family. Technological advances have provided the opportunity for persons with HIV to live longer lives; let us all strive to extend them even longer.

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Abstract

Smoking amongst youth living with HIV (YLWH) has major public health implications. When combined with the complications associated with smoking such as chronic obstructive pulmonary disorder (COPD) or heart disease, the impact of a HIV positive diagnosis increases morbidity exponentially (Nahvi & Cooperman, 2009). The purpose of this study was two-fold, to investigate the perceptions of smoking amongst YLWH aged 18-25 who received care at the CMS Clinic located at the University of South Florida and to determine factors related to cessation. A study design utilizing two components, a systematic literature review and primary qualitative data was used in this dissertation. The systematic literature review was used to identify and examine published research studies that compared smoking cessation interventions for youth and young adults. Twenty-five in depth interviews were conducted in order to determine themes related to smoking cessation and the factors associated with the experience of smoking.

Chapter One

Introduction

Modes of HIV transmission include perinatal and behavioral transmission. Perinatal transmission is the transmission of HIV from mother to child during vaginal birth. Behavioral transmission is transmission through high-risk behaviors such as intravenous drug use and unprotected sexual contact. HIV surveillance data indicate that less than 300 children a year are born with HIV, while the existing population of 8,500 perinatally acquired HIV children are under 19 and approaching adulthood (CDC, 2004). These data indicate that behaviorally acquired HIV positive youth represent the major share of adolescents and young adults that are infected with HIV. As behaviorally acquired HIV positive youth begin to age out of pediatric care, they face new psychosocial and behavioral challenges, including how to treat tobacco dependence. The etiology of smoking has its origins in multiple factors and continues to be a pervasive public health problem. While national rates of smoking continue to decline, the prevalence of smoking among several micro-populations, such as YLWH, continues to rise. Development of smoking cessation programs for YLWH has important implications including reducing morbidity and mortality among YLWH as well as reducing the long term costs associated with care for YLWH.

The landscape of preventative medicine and evidenced based interventions designed to treat YLWH must adapt and consider solutions that are sensitive to their unique needs. Issues such as the biological impact of smoking and ability to tolerate pharmaceutical-based cessation

interventions in conjunction with Highly Active Antiretroviral Therapy (HAART) must be addressed when designing cessation programs for YLWH. Smoking cessation programs can function as vehicles to decrease morbidity and expenditures associated with medical care for YLWH, leaving these resources available to bolster HIV prevention and drug assistance programs.

Smoking Among Youth

In order to fully understand the relationship between smoking and YLWH, one must become familiar with the existing trends among youth and tobacco usage. While smoking among youth has steadily declined since 1970, approximately 20% of youth have smoked in the past 30 days and almost 60% have tried smoking at least once in their lifetime (Branstetter, Blosnich, Dino, Nolan, & Horn, 2012). Between 1989-1993, approximately 5,500 youth experimented with cigarette smoking each day and close to 3000 became established daily smokers (Gilpin, Choi, Berry, & Pierce, 1999). Current CDC estimates on youth tobacco use indicate that 3,800 youth experiment with cigarette smoking per day and 1,000 youth become established daily smokers (CDC, 2012).

Significance to Public Health

The Health Resources and Services Administration (HRSA) is the agency within the U.S. Department of Health and Human Services (DHHS) that is responsible for directing national health programs designed to improve the nation's health. These goals are accomplished by assuring equitable access to quality health care for all, including YLWH. In 1990, the United States Congress passed the Ryan White Comprehensive AIDS Resources Emergency (CARE)

Act to address the health care and service needs of person's living with HIV (PLWH) and their affected family members. The Act was reauthorized in: 1995, 2000, 2006 and in 2013. The Ryan White program is currently funded at \$2.29 billion and serves over a half a million people each year (HRSA, 2010). Recipients of Ryan White services are generally racial/ethnic minorities and have lower socioeconomic status than the members of the general population (HRSA, 2010). While the Ryan White program continues to be funded, budget cuts and an increase in new cases have caused service provision to outpace funds allocated. These budget cuts are happening during a time when the average life span for YLWH can be up to 70 years (High et al., 2012). This change in program funding along with the increased life expectancy of YLWH has resulted in the need to examine new means of tertiary prevention for PLWH, including development of smoking cessation programs for YLWH. With this longer life span, chronic conditions associated with smoking stand to increase levels of morbidity among YLWH creating a scenario where public health spending for YLWH increases exponentially (High et al., 2012). Efforts to curtail smoking by YLWH can reduce the prevalence of tobacco related ailments and the associated costs. While scarce data is available on the direct and indirect financial costs of smoking by YLWH, a large body of research on smokers has been amassed. Calculating direct medical expenditures associated with health interventions is used to evaluate their effectiveness. The costs associated with surgical procedures for smokers are significantly higher than costs for non-smokers as a result of pre-existing conditions associated with smokers as well as the negative impact smoking has on the immune system's ability to recover (Kamath et al., 2012). This difference in hospital costs is exacerbated by postoperative respiratory complications that are associated with smoking (Kamath et al., 2012).

Along with the direct costs associated with smoking there are indirect costs that must be accounted for as well. In a recent study looking at estimated productivity loss due to premature mortality, the values were significantly higher for young people who smoke (Menzin et al., 2012). Smokers are also expected to spend over \$75,000 more on health care related expenses and reduce their life span by 20 years (CDC, 2006; Moriarty et al., 2012). These studies are based on healthy smokers and it is expected that when combined with the annual costs of treating HIV, the costs of care for smokers living with HIV will increase exponentially. The annual costs of providing care to a PLWH is estimated to be near \$20,000 and this figure doubles when patients are in advanced stages of the disease (Gebo et al., 2010). Another example of the increasing costs of providing HIV care is noticed in the distribution of funds from 1998-2006 where the proportion of costs due to medication has risen as patients now live longer (Gebo et al., 2010).

While medication costs remain a substantial proportion of overall dollars spent, inpatient services for severe immunosuppression continues to be the most expensive category of care (Gebo et al., 2010). As cohorts of PLWH begin to live longer, inpatient care costs are also expected to increase as a result of treating age and behavior related complications such as COPD, which is a direct result of smoking (Grabar, Weiss, & Costagliola, 2006; Ship, Wolff, & Selik, 1991; Villamil-Cajoto, Losada-Arias, Prieto-Martinez, Lires-Moledo, & Quintela-Vazquez, 2006).

Purpose of Dissertation

This dissertation was a two component study. Component one was a systematic literature review to identify and evaluate published research studies that compared smoking cessation

interventions for youth and young adults. Component two was a qualitative study design utilizing primary data collection to investigate the underlying cognitive processes associated with smoking among HIV positive youth aged 18-25. The long-term goal is to influence the design of a smoking cessation intervention for YLWH.

This dissertation consisted of collaborating with the CMS clinic at the University of South Florida to conduct in-depth interviews with patients from their clinic. The University of South Florida's CMS clinic has several ongoing studies investigating the health complications of YLWH. Participants were invited to be interviewed about their perceptions in relation to smoking. Findings from this study may contribute to the understanding of why YLWH choose to continue smoking, which can be critical to intervention design.

Diagram 1 (below) provides an overview of the research methods for this dissertation including how each component and corresponding research questions are integrated to accomplish the primary objectives of this study. The study protocol was submitted to and approved by the University of South Florida's Social and Behavioral Institutional Review Board (see Appendix A).

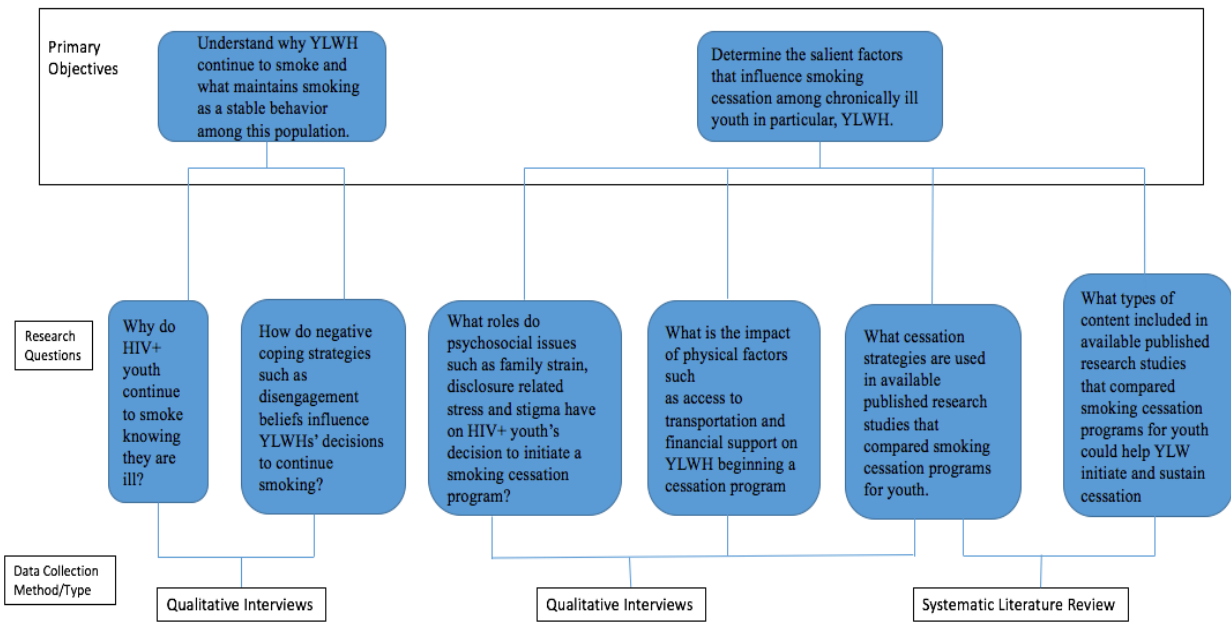


Figure 1.
Primary Objectives & Research Questions

Chapter Two:

Background and Review of the Literature

Introduction

Researchers suggests smokers with chronic conditions smoke more than the general population and experience a different set of distinct barriers to cessation (Dube, Asman, Malarcher, & Carabollo, 2009; Schiller & Ni, 2006). Barriers to cessation for healthy smokers include psychosocial factors such as peer pressure, while chronic disease survivors face barriers such as limited physically mobility and greater levels of poverty (Cengelli, O'Loughlin, Lauzon, & Cornuz, 2012; Schiller & Ni, 2006). A study by Gregor and Borrelli (2012) on the correlates of smoking among medically ill patients indicated that stress has the greatest negative impact on cessation and these effects are most pronounced among younger patients.

Cessation research for medically ill patients is predominantly with cancer survivors. Approximately 8-17% of patients diagnosed with lung cancer continue to smoke and only one-third seek out assistance in cessation (Cooley et al., 2007). This subset of patients tend to be younger, have lower educational attainment, have a greater number of smokers in their home environment and experience high levels of stress (Schnoll et al., 2002; Walker, Larsen, Zona, Govindan, & Fisher, 2004). In a follow up study, Cooley and colleagues (2009) also found that lung cancer survivors who continued to smoke had fewer co-morbid conditions and were more likely to smoke after their diagnosis and subsequent surgery. These findings suggest that

medically ill smokers whose health has improved perceive less risk associated with their continued smoking.

The majority of data on medically ill youth who continue to smoke is also primarily for cancer survivors; however, these data provide a starting point for research on other groups of chronically ill adolescent and youth smokers. Overall, 300,000 childhood cancer survivors live in the United States with between 17-20% being current smokers and this number doubles among cancer survivors who are still young adults (Bellizzi, Rowland, Jeffery, & McNeel, 2005; de Moor et al., 2011; Emmons et al., 2002; Frobisher et al., 2008). This number of youth cancer survivors who smoke is consistent with youth in general, as approximately 20% of youth in the United States are smokers (Branstetter, Blosnich, Dino, Nolan, & Horn, 2012). A study by de Moor and colleagues (2011) indicated that over 85% of childhood cancer survivors who smoke were motivated to quit and were either in the preparation or maintenance phase of quitting as determined by the Transtheoretical Model. These findings suggest that targeted or tailored cessation messages would have the greatest impact on cessation efforts. A recent study indicated that one in three adolescent cancer survivors reported smoking ever and one in ten reported smoking in the past week (Kahalley et al., 2012). Consistent with findings from adult data, psychological distress was shown to be a significant predictor of initiation and trajectory toward becoming a regular smoker among adolescent cancer survivors (Kahalley et al., 2012). In addition, these findings are consistent with work by Gregor and Borrelli (2012) which provides preliminary evidence of the role that stress plays in the pathway to smoking among medically ill adolescents.

Together these data present a combined picture of smoking among medically ill patients. Smokers with chronic conditions have lower perceived susceptibility of the health complications

associated with smoking, a factor that is related to increased intention to smoke among adolescent smokers. Smoking also produced lower quality of life scores on measures of mental and physical health functioning among chronic disease survivors who smoke versus those who do not smoke (Jang, Prizment, Haddad, Robien, & Lazovich, 2011; Tyc, Klosky, Lensing, Throckmorton-Belzer, & Rai, 2009). The findings from these studies highlight the need for smoking cessation programs for medically ill youth.

Developmental Aspects of Smoking

Over 90% of adults who smoke became regular smokers by age 18. Young age of initiation has shifted the etiology of smoking, which is now viewed as beginning during pediatric or adolescent years (CDC, 1994). The initiation of smoking among youth is multifactorial and has causal roots at the individual, interpersonal and environmental levels. Individual level factors include biological and physiological development. Interpersonal factors include family and peer influence; and environmental factors range from the influence of the built environment to the media (Smith & Stutts, 1999; Tucker, Ellickson, & Klein, 2003).

While YLWH face many specific challenges, there are biological, psychosocial and environmental factors that impact their development just as with youth who are not living with HIV. The role that physiological and biological factors have in high-risk behaviors within adolescents and young adulthood has been studied extensively. Cognitive and psychosocial development is impacted by changes in biology and brain physiology. Work by Steinberg and Cauffman (1996) on maturity in judgment of adolescents was one of the first to conclude that differences in psychosocial functioning between adolescents and adults could be linked to judgment. Their work not only acknowledged differences between adolescents and adults but it

also concluded that there are key differences in psychosocial functioning and judgment between older and younger adolescents.

Over the last two decades differences in psychosocial functioning have been extensively researched and as technology advanced, so too did the understanding of adolescent brain architecture. Biological changes mark the beginning of adolescence and with it come major neurocognitive development. These changes in brain architecture impact decision-making, emotional state and behavior as physical, cognitive, and emotional development all happen simultaneously during adolescence. Adolescent health researchers once believed that youth are poor decision makers and engaged in high risk behaviors because they were not as mature as adults; however, recent data suggests that youth simply make informed bad decisions (Steinberg, 2008). While the speed of neuronal transmission due to axonal myelination increases thought capacity and improves executive functioning, research suggests that this alone does not explain why adolescents make poor decisions. Researchers who study adolescent brain architecture have indicated that the region of the brain responsible for reward and pleasure is stimulated differently by exciting or stress inducing situations, especially when they are among peers (Galvan et al., 2006). Combined, these data suggest that adolescents are able to process the risk associated with risky behaviors in real time but due to the enhanced sensation they receive from the reward center of the brain, the risk is outweighed by the reward.

Adolescent progression through puberty and the accompanying biological and physiological changes alter brain architecture and impacts judgment. These findings are consistent with data that indicate adolescent smokers consider the costs of their actions and take them into account when evaluating their own risk but continue to smoke, suggesting that the consequences of smoking are either being underestimated or the reward centers of the brain are

overly excited about the physiological and social reward of smoking (Romer & Jamieson, 2001a). Peer behavior and subjective norms are indicated as mediators in the initiation of smoking among adolescents and these data provide some support to Romer and Jamieson's, (2001a) conclusion that adolescents underestimate the negative health consequences associated with smoking and these factors contribute to the initiation and trajectory of smoking among adolescents (Krosnick, Chang, Sherman, Chassin, & Presson, 2006; Romer and Jamieson, 2001a).

Internal and Environmental Factors That Contribute to Smoking

Researchers suggest that the transition from experimental smoking to becoming a regular smoker is influenced by both internal and external factors. Pro smoking attitudes and having peers or parents that smoke have been identified as significant predictors of smoking (Smith & Stutts, 1999; Tucker, Ellickson, & Klein, 2003). The prevalence of smoking escalates from late teens to young adulthood and this increase is statistically related to peers who smoke (Ali & Dwyer, 2009). Having a family member that smokes is the most relevant factor in initiation of smoking among adolescents and having peers who smoke is the most relevant factor in escalation of smoking among youth (Tucker et al., 2003). The impact of individual factors related to adolescent smoking plays a critical role and varies by age, gender and ethnicity; however, peers are viewed as the linchpin across all demographic data.

A recent study of peer influence on youth smoking indicates that a 10% increase in the proportion of classmates who smoke increases the likelihood of other students smoking by 3% (Ali & Dwyer, 2009). This effect is not only observed at the school or classroom level, the findings also translate to the interpersonal level and indicate that when youth have a 10%

increase in the number of smokers in their peer groups there will be a 5% increase in smoking initiation among the peer group (Ali & Dwyer, 2009). As the proportion of older teens that smoke increases, surveillance data indicate that the rate of younger teens that try smoking increases as well; which researchers suggest is a result of exposure to smoking behaviors by older peers (Goldade et al., 2012). While factors such as having at least one friend who smokes and parents who allow smoking at home are predictors in early initiation of smoking, researchers are considering the function of older youth in initiation as well. Older adolescents may not only serve as exemplars for smoking but can potentially be a source of cigarettes for younger adolescents which can lead to initiation of smoking due to greater access (Goldade et al., 2012). The role that peers have in adolescent smoking initiation and escalation can range from overt behaviors like providing access to cigarettes to more covert roles such as modeling smoking behaviors.

Mental Health Correlates of Smoking

Clinical and epidemiological data indicate that psychiatric disorders are strongly associated with increased prevalence of smoking and are important factors in the etiology and transition to nicotine dependency among youth (Dierker & Donny, 2008; Kalman, Morissette, & George, 2005; Lasser et al., 2000). The co-morbidity of psychiatric disorders and nicotine dependence among adolescents is an area of expanding research as the onset of depression among adolescents occurs during the same time as the average age of smoking initiation (Goodman & Capitman, 2000; Wu & Anthony, 1999).

Works by Griesler and colleagues (2008) and Dierker and Donny (2008) indicates that psychiatric disorders preceded nicotine dependence among youth and that depression is linked to

greater sensitivity to low levels of nicotine among adolescents. Depressive symptoms at age 14 have been shown to predict smoking at age 18 and accelerate smoking initiation (Audrain-McGovern, Rodriguez, & Kassel, 2009). In addition, youth smokers reported greater variance in depression after smoking, this indicates that the presence of depressive symptoms can be a predictor of smoking among youth or a means of self-medicating depressive symptoms. It is estimated that 25% of adolescent smokers and 25% of all adolescents have at least one major depressive episode by age 18, which has led investigators to believe that the co-morbidity of smoking and depression among youth results from their efforts to self-medicate (Lewinsohn, Hops, Roberts, Seeley, & Andrews, 1993). Recent data seem to support the hypothesis that depressed youth smoke as a way of self-medicating to relieve the malaise associated with depression (Chaiton, Cohen, O'Loughlin, & Rehm, 2010). Adolescent smokers who reported psychobiological benefits from smoking are at higher risk for a major depressive episode; however, no determination has been reached on whether smoking is alleviating a craving for nicotine or diminishing depressive symptoms (Audrain-McGovern et al., 2009).

In addition to smoking to reduce depressive symptoms, adult models of smoking etiology indicate that smokers with a history of depression have strong cognitions related to negative affect reduction and social facilitation or making friends (Weinberger, George, & McKee, 2011). While the relationship between cigarette smoking and depressive disorders among adolescents has been studied extensively, only a handful of studies have evaluated the role of confounding environmental factors related to the co-variation of depression and smoking among adolescents. A study by Munafò and colleagues (2008) indicates that adolescent smoking initiation and maintenance is influenced by depressive symptoms even after controlling for confounders such as alcohol consumption and peer smoking. Alcohol use and peer smoking

attenuated the statistical relationship between smoking and depression, but the relationship was still present.

The stress and vulnerability model of addiction posits that continued exposure to stress and the aggregate result on the ability to function mediates the initiation of smoking (Sinha, 2008). The cumulative effect of stress is associated with increased impulsivity, which is a predictor of current smoking status and is consistent with previous research studies that indicate smokers are more stressed, depressed and irritable than non-smokers (Ansell, Gu, Tuit, & Sinha, 2012). Mediating factors of the relationship between stress and youth smoking include environmental variables such as social status, academic performance and parental education (Finkelstein, 2006). Work by Fettes and Aarons (2011) and Roberts and colleagues (2008) supports the hypothesis that environmental conditions impact smoking among adolescents.

Factors Associated with Smoking Cessation

While the prevalence of smoking among adolescents has continued to decrease over the past two decades, cessation remains a challenge for established smokers. Almost two-thirds of adolescent smokers have unsuccessfully attempted to quit smoking in the past year (CDC, 2010; Grimshaw et al., 2003). Cessation programs that focus on self-efficacy, coping, motivation and peer influence have all shown efficacy; however, research studies on cessation indicate that a combination of these methods is best. While self-efficacy, coping and motivation have been identified as variables that increase the efficacy of cessation programs, further research is needed to determine the best combination of and setting to deliver them in (McDonald, Colwell, Backinger, Husten, & Maule, 2003) .

Self-efficacy, perceived susceptibility and environmental influence to illness have been studied extensively as mediators of smoking cessation among adolescents. Lower efficacy for cessation has been shown to be associated with higher rates of nicotine dependence and peer smoking is associated with escalation to dependence among adolescent smokers (Bricker, Liu, Ramey, & Peterson, 2012). These feedback cycles among peers and family members that smoke are believed to increase nicotine dependence and sustain friendships among smokers. There are competing views on the role that perceived risk plays in adolescent smoking. Romer and Jamieson (2001b) as well as Slovic (2001) found that adolescents who smoke are capable of making informed decisions about the long-term impact of smoking similar to adult smokers, but make informed bad decisions (Lundborg, 2007; Lundborg & Andersson, 2008). Contrasting views suggest that adolescents are not mature enough to consider the long-term consequences and engage in smoking due to over sensitivity of the pleasure centers in their brains. Recent data suggest that a combination of both views is taking place. A 2012 study investigating youth perceptions about smoking indicates that youth do consider how much they can smoke before health complications arise; however, low self-efficacy of cessation is linked to strength of cessation intention (Gerking & Khaddaria, 2012). The findings from this research study are consistent with data that showed adolescents who had greater perceived susceptibility of personal risks associated with second hand smoke were less likely to smoke and that perception of second hand smoke risk was a greater predictor of smoking than peer smoking (Song, Glantz, & Halpern-Felsher, 2009).

Young smokers are interested in quitting; however, smoking cessation programs designed for youth smokers have shown little success (Stanton & Smith, 2002; Sussman, Lichtman, Ritt, & Pallonen, 1999). Longitudinal studies on successful cessation determinants among youth

smokers indicate that peer delivered programs that emphasize limiting exposure to peers who smoke, older age at initiation of smoking and having an understanding of the long term health risks associated with smoking are all predictors of successful cessation (Cengelli et al., 2012; Latimer et al., 2012). While adolescent cessation research is plentiful, not much is currently known about the mechanisms by which psychological interventions work. Of the few studies that have investigated the impact of mediating processes on smoking cessation, motivation and self-efficacy were most commonly identified as effective mediators (Bricker, Schiff, & Comstock, 2011; Curry, Emery, & Sporer, 2007; Grimshaw & Stanton, 2006).

While motivating youth to quit smoking, cessation efforts must take the role of autonomy into consideration when developing behavior change strategies for adolescents. Motivational interviewing and structured behavioral advice have both been indicated as having the ability to bridge the gap between autonomy and motivation (Audrain-McGovern et al., 2011). A national survey indicated that most adolescent cessation programs are school based, multi-session programs that use cognitive behavior components that are similar to adult programs (Curry et al., 2007). School based cessation programs have many benefits including that 95% of adolescents attend school and that school nurses properly trained in cessation strategies are a great resource due to their prior medical knowledge and rapport with students (Pbert et al., 2011).

Psychosocial based cessation programs for youth indicate that participants quit about 10% of the time (Sussman, Sun, & Dent, 2006). With such low quit rates, researchers have begun to study the potential impact of adding a pharmacological component to psychosocial treatments. Pharmacotherapy has shown efficacy in adult settings with Varenicline outperforming Bupropion and the nicotine patch (Aubin et al., 2008; Jorenby et al., 2006). With the success of mono-pharmacological therapies, researchers have begun studying the efficacy of

combination pharmacological cessation medications to boost efficacy with early signs of achievement (Loh et al., 2012). To date, only few studies have evaluated the safety and efficacy of using pharmacotherapy with adolescent smokers due to the concerns about adherence and drug tolerance; however, preliminary data indicate that pharmacotherapy for older adolescent smokers is safe and feasible (Faessel, Ravva, & Williams, 2009; Gray, Carpenter, Lewis, Klintworth, & Upadhyaya, 2012; Worley & McGuinness, 2010). While the authors call for caution to be used in the interpretation of their findings, these data show promise in the viability of pharmacotherapy cessation treatments for youth smokers.

Youth smoking cessation programs range from psychosocial to pharmacological, to hybrid programs that incorporate both strategies. Cessation research studies have shown what messages youth want to hear, who should deliver it and their environmental preferences on where the message should be delivered (Myers et al., 2011). Delivery methods also vary from school to community based, to programs aimed at recruiting and retaining youth in cessation programs. Studies by cessation researchers indicates that motivation and incentives are tied to recruitment and retention in youth cessation programs. While motivation is associated with self-efficacy, the use of incentives such as gift cards is incongruent with intrinsic motivation, a factor that is associated with greater likelihood of success in cessation programs (Grana, 2007). Very little variability in recruitment and retention rates is seen between medically based or school based programs. While these programs have positive attributes that youth like, for example, schools are generally viewed as positive, safe places while doctor's offices offer anonymity and privacy; encouraging youth to participate and complete cessation programs is multifaceted and largely based on the individual (Grana, 2007).

Smoking Among Persons Living with HIV

PLWH smoke three times that of the national average and the findings from Tucker and colleagues (2003) suggests that smoking initiation in general is related to interpersonal and environmental exposures to tobacco usage during formative years (Reynolds, 2009). Together these data suggest that YLWH are potentially being exposed to smoking behaviors three times that of non-HIV positive youth and their smoking initiation could be a result of exposure during formative years. Jessor's (1991) theory of risk among adolescents describes a cluster of factors that are present in most cases of high-risk behaviors among youth. Researchers have conducted studies across urban landscapes with preteens and teens who engage in high risk behaviors such as substance use and their findings indicate that psychosocial factors are associated these behaviors (Romero et al., 2007). Behavioral factors are associated with increased propensity for high-risk behaviors among YLWH, which is consistent with the previous seminal works within the field of adolescent psychosocial HIV research dating back to the early 1990 when investigators began using Problem Behavior theory (Costa, Jessor, Donovan, & Fortenberry, 1995; Walter, Vaughan, & Cohall, 1991). Jessor's theory suggests that risky behaviors among youth are interrelated and vary across environments, which is consistent with the links between high risk behaviors among YLWH (Caminis, Henrich, Martin, Ruchkin, & Schwab-Stone, 2007; Walter et al., 1991).

Chronically ill youth endure several physical challenges and psychosocial issues. Physical challenges include intolerance of medication, while psychosocial issues can include negative emotional responses to knowledge of the illness and stigma. In addition, how youth cope with their illness is a major factor. When negative behavioral coping mechanisms such as smoking are developed, both the severity and number of negative consequences increase.

Much of the existing research on the psychological manifestations of chronic illness among adolescents has focused on cancer survivors with depressive symptoms. However, there are many co-occurring risk factors faced by YLWH that warrant studying. The stress and uncertainty that accompanies an HIV positive diagnosis are factors that can contribute to the higher rates of tobacco usage among HIV positive individuals, and thus, deserve further exploration. The prevalence of depression is estimated to be 44% and the prevalence of substance abuse is estimated to be 59% among YLWH (Gaughan et al., 2004) .

It is estimated that between 12% and 44% of YLWH have a severe emotional or behavioral disturbance (Mellins et al., 2003). The increased incidence of psychiatric problems amongst YLWH is complex due to the bidirectional nature of this phenomenon. Youth who have a history of psychiatric problems engage in more risk taking behaviors such as having unprotected sex and substance abuse, which puts them at greater risk for HIV (Committee on Pediatric, 2006; Dierker & Donny, 2008; Knudsen & Oser, 2009; Stone, Becker, Huber, & Catalano, 2012). In addition, YLWH who suffer from a severe emotional or behavioral disorder often have low adherence to their medical regimens which impacts their overall functioning and puts them at a greater risk of transmitting HIV (Dowshen, Kuhns, Johnson, Holoyda, & Garofalo, 2012; Garvie et al., 2011; Knudsen & Oser, 2009). YLWH receive more mental health interventions, have higher rates of psychiatric medication interventions and have higher rates of psychiatric hospitalization than rates reported for nationally Medicaid eligible non-HIV positive youth (Chernoff et al., 2009; Gaughan et al., 2004). YLWH have a psychiatric hospitalization incidence rate of 6.17 cases per 1000 person-years, while youth in general have an incidence rate of 1.70 per 1000 person-years (Gaughan et al., 2004). While high levels of negative psychosocial issues persist for YLWH, researchers who study protective moderators have

identified greater levels of perceived social support to be associated with lower levels of externalizing behavior problems (Steele, Nelson, & Cole, 2007).

Biological Impact of Smoking on PLWH

Between 50%-65% of PLWH are smokers (Reynolds, 2009). Smoking further exacerbates the health status of PLWH as their immune systems are already compromised (Hoffman, Starks, & Gritz, 2009). This fact highlights the relationship between smoking and AIDS related illnesses such as pulmonary disease, oral disease and malignancies, lung cancer and the increased prevalence rates of cardiovascular disease among individuals on HAART regimens.

Animal models indicate that smoking negatively impacts CD4 and CD8 production in as little as three weeks after initiation; however, the impact of smoking on lymphocyte subsets can be mitigated by cessation indicating that the negative impact of smoking can reverse or cancel out any gains of using HAART, which subsequently increases morbidity and mortality for PLWH (Fusby et al., 2010). These findings provide critical evidence of the impact smoking has on the CD4 cells, which are the primary target for HAART. A longitudinal study by Lifson and colleagues (2010) looked at a large, ethnically diverse sample of HIV-infected persons in order to determine a baseline relative risk associated with smoking and development of clinical events and mortality. At baseline, 40% were smokers; at 12, 36 and 60-month follow-up close to 40% of all participants were still smokers. Current smokers had the highest death rate at 1.5 per 100 person-years. Current smokers also had the highest rates of cardiovascular disease and non-AIDS cancers. Although the study is limited by a lack of data on duration and trajectory of smoking, as well as by the multiple causal routes of cancer, it does shed light on the statistical

relationship between smoking and HIV calling for further evaluation (Lifson et al., 2010). Participants in the study conducted by Lifson and colleagues (2010) received treatment with HAART, which indicates that smoking can negate the positive effects of HIV treatment. These findings are consistent with a study conducted by Vidrine (2009) which indicated that an increase in smoking intensity is associated with higher viral load and lower CD4 count. Even when other confounding variables are controlled for, smoking continues to negate the benefits of HAART leaving rates of mortality and morbidity significantly higher among PLWH who smoke as compared to those who do not smoke (Feldman, Minkoff, & Schneider, 2006).

Furthermore, researchers who study smoking among youth have begun to pinpoint smoking as a pediatric disease as most smokers have their first cigarette during adolescence (Curry, Mermelstein, & Sporer, 2009). This breakthrough in determining the etiology and trajectory of smoking is critical since current nomenclature on smoking within the HIV population focuses solely on adults. With youth becoming the new face of the HIV epidemic, these findings underscore the fact that smoking can become a major barrier to treatment for YLWH.

Pulmonary and cardiovascular diseases, along with non-AIDS defining malignancies, are among the most frequently reported non-AIDS causes of death (Lifson et al., 2010). These findings are critical considering smoking has been identified as a pathway to both pulmonary and cardiovascular disease (Palella et al., 2006). Also, an increase in deaths caused by non-AIDS defining malignancies is being reported, which is a first in the field of HIV (Palella et al., 2006). While studies have reported that rates of oncogenic viral co-infections such as human papillomavirus are the driving force behind increased incidence of non-AIDS defining cancers, a study by Achenbach and colleagues (2011) provides contradictory evidence to this (Palella et al.,

2006). Their findings suggest that what is currently understood about the etiology of non-AIDS defining cancers may be incorrect and suggest lifestyle choices such as smoking may have a greater role in the development of non-AIDS defining cancers and mortality among HIV positive persons (Achenbach et al., 2011). These findings provide evidence to support previous findings that lifestyle and behavioral health factors such as smoking may explain the higher rates of cancer incidence among HIV-infected persons (Patel et al., 2008).

Smoking Cessation for PLWH who Smoke

Currently there is a paucity of data on delivering smoking cessation programs to HIV positive smokers. Using content analysis, Harris (2010) identified 272 articles using keyword searches “smoking and HIV” or “smoking cessation interventions for HIV positive smokers” using the online database Web of Science. Each article was classified into one of the following categories: Discovery, Delivery, Review or Excluded. The author then identified which articles were citing either seminal works or another article with similar characteristics. Most published articles regarding HIV and smoking were in the discovery category and had the oldest publication history. Work by both Vidrine (2009) and Harris (2010) call for additional research of smoking in PLWH and encourage the scientific community to better disseminate evidence related to the delivery of smoking cessation interventions for PLWH.

Among the available data on cessation programs for PLWH, researchers have suggested that PLWH face psychological, psychosocial and biological barriers to cessation. While PLWH face specific challenges in cessation, the literature suggests that decisional balance and self-efficacy to resist smoking are the psycho-behavioral domains that show the most promise in achieving long term cessation for PLWH (Moadel et al., 2012).

In addition to behavioral and psychological interventions, several pharmaceutical interventions have also shown efficacy as stop smoking alternatives. Varenicline and Bupropion are two pharmacologic interventions used for smoking cessation. Varenicline is a nicotinic receptor agonist that reduces cravings for nicotine, and Bupropion is an antidepressant that is commonly prescribed for smoking cessation as it is a neurotransmitter re-uptake inhibitor that reduces the amount of dopamine, the neurotransmitter associated with pleasure (Cui et al., 2012; Thompson, Silverman, Dzeng, & Treisman, 2006). Varenicline has demonstrated efficacy among non-HIV positive persons and a recent study of its use with PLWH indicates that the drug has similar tolerability and cessation rates with PLWH (Eisenberg et al., 2008; Hays & Ebbert, 2008; Ranney, Melvin, Lux, McClain, & Lohr, 2006; Tornero & Mafe, 2009). While quit rates are comparable between PLWH and non-HIV positive smokers who use Varenicline, a recent study by Cui and colleagues (2012) reported that PLWH have adverse events such as nausea, headaches and abnormal dreams which are believed to be the driving force behind the high rates of attrition in Varenicline based cessation programs among PLWH. Additional concerns of using Varenicline as an option for smoking cessation with PLWH include a meta-analysis conducted by Singh, Loke, Spangler, and Furberg (2011) which found elevated incidence of cardiovascular events. Their work evaluated the use of Varenicline with HIV negative smokers and the findings suggest Varenicline is associated with increased incidence of cardiovascular events. PLWH on HAART have an increased rate of cardiovascular events thus precautions must be taken in the co-administration of HAART and Varenicline (Lifson et al., 2010).

Clinical studies investigating tolerability of the co-administration of Bupropion with HAART indicate similar results to Varenicline. Headaches, panic attacks, irritability and

seizures all were reported as adverse events (Currier, Molina, & Kato, 2003; Thompson et al., 2006; Tornero & Mafe, 2009). In addition, when co-administered with HAART, blood serum levels of Bupropion are increased which is as a potential result of the associated metabolic processes needed to breakdown the drug (Hesse, Greenblatt, von Moltke, & Court, 2006; Hesse, von Moltke, Shader, & Greenblatt, 2001).

Additional research studies indicate that PLWH are able to tolerate nicotine replacement therapy (NRT) such as gum or patch methods with minimal side effects. The lack of adverse events reported with NRT based cessation strategies for PLWH along with the various methods of delivery for brief structured interventions make this dual cessation strategy a viable option.

Current Policy Statements Regarding Smoking Amongst PLWH

Contrast in health indicators between HIV negative youth and YLWH include differences in physical, mental, and psychosocial domains. In order for prevention and intervention messages to be effective, they must be sensitive to these differences. The 2010 U.S. National HIV/AIDS Strategy discusses eliminating disparities in care and providing additional support for PLWH who have co-occurring health conditions (HHS, 2012). While ensuring equal access to care for both HIV positive persons and non-HIV positive persons is important, the issue of disparities in care should not be limited solely to these two overarching groups. Just as there is variation in services offered for non-HIV positive persons, including smoking cessation programs for both youth and adults, parity in smoking cessation programs for HIV positive persons must also exist.

Section three of the current HRSA clinical guidelines for HIV/AIDS care includes a section on smoking cessation for PLWH. It urges HIV specialty care clinicians to consider smoking

cessation a priority and lays out strategies to engage PLWH about cessation (HRSA, 2011). While the guidelines lay out some general behavioral and pharmacological interventions, none are specific to YLWH or take into consideration their unique needs. Issues such as dosing of nicotine replacement therapy (NRT), side effects of NRT, counter indications of NRT with HAART, and effectiveness of behavioral interventions for YLWH need to be addressed. While an overall framework for reducing smoking and its impact on PLWH is touched on by the HRSA clinical guidelines, it lacks specific strategies, guidelines and programs that are appropriate for YLWH.

Action steps outlined by the National HIV/AIDS Strategy include increasing access to care, improving health outcomes of PLWH and reducing health disparities within the HIV community (HHS, 2012). These central goals of the strategy are designed to reduce incidence of HIV by 25% and decrease health disparities in areas such as service coordination (HHS, 2012). Several key strategies have been employed to meet these overarching public health goals, including increased disease surveillance and expanding infrastructure. However, ensuring access to health care for the newly diagnosed is hindered by lack of health insurance, denial of positive status and mental health issues (Konkle-Parker, Amico, & Henderson, 2011; Raveis, Siegel, & Gorey, 1998). To alleviate some of these challenges, linkage to care programs (LTC) focus on identifying new cases and enrolling them in care, while efforts to increase the number and diversity of clinical care providers is also taking place. The value of LTC programs is evidenced by their ability to increase life expectancy and delay the onset of AIDS (Gopalappa, Farnham, Hutchinson, & Sansom, 2012). From a broad lens, these efforts can increase the number of patients in care and ensure trained providers treat them.

Currently over 85 million dollars has been allocated to increase risk-reduction and investigate the prevalence of smoking among HIV positive youth aged 18-24 as part of a long-term effort to design smoking cessation interventions for HIV positive youth (Holtgrave, Hall, Wehrmeyer, & Maulsby, 2012). However, as indicated in the national strategy, additional related services are also needed. Increasing diagnostic and prevention services for PLWH alone will not solve all the challenges faced by newly or previously diagnosed persons. While resources have been dedicated to provider training and risk reduction, these efforts fall short in emphasizing the impact of lifestyle choices such as smoking. For example, a recent study on provider beliefs and practices by Shuter and colleagues (2012) indicated that less than 25% of all specialty HIV providers had received training in tobacco treatment. While most providers surveyed in this study agreed that smoking was an important issue faced by PLWH, they reported low levels of cessation promotion. Language in the NHAS calls for increasing services and eliminating disparities but fails to provide specific program options to address behaviorally driven ailments. The importance of smoking cessation training is one such example. Increasing the amount of provider training is critical to overall health outcomes but provider training must fit the changing needs of patients. Providing specific related services to YLWH like smoking cessation programs will help achieve goals two and three of the national strategy by increasing access to care and reducing the potential burden of co-occurring health conditions.

Public Health Significance of Smoking Cessation Programs for YLWH

Population specific health education messages and interventions have been shown to be more effective than using general messages to target multiple populations (Glanz, Rimer, & Viswanath, 2008; Kreuter, Strecher, & Glassman, 1999). Targeted health communications or

interventions are designed for specific subgroups. An example of a targeted health intervention would be a smoking cessation program (SCP) specifically for YLWH. Development of a SCP for YLWH has the potential to reduce morbidity for YLWH and decrease the amount of Ryan White dollars spent treating co-occurring chronic diseases such as HIV and COPD.

Data on youth cessation programs have indicated that behavioral support groups used in combination with nicotine replacement therapy show promise in reducing smoking among youth. However, these group programs are not designed to protect the confidentiality of YLWH, who often fear disclosure of their positive status due to bullying and stigma (Wiener, Battles, & Heilman, 2000). Self-disclosure of HIV/AIDS status carries enormous risks due to the stigma associated with the a positive diagnosis (Thorne, Newell, & Peckham, 2000). Unlike self-disclosure of other illnesses such as cancer or diabetes, PLWH fear of criminal prosecution, loss of social support, violence against them and job loss (Calin, Green, Hetherington, & Brook, 2007; Rutledge, 2007; Skogmar et al., 2006). Even in the most intimate of settings, such as with romantic partners, PLWH often never disclose their status due to fear of rejection (Fair & Albright, 2012). Many manage this trepidation by delaying dating or even terminating relationships to avoid having to disclose (Fair & Albright, 2012). A recent study looking into the benefits of disclosing one's HIV/AIDS status to family and friends indicates that disclosure is associated with improved physical and psychological functioning, but is perceived as difficult and accompanied by high levels of stress (Hult, Wrubel, Branstrom, Acree, & Moskowitz, 2012). In addition, work by Knapper, Drayton, Browning, and Lomax (2012) indicates that status disclosure is difficult to do even with their medical providers. The most common reasons given for not disclosing their status were confidentiality and stigma (Knapper et al., 2012). Study participants were found to be more confident about disclosing their status if they could be

reassured that their provider would be the only person with the ability to access their health information (Knapper et al., 2012).

What these and other studies have shown is that HIV/AIDS status disclosure is a complex process that is more likely to occur in comfortable environments in which the person feels safe and in control, such as at home or in a providers office (Eustace & Ilagan, 2010; Rutledge, 2007). While traditional smoking cessation programs are designed to benefit from the group dynamic, this same strength could become a weakness for YLWH. Cessation programs designed specifically for YLWH could help to address this weakness in current service provision as group members would have the ability to work within a group setting where stigma and other status related issues would not be present.

Contemporary anti-smoking campaigns are twofold: they discourage initiation and encourage cessation of smoking. While these campaigns have had success in encouraging youth in general to quit smoking, rates of smoking among YLWH continue to be three times the national average (Vidrine, 2009). Researchers who study successful health communication messages suggest that greater persuasive power when they reflect the demographic, social and health characteristics of the targeted audience (Kreuter et al., 1999). Data on cessation programs for youth indicates they prefer messages that emphasize the negative health outcomes and social ramifications associated with smoking (Latimer et al., 2012). In addition to delivering the right amount of the right message, it must be delivered to the right audience. Data on attitudes toward tobacco use indicates that there are differences in how messages about tobacco use are internalized (Tharp-Taylor, Fryer, & Shadel, 2012). These findings provide additional evidence of how group specific interventions can be important tools in reducing the initiation and prevalence of youth smoking.

Targeted interventions for youth with chronic diseases are not a new concept. Smoking cessation programs for childhood cancer survivors are an example of this. Researchers who study cessation amongst childhood cancer survivors indicate that psychosocial characteristics such as disengagement beliefs are associated with quit attempts (de Moor et al., 2011). This understanding led to incorporating self-efficacy to quit smoking and increasing perceived susceptibility into cessation programs for childhood cancer survivors. When health communication messages are perceived as relevant they are more effective (Kreuter & Wray, 2003). Knowing the characteristics of the intended audience provides important insight about the types of health communication messages that would be effective. Although YLWH and childhood cancer survivors are both dealing with pervasive chronic diseases, their challenges differ greatly. Which is why many of the health communication messages intended for one will not translate easily to the other.

Theoretical Orientation for Dissertation

Due to their focus on the interactions of psychosocial functioning and environment, stress and coping models have been used to study a wide range of chronic diseases and behaviors including sickle cell anemia, diabetes and smoking (Gold, Treadwell, Weissman, & Vichinsky, 2008; Hocking & Lochman, 2005). An adaptation of the Transactional Model of Stress and Coping (TMSC) that focuses on adolescent substance was used as the theoretical framework for this study.

The Transactional Model of Stress and Coping (TMSC) posits that coping behaviors exist to counter balance the psychological demands of internal or external stimuli (Lazarus & Folkman, 1984). The basic assumption of the model is that individual perceptions are the

determinants of behavior, not the actual stressor. This conceptualization of stress and coping is a result of decades of published research studies on stress and coping beginning in the 1930's with Cannon's work on the physiological reactions to stress and his subsequent naming of the "fight or flight" reactions to stress (Cannon, 1932). This "flight or fight" mechanism refers to the hypopituitary adrenal complex's reaction to stress which activates the sympathetic or parasympathetic nervous system and prepares one physiologically to absorb stress or depart from it. Hans Selye continued on with Cannon's work developing the "general adaptation syndrome", which posits that all living organisms exhibit nonspecific changes in response to stressors that result in alarm, resistance or exhaustion (Selye, 1984). Left without curative measures, physiological and psychological deterioration occurs and is evidenced by elevated cortisol levels in young children with behavioral disorders such as Oppositional Defiance Disorder (OPD) and Attention Deficit Hyperactivity Disorder (ADHD) (Kauffman & Landrum, 2008).

It was not until the 1970's that stress began to be viewed as having a transactional impact between the perception of the individual and external or internal stimuli (Lazarus, 1966). This new approach in assessing the impact of stress and coping on health eventually emerged as the TMSC. This conceptual framework blends constructs from the Health Belief Model (HBM), Social Cognitive Theory, and theories on coping to provide an understanding of how evaluation of stressful experiences have a transactional effect on behavior. The primary constructs of the TMSC are: primary appraisal, secondary appraisal and coping efforts.

Primary Appraisal (see Table 1) is an individual's initial judgment of an event or a stimulus and their subsequent judgment of whether it is harmful, harmless, positive, negative or irrelevant (Glanz et al., 2008). It acts to either reduce or raise the level of alarm from a stimulus in order to evoke the proper reaction (Croyle, 1995; Lazarus & Folkman, 1984). The construct consists of

two primary components, which are borrowed from the HBM, perceived severity (see Table 1) and perceived susceptibility (see Table 1). Perceived susceptibility is the probability a person perceives him or herself as having of getting a particular disease or condition (Glanz et al., 2008). For example, a smoker must believe that they can potentially get cancer from smoking before seeking a cessation program. Perceived severity is an individual's feelings about getting a particular disease or condition (Glanz et al., 2008). For example, a smoker feels sad about potentially getting cancer from smoking.

Secondary Appraisal (see Table 1) is an individual's judgment of how well they can cope with a stimulus and their ability to control the stimulus (Glanz et al., 2008). While primary appraisal is used to evaluate the potential impact of a stimulus, secondary appraisal is used to determine how prepared an individual is to handle the stimulus. Secondary appraisal consists of components borrowed from Coping Theory, perceived control and perceived emotional control (Ayers et al., 2007). Perceived control (see Table 1) is an individual's belief that they have the ability to impact the outcome of a situation (Glanz et al., 2008). For example, a smoker feels they can stop smoking and stay away from cigarettes. Emotional control (see Table 1) refers to an individual's control over his or her feelings toward a stimulus (Glanz et al., 2008). For example, when a smoker feels conflicted about cessation.

Coping Efforts (see Table 1) or coping strategies are how primary and secondary appraisals are mediated (Lazarus & Folkman, 1984). Problem management (see Table 1) and emotional regulation (see table 1) are the two primary coping strategies used during stressful situations to reduce negative outcomes. Problem management is an active coping strategy that focuses on seeking out information to be used in an effort to solve the potential cause of stress and are most adaptive in situations that are changeable (Glanz et al., 2008). For example, a smoker that is

trying to quit seeks out advice from his physician on cessation strategies. In this example the stressor, smoking, is changeable, thus problem focused coping is indicated. Emotion based coping (emotional regulation) consists of modulating thoughts and feelings about a stressful situation and is indicated in situations that are unchangeable (Glanz et al., 2008). For example, a smoker receives a cancer diagnosis after years of smoking and seeks out a cancer survivor group to help cope. In this example, the situation is unchangeable, thus emotion based coping is indicated. Coping strategies are critical in overall outcomes and can be further codified into strategies that are engaging or disengaging. Engaging strategies are associated with better health outcomes and consist of strategies such as problem solving, seeking out information and social support (Carver et al., 1993). Disengaging strategies are associated with negative health outcomes and consist of strategies such as distancing oneself or engaging in cognitive or behavioral avoidance (Taylor et al., 1992).

Table 1
Constructs of Transactional Model of Stress and Coping

TMSC Constructs	TMSC Constructs Defined
Coping	How one deals with external or internal stimuli
Perceived Susceptibility	The probability a person perceives him or herself as having or getting a particular disease or condition
Perceived Severity	An individual's feelings about getting a particular disease or condition
Psychosocial stress	Aversive or demanding conditions that tax or exceed the behavioral resources of the organism
Social support	Various types of support (i.e., assistance/help) that people receive from others
Emotional Control	An individual's control over their feelings toward a stimulus

Table 1 (Continued)

TMSC Constructs	TMSC Constructs Defined
Emotional Regulation	Modulating thoughts and feelings about a stressful situation and is indicated in situations that are unchangeable
Perceived Control	An individual's belief that they have the ability to impact the outcome of a situation
Problem Management	An active coping strategy that focuses on seeking out information to be used in an effort to solve the potential cause of stress and are most adaptive in situations that are changeable
Disengagement Beliefs	Use of thoughts or beliefs about a behavior that distances the individual from the potential harmful effects of the behavior

Transactional Model of Stress and Coping in Practice

How adolescents learn to regulate their emotions in stressful situations is a crucial part of their development (Fields & Prinz, 1997). Researchers who study how adolescents cope with stress have long recognized the transactional nature of environmental stimuli and the coping strategies youth use (Somerfield & McCrae, 2000). Consistent with adult literature on stress and coping, Lazarus and Folkman's transactional model has also been used extensively in researching how adolescents cope with stress. To further investigate the relationship between stress-coping and adolescent substance abuse, Wills and Filer (1996) developed the Stress and Coping Model of Adolescent Substance Use (Ollendick & Prinz, 1996). Using the constructs of TMSC, this theoretical model focuses solely on the interplay of stress and coping among adolescents and the emerging behavioral or substance use issues (Ollendick & Prinz, 1996). However, the model incorporates two additional assumptions. First, life stress is a risk factor for substance use and second, substance use is a coping strategy. The interplay of these two assumptions results in a tendency to use substances such as cigarettes or illicit drugs to cope

when active coping resources are overwhelmed (Ollendick & Prinz, 1996). Data on adolescent coping strategies suggest that adolescents who use emotion focused coping strategies tend to have higher levels of mental health symptoms along with low academic achievement while adolescents who use problem focused coping strategies have less mental health symptoms and higher social competence (Gould, Hussong, & Keeley, 2008). These underpinnings of adolescent coping are consistent with findings from adult studies and lend support to the value of TMSC being used to further study coping.

Coping mechanisms are critical to human existence. The way individuals cope with internal or external stressors impacts all aspects of life. The relationship between coping mechanisms and smoking has a well-established body of literature that is grounded in using positive coping strategies like substitution and distraction for smoking cessation attempts. A study by O'Connell, Hosein, Schwartz, and Leibowitz (2007), indicates that positive coping strategies such as deep breathing and optimism bolster cessation attempts by lowering urges to smoke. Vollrath (1998) was one of the first to use a transactional model of stress and coping to study smoking. While smokers have indicated that smoking has a calming effect and improves concentration, their findings are to the contrary and suggest that heavy smokers experience greater levels of stress as a result of their use of maladaptive emotionally based coping strategies such as venting and denial (Vollrath, 1998; West, 1993). Emotion based coping strategies have been shown to reduce adaption and psychological functioning, resulting in diminished self-control and greater prevalence of risky behaviors (Aldwin & Revenson, 1987; Vollrath, Alnaes, & Torgersen, 1996). For example, an expected outcome associated with the emotion based coping strategies would be initiating a confrontation with a family member as opposed to calmly talking through a stressful situation.

Denial or disengagement beliefs is a common emotion based coping strategy which consists of using thoughts or beliefs about a behavior that distances the individual from the potential harmful effects of the behavior (Bandura, 1986; Bandura, Barbaranelli, & Caprara, 1996). A by-product of cognitive dissonance, disengagement beliefs are justifications used to continue maladaptive behaviors (Chapman, Wong, & Smith, 1993). These constructs have been studied extensively and have been identified as a mediator of smoking (Chapman et al., 1993). A study by Kleinjan, van den Eijnden, Dijkstra, Brug, and Engels, (2006) provided additional evidence of the role that disengagement beliefs play in cessation attempts by following these beliefs longitudinally. Their findings indicated that smokers with strong disengagement beliefs were less likely to have success in long term cessation, consistent with previous studies (Dijkstra and Brosschot, 2003; Dijkstra, De Vries, Kok, Roijackers, 1999; Oakes, Chapman, Borland, Balmford and Trotter, 2004). Findings from a study by Wills (1990) suggest that adolescents who use maladaptive coping mechanisms have higher levels of substance use and that life stress was associated with initiation of substance use. These results are consistent with adult literature on maladaptive coping mechanisms and follow the basic assumptions of stress and coping models which provide additional support to studies that point to the negative effect stress has on coping among adolescents (Chassin, Pillow, Curran, Molina, & Barrera, 1993; Laurent, Catanzaro, & Callan, 1997; Wills, 1990).

Why is TMSC a Good Fit?

The central research question of this dissertation is “Why do adolescents with risk-acquired HIV infection smoke”? YLWH face a litany of pre-existing health complications associated with living with HIV which can include diminished immunological functioning.

Therefore, answering the question why someone with deteriorating health would engage in a behavior that increases the likelihood of further health complications is the primary answer sought.

The central constructs of the TMSC and the assumption that environment has a transactional relationship with psychosocial status corresponds well with empirically established domains or challenges faced by YLWH. Stress and vulnerability models assume that continued transaction between exposure to stress and the resulting build-up of stress diminishes the ability to cope and mediates the initiation of negative coping strategies such as smoking (Sinha, 2008). The aggregate impact of stress is linked to increased impulsivity, which is not only a predictor of current smoking status but is in line with prior studies which indicate smokers have higher levels of stress, depression and irritability than nonsmokers (Ansell et al., 2012). Mediating factors of the relationship between stress and youth smoking include environmental factors such as interpersonal, intrapersonal and parental factors (Finkelstein, 2006). Work by Fettes and Aarons (2011) and Roberts and colleagues (2008) support the hypothesis that environmental conditions impact smoking.

Early life stress creates long term damage on areas of the brain responsible for motivation and reward and is associated with smoking among adolescent (Enoch, 2011; Roberts et al., 2008). Psychosocial stress heightens sensitivity in areas of the brain responsible for attention and motivation; this modification increases neural cue reactivity to stimuli associated with smoking thus demonstrating how physiological functioning can be stimulated by stress and smoking (Dagher et al., 2009).

Family strain impacts many facets of life in families with an HIV infected member including provision of home medical care and transportation to medical visits. Furthermore,

families affected by HIV/AIDS have significantly fewer social networks due to stigma and often times have atypical family systems (Frain, Berven, Chan, & Tschopp, 2008). In addition, how to disclose status to family and friends continues to be a source of stress for YLWH, as stigma associated with a positive diagnosis is still a persistent concern (Committee on Pediatrics, 1999).

Smoking cessation programs for youth living with chronic health conditions has been primarily conducted with childhood cancer survivors. These data provide a relevant example of the unique needs faced by children with chronic conditions and the resulting need for unique cessation strategies. Aggregate data on quit attempts by childhood cancer survivors suggest that psychosocial characteristics such as disengagement beliefs, self-efficacy to quit smoking and increasing perceived susceptibility are indicated as leverage points to be considered when designing cessation programs. Among the available data on cessation programs for PLWH, the researchers suggest that PLWH face psychological, psychosocial and biological barriers to cessation. These challenges include depression, co-dependency on alcohol or illicit drugs and potential side effects of pharmacologic interventions such as disturbances in sleep wake cycle or intensification of psychiatric conditions (Kwong & Bouchard-Miller, 2010). While PLWH face specific challenges in cessation, an ever expanding body of literature suggests that psycho-behavioral domains such as self-efficacy to resist smoking show promise in achieving long term cessation for PLWH (Moadel et al., 2012).

YLWH live with varying forms of stress daily; thus, building an understanding of how the transactional nature environmental stimuli and stress is handled will inform stop smoking programs for YLWH. Cessation programs that focus on self-efficacy, coping, motivation and peer influence have all shown efficacy, however, cessation data indicate that a combination of methods is best; a precise mixture of these methods as well as a setting for delivery need to be

further studied (McDonald et al., 2003). How to develop and deliver these types of programs for YLWH continues to be an elusive answer.

The TMSC allows for measurement of several constructs that are indicated as being prevalent among YLWH including stress, perceived susceptibility, self-efficacy and perceived severity, all of which are associated with negative coping strategies like smoking. In order to better study the relationship between stress and its aggregate impact on the coping behaviors of YLWH, the phenomenon must be studied from a transactional nature not by assessing a stage of change as with the TTM or assessing behavioral intentions as with TRA/TPB. YLWH are already smoking thus working to understand how to help them quit or measures of tertiary prevention are appropriate as opposed to primary prevention campaigns that focus on preventing a behavior they are already engaging in. The ramifications of YLWH continuing to smoke are great for their own health and for public health. Which is why empowering these youths to stop smoking has become a major issue for public health professionals and researchers.

Chapter Three:

Methods and Results from Component One

This chapter will provide a description of the research methodology, study identification procedures, and findings from component one of the study. Study design, sampling strategy, data collection methods and analysis are included.

Research Methodology

Component one of this dissertation consisted of a systematic literature review to identify and examine published research studies that compared smoking cessation interventions for youth and young adults. The purpose of this systematic review was to examine the results and facets of each research study to inform the long term goal of developing a smoking cessation program for YLWH.

This component was guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines on completing systematic reviews and meta-analysis (PRISMA, 2015). Of particular interest was determining the theoretical underpinnings, implementation strategies, and modes of delivery that have demonstrated significant differences in cessation between control and intervention groups.

Research Questions

1. What cessation strategies are used in the available published research studies that compared smoking cessation programs for youth?

2. What types of content included in the available published research studies that compared smoking cessation programs for youth could help YLWH initiate and sustain cessation?

Inclusion and Exclusion Criteria

Inclusion criteria for published studies used in the systematic literature review consists of studies published in the United States between 2008 and 2016 that used a control versus comparison group design and included participants aged 18-30 (see Appendix B). Studies that were published between 2008 and 2016 were chosen to capture the most recent published studies as they would potentially better address the increased access to digital technology and social media in their study designs. To review studies that compared cessation strategies studies that used the following research designs: control group versus comparison group; randomized controlled trials; quasi-experimental; observational; or nonrandomized controlled trials that measured length of time to cessation. To review published research studies that focused on youth and young adults studies with participants between the ages of 18-30 years were include. In addition, intervention types included those that used nicotine replacement therapy, support groups and pharmacological therapeutics. This decision was made in order to identify the published interventions that had the greatest impact on cessation. Studies published in the United States. This decision was made due to language barriers and differences cultural perspectives on smoking.

Exclusion criteria for the systematic literature review consisted of published studies that used one of the following research designs: systematic reviews; meta-analysis; or single case reports. If the study was not published between 2008 and 2016 it was excluded due to not being a

recently published study. Works published outside of the United States were also excluded due to language comprehension, cultural beliefs in regards to smoking, and approaches to cessation.

Study Identification Procedures

The search focused on locating studies that tested cessation strategies in the following computerized databases: Pub Med, Web of Science, CINAHL, PsycINFO EBSCOHOST.

Database search algorithms can be made available upon request. Reference page and abstracts were reviewed in order to locate additional studies.

The author conducted the search for studies. Identified studies were first reviewed by this researcher in order to remove duplicates. The studies were then forwarded to two members of the dissertation committee (Drs. Tom Massey & Julie Baldwin) for an independent screening of titles. Due to their experience in performing systematic literature reviews and their expertise in Public and Behavioral Health Drs. Baldwin and Massey were selected to complete the independent screening of titles. Once this step was completed, all remaining studies (including studies marked 'no' in title screening phase) were reviewed by this researcher for final inclusion criteria and data abstraction. The author made the final decision about inclusion and exclusion of studies. Data abstracted from each study included: demographic characteristics, outcomes (differences between intervention and control group), medical condition, intervention type (nicotine replacement, mental health counseling), theoretical underpinnings of intervention, factors influencing cessation and outcomes associated with intervention.

Process of Inclusion of Studies

A total of 150 studies were initially identified through the search strategy (see Appendix B for search syntax). Before beginning the cursory review phase of the literature review, 23 studies identified as duplicates were removed from the pool of studies to be reviewed. A total of 123 remaining studies were then reviewed, of which 17 were removed due to not meeting inclusion criteria. An abstract review of the remaining 110 studies was then conducted, of which 68 studies were excluded for: not being published in the United States, study design not meeting inclusion criteria or focus not on youth. The remaining 42 studies were then read in full text, of which 32 studies were excluded for not meeting inclusion criteria for several reasons including: being a meta or content analysis, having unpublished findings or failure to have a control/experimental group design. The remaining 10 studies were subsequently included in systematic literature review (see Appendix C).

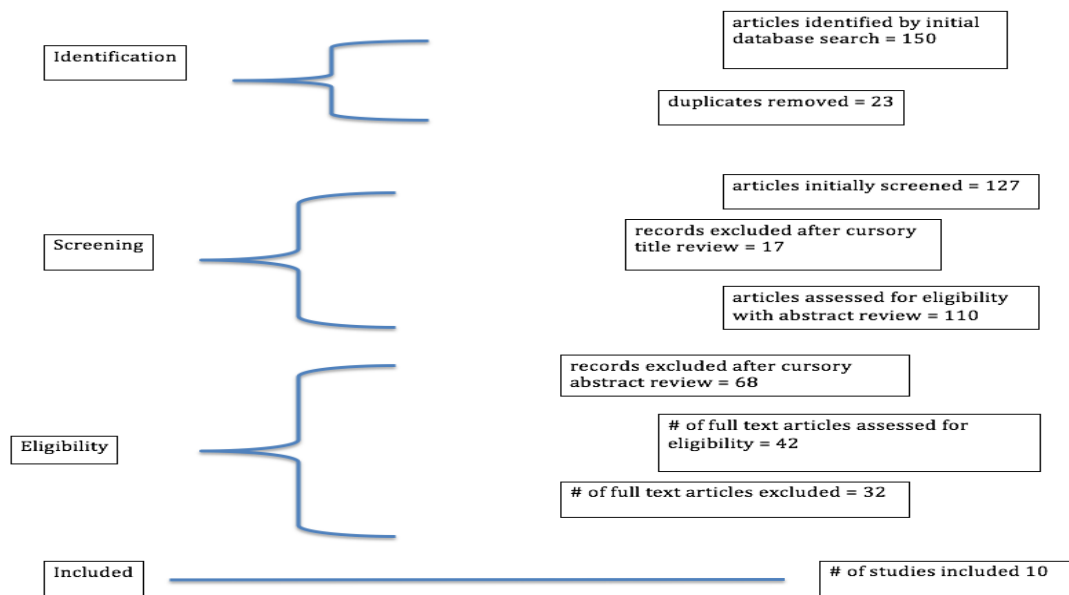
After data extraction, several categories of published studies for youth were identified. Each study identified through the data gathering process was then read and codified into the identified main categories.

Results

Component one of the study was designed to identify available published research studies that compared smoking cessation interventions for youth as well as identify the treatment types, strategies and delivery methods used in these published studies.

A total of 10 published research studies that compared smoking cessation interventions for adolescents and youth aged 12-30 were identified for full review following the screening process and included in the final review (see Diagram 2). Of the studies identified, the majority

(82%, $n = 9$) targeted youth between the ages of 12-30 years of age while almost half of all included studies ($n = 5$) specifically targeted teenagers. Of the reviewed studies, 70% ($n = 7$) utilized advice/counseling as the primary mode of cessation while 30% ($n = 3$) used pharmacologic intervention strategies. Intervention settings included: 40% ($n = 4$) conducted in high schools, 40% ($n = 4$) conducted via the internet or smartphone and 30% ($n = 3$) were conducted in person using clinical settings.



Moher, Liberati, Tetzlaff, Altman, & the PRISMA Group, 2009

Figure 2
Process of Study Identification

Program Focus

The primary objective of all studies was to encourage youth to quit smoking. This research objective was approached using several techniques including modification of cognitive and behavioral processes as well as nicotine replacement therapy (NCT) (Audrain-McGovern et al., 2011; Bricker et al., 2010; Buller et al., 2014a; Buller et al., 2014b; Gray et al., 2011a; Gray et al., 2011b; Horn et al., 2013; Latimer et al., 2012; Pbert et al., 2011; Simmons et al., 2013). Of the studies that focused on modifying cognitions to help youth quit smoking, increasing self-efficacy and readiness to quit smoking were employed as part of the cessation strategies (Bueller et al., 2014b; Simmons et al., 2013). Other treatment strategies included the use of motivation interviewing and structured brief advice (Audrain-McGovern et al., 2011; Pbert et al., 2011). These methods aim to peak interest in cessation by promoting empathy and resolving cognitive dissonance while emphasizing autonomy throughout the processes. Modification of behavior in relation to smoking cessation was employed by Horn and colleagues (2013) in their study that focused on increasing physical activity while decreasing smoking. The study looked to build on recent data that suggest that smoking cessation efforts that include physical activity can act to reduce the physical risks associated with smoking (deRuiter & Faulkner, 2006). Several studies used pharmacological approaches or nicotine replacement therapy (NRT) to promote cessation including works by Gray and colleagues (2010) and Buller and colleagues (2014a). These intervention strategies followed the CDC guidelines on cessation by incorporating behavioral and pharmacotherapy to target nicotine withdrawal and cravings. The study by Gray and colleagues (2010) used contingency management (CM) as the behavioral component of the trial. Contingency management is an operant form of conditioning that rewards desired behaviors, in smoking cessation programs these rewards are often financial (Corby, Roll, Ledgerwood, &

Schuster, 2000). This particular study paired CM with Bupropion. In a follow up study Corby and colleagues (2011) used a pharmacotherapy-only approach in the form of testing the efficacy of bupropion versus varenicline. While pill administration of NRT in the forms of bupropion and varenicline have become effective tools in cessation programs, Buller and colleagues (2014) looked at the efficacy of using the NRT patch as the primary means of cessation. This particular study paired the patch with three separate individual cessation strategies including web, quit line and self-help booklet formats.

Theoretical Frameworks

The majority (n = 8) of the intervention strategies identified in the published studies used social cognitive theory (SCT) as the theoretical framework for the intervention. For example, Simmons and colleagues (2013) used an experiential active learning intervention that was designed to reduce cognitive dissonance as the experimental group. Bueller and colleagues (2014) and Simmons and colleagues (2013) used modified versions of SCT along with the Transtheoretical Model (TTM) in order to increase self-efficacy and motivation to quit smoking. Both Pbert and colleagues (2011) and Audrain-McGovern and colleagues (2011) used cognitive-behavioral approaches in the form of the 5As cessation intervention. The 5A cessation intervention is rooted in SCT and focused on increasing health literacy and increasing positive outcome expectations through the use of self-monitoring, problem solving and goal setting. The two remaining studies did not use SCT based theoretical frameworks; Gray and colleagues (2012) used a pharmacological-only approach and Buller and colleagues (2014) used framing theory as the basis for their work, which is the use of demographic and content relevant material in delivery of messages that are intended to persuade.

Association of Findings to Research Questions

To address the associated research questions, data points from each reviewed study was abstracted including: outcomes or differences between intervention and control group, intervention type (nicotine replacement or behavioral) and theoretical underpinnings of intervention factors influencing cessation outcomes associated with intervention.

Use of technology in the delivery of smoking cessation interventions in these publishes studies to youth and young adults proved to be fruitful. Buller and colleagues (2014b) found the use of a text messaging delivery platform for their intervention to be superior to a mobile cessation application in moving participants to cessation. Results from Simmons and colleagues (2013) indicate that an internet cessation delivery platform outperformed the control group in increasing motivation to quit. In addition, work by Latimer and colleagues (2011) also provided strong evidence for the use of technology in the delivery of cessation programs to youth. Their findings suggest use of media that includes peer delivered messages that focus on losses in health gains over media that focuses on gains of cessation create a more conducive attitude toward cessation among youth (Latimer et al., 2011).

For behaviorally driven interventions, participants who were randomized to the study condition that used a SCT based intervention strategy indicated having greater quit success as measured by smoking abstinence rates. Studies by Audrain-McGovern and colleagues (2011) and Pbert and colleagues (2011) used SCT based interventions with promising findings. The study by Audrain-McGovern and colleagues (2011) compared quit rates and reductions in smoking at baseline, 12 weeks and 24 weeks using motivational interviewing (MI) and structured brief advice (SBA) based interventions. Study results indicate that the MI condition resulted in a larger reduction in cigarettes smoked daily, however, SBA proved to be superior in facilitating

smoking cessation as participants in the SBA condition were 60% more likely to attempt to quit (Audrain-McGovern et al., 2011). Use of a SCT based in-person delivery platform also outperformed the control groups in a study by Bricker and colleagues (2010). Six-month abstinence from smoking was used as the primary endpoint for this study and was measured by three items on a follow up questionnaire. The experimental group received an SCT based intervention that was designed to increase self-efficacy in resisting smoking in stressful and social situations while the control group received no intervention (Bricker et al., 2010). Study results indicate that the SCT based intervention increased underlying processes associated with self-efficacy in resisting smoking resulting in significant increases in adolescent smoking cessation.

In addition to technologically and behaviorally based intervention strategies, pharmacotherapy cessation strategies have also been employed with youth and young adults. Findings from Buller and colleagues (2014a) indicate that use of the nicotine patch in conjunction with counseling services increased smoking abstinence versus counseling services only (at 12 weeks ($p < .001$) and 26 weeks ($p < .05$)). For the studies that used pharmacotherapy only as the primary intervention strategy, bupropion was indicated as the most effective. In two independent studies where 7-day point prevalence was assessed using self-report and cotinine urine levels, bupropion was not only found to have no serious adverse effects for youth but it also outperformed varenicline in one study and a placebo control group in another (Gray et al., 2011; Gray et al., 2012).

Summary of Component One

Each intervention strategy used in the 10 published research studies included in this systematic literature review has shown some form of success as evidenced by it being published and actively compared to other published cessation strategies. What this literature review was able to accomplish was identifying modes of delivery and theoretical underpinnings that these successful studies have used. Studies that used SCT as the theoretical framework proved to be most efficacious in increasing cessation behaviors as well as duration of cessation.

Technologically based cessation strategies such as use of web or text message services were indicated as being successful with youth and young adults. In addition to methods of delivery, the actual messages and images used when targeting youth for cessation were demonstrated as being critical to gaining buy-in. Results from the examination of these published studies indicate that youth prefer messages that are delivered by their peers and emphasize the positive aspects of quitting smoking. In addition, pharmacotherapeutic studies indicated that bupropion did not produce any FDA-defined serious adverse effects and was also efficacious in smoking cessation.

Chapter Four:

Methods and Findings from Component Two

Introduction

This chapter will provide a description of the research methodology, data analysis and results from component two of the study. The study design, sampling strategy, data collection methods and analysis are included.

Research Methodology

Recruitment Site

The Children's Medical Services Clinic (CMS) located at University of South Florida served as the recruitment site served as the population sample for the study (see Appendix D). CMS provides primary and specialty care for infants, children and youth who live in the surrounding counties and municipalities. The clinic has a sampling population of 212 patients that are between the ages of 13-25. It also serves as a home for academic research conducted at the University of South Florida. The Hillsborough County Emerging Metropolitan Area has one of the largest service areas in the state of Florida for HIV positive children and their families (Viamonte et al., 2009). This catchment area has community based organizations and specialty providers that are equipped to address the needs of YLWH.

Overview of Participants and Eligibility

Participants for this project consisted of 25 YLWH who live in the Hillsborough County Emerging Metropolitan area and receive specialty care services from CMS. This represents approximately ten percent of the population of the clinic and is consistent with acceptable sample size guidelines within the field of ethnographic research (Guest, Bunce & Johnson, 2006). Male or female YLWH who were: between the ages of 18 and 25 of age, were current or former tobacco smokers and who were interested in sharing their experiences with smoking were included in component two of this study. Exclusion criteria included: YLWH who were not current or former smokers, YLWH who were under the age of 18 or over the age of 25, those who could not speak or understand English and youth who were not living with HIV.

Review of Interview Questions at Community Advisory Board (CAB)

Prior to beginning participant recruitment, interview questions were read for content and reviewed for comment with a group of YLWH who live in the greater Tampa Bay area. The CMS clinic at the University of South Florida's Morsani College of Medicine has successfully developed a Community Advisory Board (CAB) to assist in gathering necessary information related to the life needs of YLWH. Advisory board members include YLWH whose unique perspectives allowed them to provide feedback and inform questions used in the study interview guides.

The meeting was facilitated by committee member and Chair of Pediatrics (Dr. Patricia Emmanuel) and the Chief of the CMS clinic (Dr. Carina Rodriguez) in order to determine a suitable time for attendance at one of the CAB's bi-monthly meetings as well as be added to the formal agenda in order to receive feedback on the interview questions.

At the CAB meeting each member of the CAB was provided with a complete list of the interview questions for a brief 3-5-minute review of the questions. Once the review period was completed, feedback was elicited from the group regarding wording and scope of questions. Detailed notes were taken and the interview guide was modified based on this feedback (see Appendices E and F).

Recruitment Methods

Two primary recruitment methods for this study were used. First, participants were recruited from the CMS clinic located at the University of South Florida's Morsani College of Medicine. Prior to clinic, the researcher contacted the social work and nursing teams in order to prescreen the upcoming week's patient panel. Once in clinic, members of the clinical team including the attending physicians, nurse practitioners and social workers alerted patients whose medical record indicated a history of tobacco usage of the study. Once alerted, each patient chose whether they would like to be screened for the study participation. If interested, the clinical team introduced the researcher to the patient at which point the screening and consent processes were completed followed by the collection of data.

Second, the Principal Investigator was allowed to recruit from an existing study, "Maybe, Maybe Not: Deciding to Disclose HIV Status to Family" (D2F). The D2F is an R01 funded by the National Institutes of Mental Health designed to help PLWH develop skills to assist in disclosing their HIV status to family members. The principal investigators of the D2F study allowed an electronic flyer with study details to be added to their Facebook page (see Appendix G). Recruitment entailed potential participants learning of the study via flyers on the Facebook page.

Procedures

Due to the sensitive nature of each participant's health status individual in-depth interviews were used to investigate the processes by which smoking was initiated and maintained, as well as the barriers and mediators to cessation. Each interview was conducted at CMS which acts as the primary specialty care provider for each participant. All interviews were conducted face to face, audio-recorded and transcribed using a verbatim transcription by this researcher. Interviews lasted 25 minutes on average. In addition, basic demographic information was gathered from each participant for descriptive purposes before the beginning of each interview including: age, race, occupation, gender, relationship status, sexual orientation, time since diagnosis, time since becoming a smoker and mode of HIV transmission using a data capture sheet (see Appendix H). While follow up questions were used as a method of additional inquiry there exists a delicate balance between bullying participants into answers and maintaining a productive working rapport with participants throughout the interview. In order to build rapport and respect, if participants did not wish to elaborate with thick descriptions regarding their own mortality their wishes were respected.

Participants were compensated with a \$20 gift card to 7-Eleven or Walmart depending on the participant's preference. In addition, a bus pass was provided to assist participants with transportation.

Incorporation of Theoretical Orientation

The central research question of this dissertation was to provide insight into the conundrum "Why do adolescents with risk-acquired HIV infection smoke"? Determining

themes associated with the experience of smoking and determining if smoking emerges as a coping mechanism were specific areas of interest.

The interview tool requested information from each participant concerning their family history of smoking, perception of the impact smoking can have on health as well as interests in stop smoking programs. Answers to research questions were sought by exploring the role that stress and its compounded affects can have on the younger patients who are living with chronic conditions such as HIV. Individual codes used in ATLAS.ti were developed to identify constructs during analysis of all data (see Appendix I). Constructs from the TMSC at the primary (is smoking harmful, harmless or irrelevant) and secondary (how well are HIV+ youth prepared to deal with their positive diagnosis).

To answer research questions 1, 1a and 1b (see Table 2) the sub-constructs of: perceived severity, psychosocial stress, coping, disengagement beliefs, coping and coping efforts (see Table 2) were used to explore themes associated with smoking amongst YLWH.

For example, to further examine how a participant coped with daily environmental stress, the question “What do you do when you’re feeling stressed?” was used as a follow up question.

Disengagement beliefs (see Table 3) were used to explore themes associated with the thought processes that YLWH employ to justify their continued use of tobacco. Smoking is a known carcinogen; which leaves the question of how YLWH justify their use of tobacco?

Table 2*Research Questions in Relation to Theoretical Orientation*

Primary Objective	Research Questions	TMSC Constructs Probed
Understand why YLWH continue to smoke and what maintains smoking as a stable behavior among this population even though it is known to be harmful to persons who are chronically ill.	1). Do HIV+ youth continue to smoke knowing they are ill? How do negative coping strategies such as disengagement beliefs influence YLWHs' decisions to continue smoking? a. Will smoking cessation programs specifically for YLWH influence their decision to stop smoking? b. How do negative coping strategies such as disengagement beliefs influence YLWHs' decisions to continue smoking?	Coping Perceived Susceptibility Psychosocial stress Disengagement Beliefs Emotional Regulation Coping Efforts
Understand why YLWH continue to smoke and what maintains smoking as a stable behavior among this population even though it is known to be harmful to persons who are chronically ill.	2). What roles do psychosocial issues such as family strain, disclosure related stress and stigma have on HIV+ youth's decision to initiate a smoking cessation program?	Social support Coping

These constructs were chosen as they have the ability to provide insight into the cognitive processes undertaken by YLWH when they make the choice to smoke. In addition, use of this cluster of constructs is prevalent among research with YLWH and low scores on scales that measure disengagement beliefs are associated with negative coping strategies such as smoking.

Constructs from the TMSC at the primary (is smoking harmful, harmless or irrelevant) and secondary (how well are HIV+ youth prepared to deal with their positive diagnosis) appraisal levels were used as the theoretical orientation for research question two:

1. What roles do psychosocial issues such as family strain, disclosure related stress and stigma have on HIV+ youth's decision to initiate a smoking cessation program?

To answer research question 2 (see Table 3) several sub-constructs were used including: social support, emotional regulation and coping efforts (see Table 3) to determine themes associated with cessation intent.

For example, to further examine the level of influence a participant’s social group has on their decision to smoke, the question “who are the people who influence you to smoke or not to smoke?” was used as a follow up question.

The sub-constructs of: problem management, perceived control and emotional regulation were used to determine themes associated inhibiting cessation attempts. For example, to assess how emotional regulation or disengagement beliefs were used, the question “when you’re stressed after a bad doctor’s visit, what can you do to help deal with the stress?” was used as a follow up question (see Table 3).

Table 3
Constructs of Transactional Model of Stress and Coping

TMSC Constructs Probed	Examples of Interview Questions
Coping	What do you do when you’re feeling stressed?
Perceived Susceptibility	How does smoking impact your immune functioning?
Perceived Severity	How do you feel about the thought of smoking contributing to a reduction in your CD4 count?
Psychosocial stress	What life situations influence your behavior to smoke?
Social support	Who are the people who influence you to smoke or not to smoke?
Emotional Control	When stressed, what can you can do to solve the stressful situation?
Emotional Regulation	When you’re stressed after a bad doctor’s visit, what can you do to help deal with the stress?
Disengagement Beliefs	When you’re stressed after a bad doctor’s visit what can you do to help deal with the stress?

Exploring the value of having such a program can contribute to bettering the understanding of why YLWH continue to smoke as well as provide guidance as to the specific coping processes these youth use when considering a cessation attempt.

Data Analysis

Once all in depth interviews were conducted, the data were verbatim transcribed and coded. The corresponding data were read for content, separated by quality, analyzed for patterns and coded for emerging themes until saturation was reached. This process, collectively called immersion, was used to identify emerging themes in order to code them (Schensul & LeCompte, 2012). Twenty-five interviews were conducted as this represents approximately 10 percent of the sampling population. While saturation was not used as the benchmark for sample size, between interviews five and eight no additional themes of analysis appeared from subsequent interviews.

Similarities and differences were then grouped by the corresponding themes. This researcher developed a codebook which included apriori and emergent codes that emerged during the interview process (Appendix B). This codebook was modified as additional themes and topics were discovered as part of the interview and analysis process. After new themes were identified transcripts were reviewed to ensure fidelity of coding between previously and newly coded transcripts.

While human interaction within the context of data gathering has many advantages, the primary challenge of this approach is the ability to maintain trustworthiness (Lincoln & Guba, 1985). Unlike conventional criteria such as internal and external validity, natural inquiry uses a separate set of criterion to demonstrate rigor in practice of findings. These criterions include:

truth value, applicability, consistency and neutrality (Lincoln & Guba, 1985). Researchers using natural inquiry are encouraged to ask themselves four basic questions; one in relation to each criterion of trustworthiness. Beginning with truth value, researchers must ask themselves how one can establish confidence in the truth. Next is applicability, an investigator must ask themselves how the extent of these findings can be applied in other contexts. Which then leads to consistency, investigators must then ask themselves how they can determine whether their findings can be replicated with the same or similar participants. Lastly is neutrality, which refers to an investigator establishing solid findings that are free of personal biases and motivations. Asking these four questions allow an investigator who's using naturalistic inquiry to remove the focus from their objectivity and rightfully places it on the objectivity of the data (Lincoln & Guba, 1985).

In order to operationalize the four basic criterion of trustworthiness, naturalist inquiry uses the concepts of credibility, dependability and confirmability. There are several major techniques identified to increase the credibility of findings when conducting research using natural inquiry including prolonged engagement and persistent observation in order to reach saturation. Participants completed both an in depth interview as well as a brief demographic questionnaire at the beginning of each interview. In addition to spending time with each participant, this researcher spent a substantial amount of time developing rapport with YLWH by attending community advisory events and developing a relationship with all clinical staff. These individual relationships with the providers allowed this researcher to have an in depth perspective of each participant's personality and challenges before the interview began. While information provided by providers was used as a contextual reference no participant information gained from conversations with clinical staff was used in analysis due to it occurring before the

participant consent process. In addition, rival explanations of certain phenomena such as “why did you begin smoking” were looked at closely to determine how they related to findings. This was an important step as participants had varying exposure routes to HIV, varying sexual orientation and genders; thus, exploring if there were contrasting accounts of specific questions helped to provide credibility to the totality of the findings.

Dependability makes reference to ability in qualitative research for the processes used to obtain a particular finding to be replicated. In order to increase the level of dependability for this dissertation, an extensive audit trail of all project specific training as well as changes made to recruitment protocols or interview guides as a result of the iterative nature of the study were documented. For example, two IRB amendments were filed throughout the course of the study. One in order to expand the age of inclusion and another to correct the contact information on study recruitment materials. All IRB paperwork including amendment approvals and before and after examples of study materials were maintained as part of the study’s audit trail. In addition, the study findings were evaluated by all dissertation committee members who are trained in qualitative research. Committee members examined both the rigor by which the processes of the study were conducted as well as the findings of the research study.

To address issues with conformability, the investigator has to be able to maintain a distinction between his own beliefs and ideas and those of the subject participating in the study (Ulin et al., 2005). The primary method to achieving this was through creating an audit trail. Defined as a record that allows a researcher using naturalistic inquiry to track progress toward the development of conclusions, an audit trail created from notes and other materials was collected throughout data collection (Lincoln & Guba, 1985). The audit trail for this dissertation

consisted of: the interview guide, recorded interviews, transcripts of interviews, all notes related to theoretical orientation, data collection protocols and data transcription protocols.

Qualitative Analysis

The qualitative software package ATLAS TI was used to organize coding and develop thematic frameworks. Once all data was inputted, it was then searched for detail then coded by themes.

Results from Component Two

Component two consisted of primary data collection using qualitative study design. Twenty-five in-depth interviews with YLWH who attended clinic at the CMS clinic located at the USF Morsani College of Medicine were completed. These data were collected from February 2016 to May 2016. Component two of this study was designed to elicit first-hand accounts from YLWH regarding several key issues including: their use of tobacco knowing they are ill, factors that reinforce the behavior, as well as their feelings regarding smoking cessation programs.

Sample

The overall study population primarily consisted of young men who have sex with men and African American females, which is consistent with epidemiological studies which indicate these two populations as having the highest rates of HIV incidence. The study sample was primarily made up of young men (72%) and the average age of participants was 21.9 years with a range of 18-25 years. The majority of participants were African American (60%), while 4% identified as Caucasian, 16% as Hispanic or Latino and 20% as mixed. More than half the study

(56%) reported MSM as their HIV exposure category with perinatal exposure accounting for 10% and heterosexual contact resulting in 16%. Participants reported their sexual orientation as 24% being Bisexual, 36% Straight, and 40% Gay (see Table 4).

Table 4
Study Demographics

Male	Female	Ethnicity	
18	7	White (Caucasian)	1
		Black (African American)	15
		Latino	4
		Mixed	5
Sexual Orientation		Exposure Route	
Straight	9	Perinatal	7
Gay	10	Heterosexual	4
Bi-sexual	6	MSM	14

The interviews were on average 24.2 minutes long including initial completion of demographic capture sheet (see Appendix J for full list of interview times). All youth were asked if they were a current or former smoker. Status as a current or former smoker was determined by participant self-report. Current smokers represent participants who are active smokers while former smokers are participants who have quit smoking. If a participant identified as a former smoker, they were asked how long they have been tobacco free. Participants were not excluded from study based on length of time since quitting smoking. If participant identified as a current smoker, they were asked the length of time they have been a smoker as well as the quantity of cigarette or smoked tobacco used weekly. Less than 1% of study participants identified as formers smokers and the average length of time since quitting was less than one year. Study participants who identified as current smokers reported smoking

an average of 5.2 years with a range of between 1 to 11 years as a smoker. Youth reported smoking an average of 43.44 cigarettes weekly with a range of 1 to 210 cigarettes smoked on a week-to-week basis. Thirty-two percent of study participants reported being high school dropouts, 44% reported having a high school diploma, 20% reported attending college and 4% report having graduated from college (see Table 5).

Table 5
Interview and Participant Characteristics

Average Interview time	Average Number of Cigarettes Smoked Weekly	Average Years as Smoker	Current Smokers	Former Smokers	Most Frequently Reported Yearly Income Category
24.2 minutes (Range of Interviews 18 minutes - 35 minutes)	44	5.2	23	2	0-5000

Participants are identified in text by using their participant number and two unique descriptors (age and gender). For example, in text, participant number one is referenced as (#1/F-24) which denotes the participant number followed by gender (female) and age (see Table 6).

Table 6
Participant Identification Key

Participant Number	Gender	Age
1	F	24
2	M	21
3	M	24
4	F	21
5	F	24

Table 6 (Continued)

Participant Number	Gender	Age
6	F	24
7	M	24
8	M	23
9	M	24
10	M	21
11	M	23
12	M	23
13	M	23
14	F	20
15	M	24
16	M	21
17	F	21
18	M	20
19	M	20
20	M	23
21	M	23
22	M	20
23	F	21
24	M	18
25	M	21

Beginning with the first part of research question 1: why do HIV+ youth continue to smoke knowing they are ill; several key questions were drafted using the construct of perceived susceptibility as a guide. In order to gain insight into the path that led to smoking, each participant was asked if they had family members in their household that smoked when growing up. Nineteen out of 25 answered “yes” indicating that smoking was a behavior they had been exposed to for most of their lives. All 19 participants cited their parents or siblings as smokers in their households growing up. This finding has much value as it indicates that these youths may have been predisposed to becoming smokers regardless of the HIV status due to exposure at a young age. To gain further insight into question one, several things had to be established including if the research participants were aware of the impact that HIV can have on their overall

functioning. Participants were able to accurately describe the benefits of being in HIV treatment including the positive effect that taking their medication has on them.

Perceived Susceptibility

Each participant was asked to describe their understanding of how their HIV medication helps them. All current smokers were able to express the benefits of taking their prescribed medications. For example, when asked how your medication helps you, one participant responded “it keeps my viral load low and undetectable”. (#1/F-24) While another responded “it just fights to help keep my antibodies strong it really keeps it so the virus is under control and keep my immune system healthy”. (#2/M-21) Additional examples of participants being fully aware of the benefits associated with taking their medication includes responses such as:

It is actually helping me get better and actually helps me keeps me be undetectable and keeping me from being able to pass it on to other people. As far as that, that’s the only thing that I see it doing for me. (#3/M-24)

I know it helps reduce the amount of the actual HIV virus that’s in my body, helps lower my number, it helps take care and make me healthy. (#5/F-24)

Perceived Severity

With acknowledgment of care and the positive nature of such care established, the next issue was to explore if YLWH were aware of the relationship between smoking and negative health outcomes. Each participant was asked to describe the impact that smoking can have on future health outcomes and to describe specifically what bad things could result from long term tobacco usage.

As with the prior question, all 25 youths were able to accurately describe many of the ailments associated with smoking. For example, one participant stated smoking “has a big impact on my health. I mean it is bad for your breathing, makes you feel tired and curves your appetite”. (#8/M-24) Only three of the study participants were perinatally exposed to HIV, meaning that they’ve lived with this virus in some cases for over 20 years. In addition to living with HIV for 20+ years they’ve also been in medical care for the same amount of time. In addition, 22 study participants had acquired HIV behaviorally and were diagnosed on average less than 5 years ago which places them in the age range for many of the targeted antismoking campaigns currently being directed toward youth.

Many of these youths’ responses were very terse in nature and this can potentially be attributed to being uncomfortable discussing issues related to mortality, immaturity or unwillingness to discuss due to embarrassment. One example is when asked to describe the role that smoking played in his home growing up one participant responded “yea, it did”. (12/M-23) Another example, is when he was asked about the impact of smoking on his future, one participant responded, “I know if you smoke a lot it’s not good for you, you can get lung cancer”. (#15/M-24) While terse in his response, this participant was not alone in singling out cancer as an outcome. Several other participants identified cancer as an outcome including the mention of additional complications associated with cancer. When asked about the long term impact of smoking, one participant listed “different cancers, amputation and tumors”. (#20/M-23) As potential outcomes while yet another of his contemporaries was able to accurately describe the physical symptoms associated with smoking. When asked if she knew of any side effects of smoking, she responded “it could make little black dots in my lungs also cause me to have cancer or even kidney failure liver failure to also it can cause me to have brain tumor also

and a heart tumor”. (#14/F-20) In analyzing the range of expressions to this one question, it became clear that these interviews were beginning to highlight several key occurrences including that YLWH are not only aware of the impact of smoking but have also seen the impact up close as evidenced by one youth’s response:

Oh yea, my grandpa, he died because of lung cancer and he had had to have a lung transplant. All that so I watched him go through a lot of stuff just because of smoking, so that sort of really impacted me. It was like oh this is something like I need to eventually take care of. (#22/M-20)

While another respondent was not only able to describe a negative outcome associated with smoking, but also tied it to living with HIV “Yea, it can give me cancer it’s more likely reason to give me cancer because I am HIV positive.... I don’t care”. (8/M-23)

All participants including both smokers and former smokers were able to acknowledge the benefits of taking their medication as well as the negative outcomes associated with smoking. For example, when asked to describe how her medication helps her a former smoker stated “it has helped a lot, I notice from being in the hospital and to now....my numbers have dropped a big, big drop”. (#4/F-21) Examples from current smokers include participant #19/M-20 who when asked how does his medication help stated: “pretty much it’s stopping the virus from growing” and when asked to describe the negative effects of smoking he stated smoking can result in “lung problems, breathing problems, memory and stuff like that”. (#19/M-20) This suggests, that they are aware of their illness as well as the negative impact that smoking can have on them. However, it was interesting to hear just how knowledgeable these youths were concerning the negative impact of smoking. For example, it was expected to hear mention of various chronic diseases such as cancer and lung disease which are often referred to in media

campaigns, but mention of renal failure as well as amputation were also mentioned. The respondents were well prepared to point out the direct negative impact that smoking can have on them.

Coping Strategies

Along with establishing that youth are fully aware of two things: that they are ill and that smoking is maladaptive, this vein of questions also provided insight into how negative coping strategies influence YLWH to continue smoking. In analyzing the data, two major themes related to maladaptive coping strategies were identified: resignation and disengagement beliefs.

These youths showed high levels of resting knowledge regarding the benefits and costs associated with poor medical adherence to their medical regimens. This was evident in their responses by their inclusion of improved health status as a result of taking their medication. For example, when asked how does taking her medication help her one participant stated “it keeps my viral load at a minimum, what it needs to be which is under 7...and um it keeps it where I need to be in order to operate on a daily basis, like not feeling sick and stuff”. (#14/F-20) In addition, when asked to describe some examples of negative consequences associated with smoking they were all able to provide examples of one or several co-occurring chronic conditions that can occur by continuing to smoke. However, while some were able to link the idea of smoking to having a negative impact on them individually and some were in a state of ambivalence. One example of this is where a participant discussed the immediate impact smoking has on him/her but then touts cigarette usage as a calming mechanism:

I feel like it does make you light headed...but to me it doesn't make me like umm a bad way. Like make me feel like oh I have to pass out or anything. Like it just makes me feel at ease. (#1/F-24)

In yet another example, a participant openly acknowledged that smoking is resulting in problems with his/her breathing but yet is undeterred stating that smoking is “um terrible, that it is terrible my lungs are just not for it at all. I just can't breathe with it being around or anything it is very hard to breathe”. (#22/M-23) Along the same line, one participant who is currently living with HIV and asthma stated:

I have an inhaler, I have asthma and I smoke so it like I don't know. I just need to breathe more so that will help me to just feel like a breath of fresh air automatically. It is smoking but it will give the breath I need of fresh air. (#14/F-20)

When considering why youth show ambivalence toward smoking and continue this behavior, one explanation could be that the perceived benefits of smoking outweigh the risks associated with it. For example, a participant openly expressed that smoking is basically the only means to cope:

If I knew it was definitely affecting me really horribly I'd definitely try and cut down or just stop period. But I feel like just as long as in the situation that I'm in right now as far as the stress level I'm at umm with no help I'll probably still keep smoking. (#3/M-24)

In addition to using smoking as a method of dealing with stress, these youths also expressed disbelief in regards to the impact that smoking can have. Since smoking has a cumulative, not immediate, impact on the body, many of the youth seemed to be in denial regarding the long-term impact it can have on them specifically. For example, three participants stated that since they have not seen any overt indications that smoking impacts them negatively, they are more apt to continue. For example, one participant stated: “since smoking for the last 2

years I haven't had any change in my health at all". (#3/M-24) "Honestly I don't think smoking can, I have been smoking for the last 2 years and I never, they never said anything to me so it doesn't affect it to me". (#24/M-18):

Honestly since smoking for the last 2 years I haven't had any change in my health at all. I haven't thought about it. I don't necessarily think it impacts it dramatically. If it does, I wouldn't think... I don't know. (#8/M-24)

Twenty of these youth reported using a form of cognitive dissonance as a method to reconcile their thoughts with their actions, while three others have developed a more direct way of dealing with this internal conflict. For these three participants, resignation appeared to be their rationale of choice. Resignation refers to a belief structure that is characterized by a sense of giving up in the face of the future. To put it plainly, these three youths were simply not concerned about exacerbating their current health status and were not shy about describing it throughout the course of the interviews. These three participants made it very clear that they understood the negative impact of smoking and yet were not concerned by the thought of this. One participant was open about his lack of concern regarding the potential negative impact of smoking, when asked if he knew of any negative effects smoking he replied "Yea, it can give me cancer its more likely reason to give me cancer because I am HIV positive.... I don't care". (#8/M-24)

While others appeared to share a common thought process of since there are no immediate effects of smoking, they are not concerned:

Long term it could affect the lungs and it could affect other aspects of your life so you know it has an impact. I guess and I think about it every now and then, but I guess I am not that concerned. (#17/F-21)

The expression of a willingness to not want to live was most obvious in the response of one participant who responded to the question of how you feel about smoking impacting your white blood cell count with, “I am just killing myself faster”. (#25/M-21) Responses such as these provide further insight into the idea that these youths are aware of the costs associated with smoking as several expressed having family members who died from lung cancer.

Stress and Coping

Research question one was designed to explore the reasoning by which YLHW smoke knowing they are ill and the underlying mental processes that are used to normalize the behavior. Research question two begins the pivot toward the question of why. In particular, why do YLWH smoke? In order to investigate the relationship between stress and smoking among YLWH, constructs from the TMSC including perceived susceptibility and coping efforts were used. Coping efforts were broken into two types: engaging strategies and disengaging strategies. Engaging strategies are positive coping mechanisms and consist of strategies such as problem solving, seeking out information and social support which all are associated with better health outcomes (Carver et al., 1993). Disengaging strategies are negative coping mechanisms and consists of strategies such as distancing oneself or engaging in cognitive or behavioral avoidance and are associated with negative health outcomes strategies such as (Taylor et al., 1992). Each participant was asked to describe situations in which they felt stressed, how long it lasted, and what they did to feel better when stressed.

Disengaging Strategies

One clear example of the use of a disengaging coping strategy was when a participant expressed watchfully waiting as a strategy of coping:

When you cannot easily solve a situation that you know that can't be solved especially if it has been with another person the best (sic?) ways to just cope with situation is to just keep your distance or keep your mouth shut like just let it ease on by maybe that other person maybe if you stay away from one another like for example me and my significant other. (#12/M-23)

Participants mentioned varying situations in which stress was the catalyst for use of disengaging strategies. Work, school and home life stress were all given as reasons for being stressed to the point of smoking. While several participants listed various outlets for dealing with stress including working out, playing video games and cooking, the majority described smoking as their outlet for stress relief. One common response that emerged from this particular question was the use of smoking as a calming mechanism. For example, one participant was unable to recall a time when faced with a stressful situation in which they did not smoke. When asked, he responded "I don't remember the last time I was stressed and I didn't smoke. Honestly, it is sort of why I smoke because I am stressed". (#10/M-23) Use of tobacco as a calming mechanism after experiencing stress became apparent in many situations including one participant who considers waking up stressful as a result of living with HIV:

Oh let's see, waking up in the morning is stressful for me because I have to think about taking my medicine and it's like it brings me back to that day I got diagnosed, so it's like I have to smoke a cigarette in the morning. (#16/M-21)

When asked whether she had any experiences when smoking made her feel better, one participant recalled a stressful encounter with her mother and how smoking helped to her feel better:

I had gotten into an argument with one of my, you can call them friends, and it had gotten to the point where everything was getting out of chaos. I had walked away to smoke a cigarette and it made me feel much better, it opened my mind up and actually made me calm down to go back and talk and actually have a conversation rather than argue and yell. (#2/M-21)

Along with smoking being used as a coping mechanism to deal with the stress of living with HIV participants also expressed the pairing of smoking with physical activity as a means of calming down from stressful situations:

If I had a really bad day. Or if I, just because most of the time I smoke by the water so it is just tranquil, so just something, just to be walking outside on the seashore or something having a nice cigar or just unwinding from the day. (#20/M-23)

In addition to dealing with work and health related stress, smoking was also indicated as a calming mechanism for dealing with grief:

Every time I smoke it made me feel better especially when me and my spouse x before he died with HIV. We used to have our differences and I used to be so, I would be upset. I don't like to argue every time so I would just smoke to calm me down it would keep comfortable from doing crazy things. (#19/M-20)

In their approach to dealing with stressful situations, it became clear that all participants struggled with how to manage stressful situations. This is evidenced by the overuse of

disengaging strategies to deal with stress. While many of the day-to-day stressors faced were different, the resulting reaction to these instances seemed to be universal, and that is to smoke.

While it became clear that smoking emerged as the primary means of dealing with personal struggles or bad stress, it is also important to consider the impact of that “good stress” has on these youths’ tendencies to smoke. When faced with the question of do you smoke after receiving good news, 20 youth responded in the negative. The exceptions included three who used birthdays or other special occasions that are considered to be positive events as a time to smoke. One additional participant reported that going to cigar bars with his friends is the only time he smokes and associated smoking with having fun in a leisurely setting. This finding has value as it provides a potential component for a cessation strategy, teaching these youths to handle bad stress with the same resolve as they handle good stress.

Engaging Strategies

While many of these youth stated they prefer to deal with stressful situations with disengaging strategies such as smoking they also expressed the benefits of talking a situation out and using positive thoughts to avoid being stressed out. For example, when asked what alternative activities does she use to deal with stress besides smoking one participant responded “I do like to write poetry and I like to look up recipes, I like to cook, I like to go the beach stuff like that play with daughter, I color with her, I teach her ABCs and stuff like that”. (#14/F-20) This indicates that these youths are aware of alternative behaviors and strategies to dealing with stress. However, based on the findings from this study the need to encourage youths to use engaging strategies more so than not is profound.

Media/Peer Messages and Stress

To explore if media messages play a role in these youths' decision to smoke, several interview guide questions were used to investigate this possibility further. While this relationship was predicted to have a large influence on smoking behaviors due to the explosion of technology and social media only five participants reported it having an influence on them smoking.

The focus of this line of questioning was to determine if media messages act as stressors, and if so, do these youth smoke after viewing or coming into contact with these messages. Each participant was asked if there are specific media messages that influence them to smoke. Media messages included messages from Facebook or other social media outlets as well as television and music. Twenty out of twenty-five participants responded no to this question. However, for the five who felt as if media messages contributed to them smoking they provided contrasting explanations of why. For example, when one participant was asked does seeing negative stories on Facebook influence him to smoke, he responded, "I mean yes somewhat if it really pointed out all the negatives and hit me really close to home or something than yea". (#23/F-21) Another participant described being upset by the outcome of a reality TV show which stressed the point of smoking:

I was really pissed. I, the next day I was at work and I was saying I can't believe she didn't win, but yea stuff like that but it is rarely it is not a think when I am watching a TV show and just cause a person didn't win or some other stuff I smoke a cigarette.

(#21/M-23)

Another example of a media related reaction came from another participant who when asked what media messages influence him to smoke responded "Donald Trump". (11/M-23)

Aside from reacting to TV or social media messages, two participants felt that the content of some music influences them to smoke. When asked if media messages influence them to smoke one responded:

Um, the music they talk about all these thing and they will make you worse you know it's a tell (sic?) all these they doing and all this money they have so it makes you feel like it ok to do this smoke whenever do whatever. (#7/M-23)

Interest in Cessation

Smoking clearly emerged as a way for YLWH to cope with day-to-day and long term stress. However, several things remained unclear. In particular, would YLWH be interested in smoking cessation programs and what alternative activities could they see themselves engaging in besides smoking. To provide insight each participant was asked if they would be interested in quitting, the type of programs they would be interested in, and alternative activities they could engage in besides smoking. Twenty out of twenty-three participants who identified as smokers indicated that they would be interested in a stop smoking program. In contrast to the majority of participants who were amenable to cessation, the three who stated they were not interested voiced concerns regarding content of programs being too judgmental and using the power of faith and self-reliance to quit.

Barriers to Cessation

As a follow up to asking if they were interested in smoking cessation, each participant was asked to describe any barriers that would discourage them from participating. Responses to this question ranged from lack of time to not having access to programs. One participant felt his

financial situation was the greatest barrier to quitting. When asked if there was anything that would make it easier for him to stop smoking, he responded “that would actually be easier for me to stop smoking actually when I get my dream career or my degree. That would make me stop because professionally I don’t want to be smoking”. (#19/M-20) To clarify this response, a follow up question was asked to determine what specifically would make it difficult right now to stop and he responded “not having a job”. (19/M-20) For this participant it appears that having steady employment could act as a means of boosting morale thus removing the desire to smoke. However, cigarettes are expensive and having steady employment could act as a catalyst to continue to smoke as he’d be better positioned to afford the habit more so than before.

While there was a range of barriers to cessation expressed, the two most prevalent barriers to quitting were having smokers in their social and familial circles and the lack of sensitivity used in current cessation programs.

One participant responded to the question of what barriers do you have to cessation with: “I am around people who smoke and seeing them smoke would makes me want one”. (#5/F-24) while others stated:

One of the hardest things is like, I really want to stop smoking. I personally, like it is huge thing that I regret starting because I can just, I can feel the toll it is taking on my body already and I haven’t even smoked that long. But it is hard when you are trying to quit in an environment when someone who is always smoking around, inside, everywhere you go. Like, and just doesn’t seem to care about it as much and it is like I shouldn’t. It stresses me out cause if feel like I shouldn’t need someone to morally support me. I should be like: oh they are making their bad decisions but I am not going to do the same.

But it just somehow makes it hard, like how do you want to feel motivated to do something when you are in that position. (#23/F-23)

It would make it easier if like people around me would stop, not like people around me in general but people I am close to: my best friend, my mom and my stepdad. But easier, but harder stop smoking, they say people stress myself. I have experienced it when I used to smoke heavy I didn't have a cigarette. I used to be mad, but other than that yea it would really help if my people that are close to me would stop and it would be hard, I mean if I need to stop. (#21/M-23)

The idea of not feeling supported by members of his close social circle in quit attempts was also expressed by one participant who when asked what would make it easier to quit, responded “eliminate my boyfriend, eliminate my roommates, that would make it so much easier”. (#11/M-23) In a follow up question this participant described that living with his boyfriend presented real challenges to quitting as his boyfriend “always have them (cigarettes) so every day they offer them and sometimes I say no and sometimes I say yes”. (#11/M-23)

In addition to feeling as if their social circles complicate their cessation efforts, several participants also expressed concern over the content of current programs. Three study participants specifically stated that they felt as if the current messages contained in stop smoking ad campaigns come off as judgmental or harsh. When asked if he would be interested in a cessation program specifically for youth living with HIV, one participant responded:

That would stop me right there a program just for teens because one, teens aren't the only ones that smoke. Even though they might be highly progressive people they are not the only people that smoke. Another thing that would stop me from the actual fact that it is a, rather than having you be a drug conversation just not giving me information about

smoking and what it does you are actually trying to get me to stop. Sometimes somebody else try to get me to stop just might not be the right thing, just give me the information that will make me want to stop. (#2/M-21)

This sentiment was also shared by two other participants who when asked about barriers to cessation responded:

I'm going to tell you what's gonna make me not interested in none of the programs, because they try to abuse and they put these commercials up on TV with cancer patients. (sic?) You can't decide someone's life for them, you have to let them make that decision on their own and I know that it's bad for me to smoke cigarettes and everything like that but everyone has to go down that road and they have to experience for themselves. So what you preaching at me and trying to through the book at me, trying to tell me no you need to stop its bad for you, it's going to kill you one day we all going to die from something one day so why not live your life. (#8/M-24):

If the program didn't make me feel as though that I was a bad person or something for smoking. So if the program just makes me feel the same I feel when I come doctor. Included, welcomed, love and everything like that. If they were able to embody all of that within the program and get me to realize, ok you don't need this you can do something better. You know, do something more with the time. Other than that, then that's fine, just don't beat up on me. (#10/M-23)

In contrast to feeling as if current ad campaigns promoting smoking cessation were judgmental and harsh, one participant felt that they were effective. When asked what parts of stop smoking programs he considered to be viable, one participant responded "um the ads on TV are very intense, those are pretty effective". (#22/M-22)

While interested in cessation programs, participants also expressed mixed interests in specific types of cessation programs. For example, while several participants expressed interests in nicotine replacement therapy (NRT) it became clear that several challenges exist to this being an effective therapeutic cessation strategy for YLWH. Two participants expressed concerns regarding the use of NRT. One felt that the patch would be the best fit for him as he has used it in the past but expressed concern regarding using it now with him being HIV positive:

I really do and I tried that patch thingy when I first moved here like 7 years ago but it just never like. I don't know, I don't know if could use them now with my condition and stuff like that. But if there is a program, if could patches mailed to me with my schedule and stuff like that I work, I wouldn't have a problem with that. (#21/M-23)

While another stated that he ran into health complications from using the patch:

I went on the tobacco free web site and I signed up for that they sent me some patches. I uh, ended up being highly allergic to nicotine patches so then I looked into some other forms I found out about the gum and stuff like that but I never actually gave it a try. (#23/F-21)

Alternative Activities to Smoking

Of the 20 participants interested in quitting each identified several alternative activities to smoking including: physical activity, chewing gum, listening to music, spending time with family and friends, writing poetry and cooking. While there was range of alternate activities given, there was some overlap with four stating that chewing gum would be viable, six identifying various forms of physical activity as an alternative behavior and five stating that spending time with friends and family would be viable option to smoking.

When asked what could work for him in terms of cessation, one participant responded:

I know when I first tried to quit smoking the first time the thing that really actually helped me the most was going outside and walking. I would just go outside and like walk little circles around my backyard. (sic?) Even though it wasn't doing much, being able to breath, getting that fresh air I said this, would make me not want to smoke. (#23/F-21)

The idea of using physical activity as a replacement behavior to smoking was also echoed by several participants who when asked to describe an alternate activity to smoking responded "go for a run, hike, work out go jogging". (#2/M-21) "Skating it would take my mind and the edge off of smoking". (#17/F-21) "Staying active yea keeping busy and stuff like that it would cut down on me smoking so much because there is a lot smoke because I have free time". (#11/M-23)

Spending more time with friends and family was also indicated as an activity these youths would be interested in engaging in more instead of smoking. When asked what could he do besides smoking, one participant responded: "go to the movies, friends have a drink, not excessively, one drink, and just reflect and relax you know just find a way find a comfortable way to unwind in what best fits you". (#10/M-23) While another, when asked what he could do instead of smoking described closeness of family being a viable replacement behavior to smoking.

These youths shared many ideas in common with regard to what they could do instead of smoking but a few also had very specific alternate activities in mind. For example, one participant felt that using his passion for music could keep him busy enough to ward off the desire to smoke. When asked if there were any alternate activities he could engage in besides smoking he responded:

I can mix my music but I need a computer for that. But that is something that I can overcome, but um, mix my music I could definitely use the energy towards something else. I guess it just comes down to laziness or and just pretty much integrity just making sure I am doing the right thing and making sure I am doing what I want to do. (#9/M-21)

Who Can Help with Cessation?

One additional point of consideration is that 14 study participants indicated that family members or friends would be the ideal person to help them to quit, which is telling as most began smoking with a family or friends. For example, when asked to name someone that could help you quit smoking, one participant responded "the first people that come to mind is my parents because they have smoked and they have stopped I mean yea they kind of smoke now but they don't smoke like the regular average person". (#11/M-23) While several others also responded to the question with: "my mother". (#2/M-21): "probably my mom". (#8/M-24): "my mom and my brother". (#9/M-21): "my brother". (#23/F-21)

In addition to family members being noted as the persons who are most suitable to help them quit smoking, several participants also noted that medical providers or friends could also be best suited to help them quit. When asked who he thought would be best to help him quit one participant responded "I'd probably say case managers". (#5/F-24) While two others felt that friends were best suited. When asked who could help him stop smoking one participant responded "probably my friend my best friend, because he stopped smoking cigarettes so I think he would be a good influence on me". (#21/M-23) while another responded to the same question with "my best friend". (#3/M-24)

For participants who had no desire to or interest in a stop smoking program, their reasons included being able to quit whenever they want or not seeing themselves as being a regular smoker thus not requiring any intervention.

Chapter Five:

Discussion

Introduction

The purpose of the final chapter is to provide a study overview and a discussion of the study findings that were presented in chapter four. Implications for public health and clinical practice, recommendations for future studies, strengths and limitations, and plans for dissemination are also presented.

Summary of Study

The purpose of this study was to explore why YLWH smoke and examine published research studies that compared smoking cessation interventions for youth and young adults. This study used a mixed-method study design consisting of 25 audio recorded in-depth interviews conducted at the USF COM's CMS clinic and a systematic literature review to achieve the study aims and answer the associated research questions. The in-depth interviews were conducted with an interview guide that was designed using the transactional model of stress and coping as the theoretical orientation for the question tree. The primary objectives of this component of the study were to explore/understand why YLWH smoke, the underlying factors that contribute to this behavior and their interest in stop smoking programs.

This study provided valuable insight into why YLWH continue to smoke knowing they are ill using information regarding their current living situations and insight into the factors that

influence them to smoke. The study was also able to pinpoint several key factors from published studies that have shown efficacy in encouraging youth to quit smoking as well as increase self-efficacy in their ability to do so. This study is unique in that its focus rests solely on determining how to best design and implement a smoking cessation program specifically for YLWH based on YLWH perspectives.

The findings from components one and two of this study indicated that most of these youth are interested in quitting. However, there are sparse published research studies that compare effectiveness of available and successful cessation strategies to encourage youth to quit smoking. Only ten completed RCTs that compared modalities to help youth quit smoking were located in the literature. One study by Ramo and colleagues (2015) is currently evaluating the effectiveness of a Facebook delivered cessation program versus a web referral program but the results of this study have not been published yet. Delivery methods for smoking cessation programs designed for youth and young adults included web, smartphone and pharmaceutical treatments.

Discussion of Findings

Several key results from the combined findings of components one and two lead one to conclude: youth prefer messaging that focus on benefits of cessation; reducing the use of disengagement beliefs in cessation strategies is critical and the role of NRT in cessation for YLWH is ambiguous. These data are informative in that they are specific to YLWH, a sub-population that has been underrepresented in published research studies that compare established and successful smoking cessation strategies.

One study included in the literature review by Latimer and colleagues (2011) suggests that youth prefer to see messages that are delivered by their peers and focus on the benefits associated with quitting more so than the costs of continuing to smoke. These mixed findings are actually consistent with interview data from component two. When asked if they can identify any barriers to participating in a cessation programs, several participants echoed the sentiment expressed in the study by Latimer and colleagues (2011) thus producing mixed results on preference of cessation messages. This finding is informative as it indicates that YLWH have many of the same concerns regarding the messages used in current smoking cessation strategies. One participant felt as if the messages that include cost associated messages were effective while two other participants strongly disagreed with the use of this aggressive form of cessation ads. The latter two pointed out that the judgmental tone of the messages is discouraging and they felt as if they were being talked down to. What this suggests is that stop smoking program campaigns are not a one-size-fits-all endeavor and there is a definite need for both strategies in order to engage both ends of the cessation spectrum.

Study participants also echoed high levels of disengagement beliefs when asked to reconcile their smoking behavior with the known costs associated with smoking. This suggests that targeting disengagement beliefs could be a vital part of any cessation effort. This finding is congruent with results from the systematic literature review in that eight of the ten studies included in the review used social cognitive theory as means to increase self-efficacy, reduce cognitive dissonance and promote cessation. Furthermore, the larger body of literature on smoking cessation for medically ill youth also suggests that reductions in disengagement beliefs are associated with increased quit attempts (Moor et al., 2011)

The use of Bupropion and other forms of NRT have been indicated in several adult cessation trials as being a safe and effective tool that can be added to existing cessation strategies. The findings from component one of this study produced results that are similar. Each of the two studies included in the systematic literature review found that use of NRT was not only effective in cessation among youth but was also safe (Gray et al., 2011; Gray et al., 2012). At the outset this appears to be a promising finding, especially when coupled with interview data in which several youths openly expressed interest in using NRT as a means to quit smoking. However, as reported in the study findings several of the youth interviewed who expressed interests in using NRT had never tried it. One study participant who had used NRT prior to being diagnosed with HIV reported serious doubts regarding the impact of using NRT in conjunction with his current medications; while another study participant described having severe side effects including nausea as a result of using NRT. These findings are consistent with adult cessation trials for persons' living with HIV (PLWH) in which NRT was associated with nausea, headaches and was ultimately believed to be the primary cause for participants withdrawing from the study (Cui et al., 2012). In addition to causing severe nausea and headaches, other adult cessation trials for PLWH that used NRT reported that its use was associated with increased risk of cardiovascular events as well as the increases of blood serum levels when co-administered with the medications used to treat HIV (Hesse et al., 2006; Hesse et al., 2011). Although a small number of YLWH reported prior use of NRT, their feedback contradicts the idea of it being safe for all populations. These risks must be considered when designing cessation programs for YWLH.

Trajectory of Smoking

To gain a better understanding of their trajectory toward smoking, each participant was asked to identify if they have family members who smoke in their household and 19 out of 25 stated that either their parents or siblings were smokers growing up. This finding is an informative one as this study focused solely on the trajectory of smoking among YLWH, a subset of youth that is largely absent from published studies on smoking cessation. In addition, this finding is consistent with data on the developmental aspects of smoking adolescents. These data indicate that YLW are not much different from other youth in that interpersonal and environmental exposure plays a critical role in their decisions to begin smoking. For almost two decades research studies on initiation of smoking among youth has been tied to interpersonal factors such as the influence of family and friends (Smith & Stutts, 1999; Tucker, Ellickson, & Klein, 2003). In particular, role model or peer behaviors serve to reinforce subjective norms resulting in pro smoking attitudes which encourage behaviors such as smoking to contribute to the initiation of smoking (Krosnick, Chang, Sherman, Chassin, & Presson, 2006; Romer & Jamieson, 2001a). The likelihood of these youth becoming smokers was drastically elevated as a result of their family members being smokers. In fact, having family members who smoke is credited to being the most relevant factor in smoking initiation amongst youth (Tucker et al., 2003). It is possible that these youths would have become smokers, regardless of their being HIV positive.

Data yielded from this study indicate that these youths smoke on average 44 cigarettes weekly or on average six cigarettes daily. This finding is also informative as this is a subset of youth that is largely absent from published studies on smoking cessation. While studies on smoking behaviors among PLWH have been published the focus on YLWH of this study provides a point of comparison. For example, prior studies indicates that adults who are living

with HIV and smoke use 15-20 cigarettes daily, this is nearly 3x more than the YLWH who participated in this study (Reynolds, 2009). This is well below the number of cigarettes smoked on average by adults who are living with HIV, but accounting for the average age of this cohort being 21 years of age, this number has the potential to continue to grow if left unchecked (Reynolds, 2009).

Perceived Susceptibility

Key findings from this study include that the YLHW who participated in this study were fully aware of their health status as evidenced by their continued visits to their medical provider for ongoing treatment of their HIV, yet they continue to smoke. Study participants were able to accurately define the benefits of taking their medication as well as the potential negative long term complications associated with smoking. Mention of the benefits of taking their medication included references to increased CD4 counts, reductions in viral load and helping to maintain a healthy immune system. Heart disease, cancer and kidney problems were also accurately described as long-term complications related to smoking; however, most participants were ambivalent in regards to cessation. This ambivalence suggests that YLWH are not considering the long-term aggregate impact that smoking can have on them. Twenty-two study participants were diagnosed with HIV less than eight years prior to these interviews and were relatively high functioning health wise. These youths proved to be no different than other medically ill smokers who perceive themselves at being at less risk due to their stable or improved health status. For example, data on cancer survivor characteristics indicate that lower levels of perceived susceptibility are related to improved functioning. Results from this study suggest that YLWH

also have lower levels of perceived susceptibility as a result of their stable health status (Cooley et al., 2009).

Upon further exploration, several key themes related to these youths' coping skills were identified including the use of maladaptive coping mechanisms such as disengagement beliefs and resignation. Youth self-reported that they continue to smoke knowing they are ill, due to not seeing any immediate effects of smoking, by minimizing the impact smoking can have on them, or stating that they are not concerned about the impact it can have on them. Research studies on adolescent and young adult risk behaviors suggest that youth have not had enough life experience and physical maturation to effectively handle themselves in stressful situations. Several theories posit that too much stress serves to overload the capacity of the brain's pleasure center resulting in informed bad decisions (Giedd et al., 1999; Petanjek, et al., 2011). These findings are consistent with the results from this study. Study participants were universally able to discuss the benefits of taking their medication. However, in the same breath state they will continue to smoke. These findings suggest that YLWH may take mortality into consideration when making decisions, but they underestimate the very real possibility of their under-performing immune systems giving way to further health complications.

Another salient theme that emerged during analysis of interview transcripts was that YLWH were unaware that smoking while taking their HIV medications can have a deleterious impact on the effectiveness of their medication. When asked if they knew of any side effects that smoking can have on their medications all participants answered no. This is indicative of low levels of resting knowledge concerning the possible interference of tobacco with their HIV medications.

Role of Stress in Smoking

YLWH reported smoking as a leisure activity as well as method of dealing with stressful situations that can arise from complications related to living with HIV or from day-to-day stressors. Behavioral theories including the TMSC look at the totality of one's exposure to stress and contrasts it with corresponding behaviors following the diminishing of the ability to cope with said stressors. It is believed that aggregate amounts of stress increase impulsivity, which in turn, increases the likelihood of smoking (Ansell, Gu, Tuit, & Sinha, 2012). YLWH face various challenges unique to their condition on a daily basis ranging from costs of medical care to family strain to feeling judgment related to the stigma of living with HIV. While many of these youth are currently in care, they are all faced with the reality of aging out. This refers to them being forced to leave the nurturing environment of pediatric care and become thrust into the adult care model. This transition is a complicated process and often leaves PLWH without medical care. For most, this proposition is stressful at best. In addition to dealing with financial stress related to health care decisions, these youths are also faced with the day-to-day stress of who to disclose their status to. Stigma associated with HIV continues to be a burden for those affected by the virus. Several participants of this study mentioned disclosure related issues as a cause for stress. In particular, disclosure of HIV status to others was described as a source of stress that influences YLWH to smoke. The fear of not knowing another's reaction to disclosure of positive status was cited as a reason for smoking to calm down. Smoking was also described as a method of calming down after a having a disagreement as well as a way of coping with uncomfortable occurrences such as grief related to a death in the family. Further, several participants stated that smoking provides them with time to themselves to take a walk or enjoy being outside in a tranquil environment.

With stress and the ability to cope with life stressors clearly influencing the behavior of smoking among this cohort of YLHW, it was important to ascertain their willingness to participate in a smoking cessation program. When asked directly, an overwhelming majority (>80%) of study participants expressed interest in a stop smoking program. This finding is consistent with data on youth smokers as a whole (Stanton & Smith, 2002; Sussman & Lichtman, Ritt, & Pallonen, 1999).

Preferences in Cessation Programs

While a consensus was on preference in delivery method and type of intervention was not reached, interest was expressed in online, in-person and group cessation programs.

Barriers to Cessation Program

Barriers to entering a stop smoking program included close proximity to smokers which includes having family members and friends who smoke. In addition, lack of transportation, not having access to a computer and costs associated with purchasing NRT were also mentioned as barriers to cessation.

Strategies Used

Results from component two of this study suggest that YLWH consider family members as being best equipped to help them quit smoking. This willingness to seek support from family members was very interesting and not expected. A myriad of explanations for this can be pondered but this result is more than likely an artifact of two factors: their age and having limited social networks. This fact resonated with this one question, as many of the study participants still

depend upon their parents for shelter and financial support in most cases. As with most youth who are faced with a tough decision, they call on those closest to them, family. In addition, studies on family strain related to persons affected by HIV suggest that due to the stigma associated with HIV, those affected have significantly fewer people in their social networks (Frain, Berven, Chan, & Tschopp, 2008). This possibility provides a viable explanation as to why these youths would turn to family for help quitting; they simply do not have an expansive social network to consult for help.

Second-Hand Smoke

Smoking can impact the body through two primary routes of ingestion which includes first-hand smoke and second-hand smoke. While these youths talked in depth about first-hand smoke exposures, none mentioned the impact of second hand smoke on them or their family and friends. While there was no question designed to elicit a response regarding second hand smoke, this was by design in order to examine just how close the impact of second hand smoke is to the front of these youth's awareness. This is critical since participants stated that either family or friends contributed to them becoming a smoker and many of their family and friends are also current smokers. One participant stated that she and her mom both smoke two packs of cigarettes each, daily. In addition, three others mentioned frequenting hookah or cigar bars as a means of spending time with friends but did not mention the potential negative impact of second hand smoke. One participant who is the mother of an infant genuinely expressed being conflicted about continuing to smoke knowing the impact it could have on her child. She expressed the need to stay healthy so that she can provide and take care of her child; thus, trying to quit

smoking was a goal for her. However, she failed to mention the impact of second hand smoke on her baby and the need to quit being twofold.

When faced with the possibility of tobacco usage harming them, many of these youth seemed ambivalent but their perspective could change if they were made aware of the risks that their behavior could potentially have on others. Helping these youths to become more familiar with the impact of first and second hand smoke could prove to be one route to long-term cessation.

Implications for Public Health and Clinical Practice

Results from this study not only lend support to the call for smoking cessation programs for PLWH but place a specific call to urgency for stop smoking programs designed to help YLWH quit. As these youths are on track to live longer lives, the impetus lies in making certain the additional years of life are healthy. From 2008-2014 there has been a substantial decrease in the number of youth smokers. In 1998 35% of youth reported smoking in the previous month while in 2014 this number fell to 16.7% (CDC, 2016). With national declines in the number of smokers, we still continue to see smoking among YLWH climb (Branstetter, Blosnich, Dino, Nolan, & Horn, 2012; Reynolds, 2009). To curb long term morbidity associated with smoking among this population, investment in the elimination of tobacco use must become a priority. When weighing both the direct and indirect costs of YLWH continuing to smoke, we can expect to see growth in the health care costs associated with treating PLWH as well as loss of productivity due to premature mortality (Menzin et al., 2012). Several studies have already indicated that smoking while taking HAART (medications used to treat HIV) can negate the positive effects of the treatment by impacting the rate at which lymphocyte subsets replicate

which directly increases morbidity and mortality associated with living with HIV (Fusby et al., 2010; Feldman, Minkoff, & Schneider, 2006). Clinicians also must be made aware of the potential harmful side effects that NRT had on this study's participants. These findings suggest that behavioral smoking cessation interventions are to be indicated for YLWH.

Directions for Future Research Studies

The results from both components of this study provide a framework for several key follow up studies beginning with further investigating the types of specific cessation messages that YLWH prefer along with delivery methods. Both the systematic literature review and the interviews with YLWH produced mixed results in terms of what messages and delivery methods are preferred. To better understand this finding, additional qualitative studies can be completed to gain further insight into which messages these youths prefer to see in cessation strategies. While in-depth interviews worked well for this particular study, the collaborative and synergistic environment of focus groups might be well suited to gain the perspectives of YLWH on preferred cessation messages.

In addition to determining the types of messages YLWH would prefer to see for cessation program, it is also critical to involve their medical providers in the process of getting them to quit smoking. In order to better prepare providers to deal with this problem, the first step would be to survey HIV specialty care providers to determine their level of engagement with these youth regarding smoking cessation as well as what information is shared with them. For example, future studies could seek to determine how providers discuss issues such as the dangers of second hand smoke and the negative impact that smoking has on the effectiveness of their medications.

Implications for Development of a Smoking Cessation Program

The primary purpose of this study was to gain insight into whether YLWH would be interested in a smoking cessation and what facets of successful published research studies that compare smoking cessation interventions are currently being used. Results suggest that a smoking cessation intervention that is designed to increase self-efficacy in cessation would provide the best opportunity to reduce disengagement beliefs and encourage cessation. Changes in cognitions or use of SCT are indicated as creating most gains in maintaining cessation among youth. The focus of a cessation intervention must address three issues: smoking cessation, replacement behaviors, and stress management. Using messages that focus on gains rather than losses throughout the intervention could be key to cessation. Data suggests youth want to hear messages that are uplifting. Messaging that focuses on health detriments might work with adult populations as they are more apt to show concern for long-term health but youth often feel shielded from long-term health complications as it appears to be decades away.

These youths also seemed amenable to use of varying methods of delivery for a cessation program including face to face, web or text message based interventions. This lends credibility to the idea that the intervention must have multiple components including a technological component. In addition, these youth overwhelmingly regarded their family members as being the best persons to help them with cessation. This finding suggests that incorporating family members into the intervention strategy is worthwhile to consider.

Strengths and Limitations

Results indicate that YWLH are interested in quitting smoking. However, designing a smoking cessation intervention for these youth requires the need to better determine what

messages these youths prefer, and the best mode of delivery for the intervention. An additional concern is whether NRT is an option for these youth considering their current medication.

Strengths of component one include the use of a rigorous protocol that included clear parameters for: collection, abstraction and compilation of data from the available sources.

Limitations of component one include lack of access to online databases that include unpublished studies and inclusion criteria requiring an article to have been a randomized control trial and exclusion of studies that did not meet specific age criteria. Another limitation of component one is that not all cessation interventions have an evidence base. There could be many programs that exist but since they have not been validated, published and included in a direct comparison study they were not included in this systematic literature review.

Strengths of component two of this study include the diversity of the study population as well as the high level of proactive support from the CMS staff. Study participants represented both behavioral and perinatally exposed patients to HIV with YMSM and African American females representing over 50% of the sample. This is critical as these sub two populations have among the highest rates of HIV incidence but are underrepresented in smoking cessation studies.

One major limitation of this study was the recruitment site. This study was conducted at a pediatric clinical practice that is part of a major university. The clinical staff is made up of providers and researchers who offer a collection of services to these youth including: social work, support groups and behavioral counseling. Participants were actively in care and receiving treatment thus the results of this study may not be reflective of all YLWH. This level of exposure could have increased each participant's levels of resting knowledge regarding the perils of smoking as well as the benefits of care. Future studies could focus on recruiting young adult participants from adult care settings as well as other community based organizations that are

charged with providing care to youth that do not have such high levels of health literacy. This could expand the scope of responses and provide additional insight into the prevalence and etiology of smoking among YLWH.

Another limitation of the study was its cross sectional design. Participants only completed one in depth interview and there was no follow up. With six study participants being diagnosed within four months of participating in this study, there is a definite need to investigate if smoking cessation services are part of the linkage to care services offered to newly diagnosed patients. This also presents the opportunity to follow these youths' outcomes longitudinally.

An additional limitation of component two of this study is the potential for participants to respond favorably as a result of their desire to impress study and clinical staff. This form of social desirability exists in qualitative work. This researcher also acknowledges that over his 10 years of prior work experience with PLWH he possesses a separate reality of the challenges PLWH face as well as the possibilities of certain biases related to his work experience. This familiarity with study staff and patients has the potential to contribute to a social desirability bias. Qualitative work also lacks the ability to be generalizable to other demographic and geographic populations as a result of its lack of having representative samples.

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Appendices

Appendix A: IRB Approval Letter



RESEARCH INTEGRITY AND COMPLIANCE
Institutional Review Boards, FWA No. 00001669
12901 Bruce B. Downs Blvd., MDC035 • Tampa, FL 33612-4799
(813) 974-5638 • FAX (813) 974-7091

November 24, 2015

Todd Wells
Community and Family Health
17 Davis Blvd
Suite 200
Tampa, FL 33606

RE: **Expedited Approval for Initial Review**

IRB#: Pro00004737

Title: Smoking Among HIV Positive Youth: The Intersection of Behavioral Health and Chronic Disease

Study Approval Period: 11/24/2015 to 11/24/2016

Dear Mr. Wells:

On 11/24/2015, the Institutional Review Board (IRB) reviewed and **APPROVED** the above application and all documents contained within, including those outlined below.

Approved Item(s):

Protocol Document(s):

[Pro00004737 Study Protocol.docx](#)

Consent/Assent Document(s)*:

[Pro00004737 Consent Form Face to Face V#1 11.18.15.docx.pdf](#)

[Pro00004737 Verbal Consent Phone Interview V#1 11.18.15.docx](#) **granted a waiver

*Please use only the official IRB stamped informed consent/assent document(s) found under the "Attachments" tab. Please note, these consent/assent document(s) are only valid during the approval period indicated at the top of the form(s). **Waivers are not stamped.

It was the determination of the IRB that your study qualified for expedited review which includes activities that (1) present no more than minimal risk to human subjects, and (2) involve only procedures listed in one or more of the categories outlined below. The IRB may review

research through the expedited review procedure authorized by 45CFR46.110 and 21 CFR 56.110. The research proposed in this study is categorized under the following expedited review category:

(6) Collection of data from voice, video, digital, or image recordings made for research purposes.

(7) Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

Your study qualifies for a waiver of the requirements for the documentation of informed consent as outlined in the federal regulations at 45CFR46.117(c) which states that an IRB may waive the requirement for the investigator to obtain a signed consent form for some or all subjects if it finds either: (1) That the only record linking the subject and the research would be the consent document and the principal risk would be potential harm resulting from a breach of confidentiality. Each subject will be asked whether the subject wants documentation linking the subject with the research, and the subject's wishes will govern; or (2) That the research presents no more than minimal risk of harm to subjects and involves no procedures for which written consent is normally required outside of the research context.

As the principal investigator of this study, it is your responsibility to conduct this study in accordance with IRB policies and procedures and as approved by the IRB. Any changes to the approved research must be submitted to the IRB for review and approval via an amendment. Additionally, all unanticipated problems must be reported to the USF IRB within five (5) calendar days.

We appreciate your dedication to the ethical conduct of human subject research at the University of South Florida and your continued commitment to human research protections. If you have any questions regarding this matter, please call 813-974-5638.

Sincerely,



John Schinka, Ph.D., Chairperson
USF Institutional Review Board

Appendix B: Search Strategy Overview

Search Strategy:

Time Period: January 1, 2008 to January 31, 2016

Language: English

Location: United States of America

Databases: Pub Med, Web of Science, CINAHL, PsycINFO EBSCOHOST

Below is the syntax (database-specific search terms and key words) that were employed within Pub Med, Web of Science, CINAHL, PsycINFO EBSCOHOST. Based upon the rTIPS search interface, a “click-all-that-apply” approach was employed.

Pub Med, Web of Science, CINAHL, PsycINFO EBSCOHOST, and Syntax

((("hiv"[MeSH Terms] AND ("smoking"[MeSH Terms] OR "smoking"[All Fields])) AND cessation[All Fields]) AND ("tobacco products"[MeSH Terms] OR ("tobacco"[All Fields] AND "products"[All Fields]) OR "tobacco products"[All Fields] OR "cigarette"[All Fields])) AND ("adolescent"[MeSH Terms] OR "adolescent"[All Fields] OR "youth"[All Fields]) ("hiv"[MeSH Terms] OR "hiv"[All Fields]) AND ("smoking cessation"[MeSH Terms] OR ("smoking"[All Fields] AND "cessation"[All Fields]) OR "smoking cessation"[All Fields]) (((("smoking cessation"[MeSH Terms] OR ("smoking"[All Fields] AND "cessation"[All Fields]) OR "smoking cessation"[All Fields]) AND ("adolescent"[MeSH Terms] OR "adolescent"[All Fields] OR "youth"[All Fields])) AND ("adolescent"[MeSH Terms] OR "adolescent"[All Fields] OR "adolescents"[All Fields])) AND ("young adult"[MeSH Terms] OR ("young"[All Fields] AND "adult"[All Fields]) OR "young adult"[All Fields] OR ("young"[All Fields] AND "adults"[All Fields]) OR "young adults"[All Fields]) AND (Clinical Trial[ptyp] AND "2010/12/19"[PDat] : "2015/12/17"[PDat] AND "humans"[MeSH Terms])

Appendix C: Summary of Findings from Systematic Literature Review

1. Citation	Audrain-McGovern et al. (2011)
Intervention Type	Motivation Interviewing vs. Structured Brief Advice
Participant Characteristics	Youth aged 14-17 years of age
Findings	Structure Brief Advice elicited a great number of cessation attempts
2. Citation	Bricker et al. (2010)
Intervention Type	Counselor delivered SCT based telephone intervention
Participant Characteristics	High School Seniors
Findings	Among all enrolled smokers, increased self-efficacy to resist smoking in (a) social and (b) stressful situations together statistically mediated 55.6% of the intervention's effect on smoking cessation
3. Citation	Buller et al. 2014a
Intervention Type	Counseling Services W/NRT Patch vs. Counseling Services W/O NRT Patch
Participant Characteristics	Smokers aged 18-30
Findings	The use of NRT was associated with greater smoking abstinence at 12 weeks
4. Citation	Buller et al. 2014b
Intervention Type	This study compares a mobile application with text messaging to support smoking cessation
Participant Characteristics	Smokers aged 18-30
Findings	Text messaged cessation support program (OnQ) outperformed mobile application (REQ-Mobile) and produced more smoking abstinence
5. Citation	Gray et al. (2011)a
Intervention Type	This study compared the use of pairing Nicotine Replacement Therapy with Contingency Management
Participant Characteristics	Smokers aged 12- 21
Findings	Nicotine Replacement Therapy when combined with contingency management showed limited efficacy when compared to each condition alone.
6. Citation	Gray et al. (2011)b.
Intervention Type	Comparison of effects of two pharmaceutical cessation strategies; Varenicline versus Bupropion
Participant Characteristics	Smokers aged 14-20

Findings	Varenicline outperformed bupropion in decreasing the number of cigarettes used daily and number of participants that achieved complete cessation
7. Citation	Horn et al. (2013)
Intervention Type	Evaluated effectiveness of behavioral cessation intervention that included physical activity versus behavioral cessation intervention that did include physical activity component
Participant Characteristics	Smokers aged 14-19
Findings	Participants that increased their amounts of physical activity at least 20 minutes a day were more likely to reduce cigarette usage
8. Citation	Latimer et al. (2012)
Intervention Type	Assess preferences of messages in smoking cessation videos
Participant Characteristics	Smokers aged 13-18
Findings	Youth preferred messages that were delivered by peers and focused on long-term health term health gains associated with smoking cessation
9. Citation	Pbert et al. (2011)
Intervention Type	Evaluation of a counseling based school nurse smoking cessation program versus a attention control based school nurse smoking cessation program
Participant Characteristics	High school students in grades 9-12
Findings	School nurse counseling based program out performed attention based school nurse delivered program in cessation and reductions in cigarette usage among boys and girls
10. Citation	Simmons et al. (2013)
Intervention Type	Examine the efficacy of a web-based cessation program versus group based cessation program
Participant Characteristics	Smokers aged 18-24
Findings	Web-based cessation program outperformed didactic cessation program by producing higher rates of cessation and

Appendix D: Pediatric Infectious Disease Letter of Support



October 15, 2014

Todd Wells, MPH
University of South Florida
College of Public Health
Department of Community and Family Health

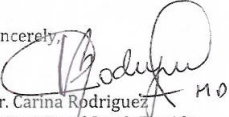
RE: Data Collection for Todd Wells' Dissertation

Dear Mr. Wells

I would like to express the commitment of the University of South Florida's Pediatric Infectious Diseases Division to collaborate with you on the proposed study titled "Smoking Among HIV Positive Youth: The Intersection of Behavioral Health and Chronic Disease". This project will evaluate the perceptions and barriers to smoking cessation among HIV positive youth ages 18-24 years old.

We have reviewed the proposal and have found it appropriate. Our department has the appropriate resources for this collaboration, as well as opportunities to recruit study participants. The findings from this project have the potential to contribute knowledge that could inform smoking cessation programs for HIV positive youth. We look forward to participating in this project and working with Mr. Wells.

Sincerely,


Dr. Carina Rodriguez
University of South Florida
Morsani College of Medicine
Division Chief, Division of Pediatric Infectious Diseases
17 Davis Blvd., Suite 200
Tampa, FL 33606

DEPARTMENT OF PEDIATRICS • COLLEGE OF MEDICINE, PEDIATRIC SPECIALTY CLINIC
UNIVERSITY OF SOUTH FLORIDA • 17 DAVIS BOULEVARD, SUITE 200 • TAMPA, FL 33606-3475
(813)259-8800 • FAX (813) 259-8805

Appendix E: Interview Guide

Introduction:

Thank you for taking time to participate in this interview about Smoking & HIV.

[Review the purpose of this interview. Make sure they have signed the consent and the non-identifying demographic sheet. Explain there are no right or wrong answers and their input is important. Begin with something to break the ice and get them comfortable.]

Interviewer's Question List (The headings in caps are the constructs that these questions are designed to explore)

❖ **Smoking behavior:**

Key question: To gain a better perspective on how you feel about smoking, we wanted to ask why do you smoke and how frequently do you smoke?

Key question: What are your family member's feelings about you smoking? Tell me about the role that smoking played in your household growing up? For example, were your parent's/family member's smokers?

Key question: Are you currently in a relationship or dating? If so, please tell me about your relationship. Is your partner a smoker?

If Yes: do you smoke with your partner?

If No: do you smoke when your partner is around?

How does your partner feel about you smoking?

Key question: When you became a regular smoker, who'd you smoke with and what would you talk about as you shared a cigarette?

Key question: Think of the last two to three times you smoked. Where were you?

Think about a situation in which you decided to smoke afterwards. What was that situation and how long after did you decide to smoke?

Key question: Can you think of a time when you felt stressed and did not decide to smoke afterward? Tell me more about this situation and how you coped with it.

How is living with HIV related to you smoking?

Probe: reasons?

Perceived Susceptibility

❖ *Key question:* I am interested in knowing more about how you feel smoking impacts you. Tell me what you know about how your medication is helping you?

- ❖ *Key question:* Tell me what you know about the impact smoking has on your health. Do you know of any potential side effects of smoking while taking your prescribed medications, if so describe them to me?
- ❖ *Key question:* What did you think about while you were smoking? Are these thoughts only brought up when smoking?
- ❖ *Key question:* Can you think of a time when you felt smoking might have caused you discomfort? Tell me about this experience.
- ❖ *Key question:* Are there any situations in which you feel smoking has helped you to feel better? Please tell me about these experiences and what specifically did smoking help with.

Perceived Severity

- ❖ *Key question:* I am also interested in knowing more about how you feel about the potential impact of smoking on your overall health. How do you feel about the thought of smoking impacting your CD4 count?
- ❖ *Key question:* What impact do you think smoking can have on your health in the future? What bad things can happen from smoking long-term?
- ❖ *Key question:* When you're feeling down what helps make you to feel emotionally better? If your feeling down and smoke does it make you feel physically better? If not describe to me the tradeoff between smoking helping you to feel emotionally better but making you feel physically worse.

Coping:

- ❖ *Key question:* I would like to talk with you more about how you handle stress. Describe to me some situations when you feel stressed. When stressed how long does this typically last and what do you do to help when you feel stressed?
- ❖ *Key question:* Think about a time when something good happened, what feelings did you experience? Did you smoke after this experience? Now think about a time when something bad happened, what feelings did you experience? Did you smoke after this experience?
- ❖ *Key question:* What do you do when you're feeling stressed? Please provide me with some examples.
- ❖ Probe: How does this make you feel?

Coping Strategies:

- ❖ *Key question* (Emotional Control): In addition to hearing more about what you do when experiencing stress, I would also like to know more about your decisions in determining a

solution to stressful situations. How do you feel about going to your doctor's visits? What do you feel when you're at the doctor's office? What do you do after the visit is over?

- ❖ *Key question* (Emotional Control): When you're stressed, what type of thoughts do you have when working through a stressful situation? Please provide me with some examples. In addition to hearing more about what you think when resolving stressful situations, I would also like to know more about potential solutions that result from brainstorming. When you're stressed after receiving bad news, what are some things you can do to help deal with the stress?
- ❖ *Key question*: (Disengagement Beliefs): I would also like to know more about potential solutions that result from brainstorming. What is a situation that you feel is not easily resolved? When faced with an issue that is not easily resolved what strategies do you use to approach a solution?

Media/Peer messages:

- ❖ *Key question*: I also would like to know more about the people around you (family, friends etc.) and their impact on how you handle stress. Are there people in your life that influence whether or not you smoke? If so, please tell me about them.

Probe: which of these people is the most influential/ important?

- ❖ *Key question*: Not only am I interested in hearing about how family and friends impact how you handle stress, but I'm also interested in hearing how media outlets (including Facebook, Snapchat and the news) impact how you handle stressful situations as well. What types of social media messages influence you to smoke? For example, seeing a friend post a negative story on Facebook.
- ❖ *Key question*: What media messages influence whether or not you smoke? For example, does seeing friends on Facebook smoking impact your decisions to smoke? If so, please tell me which media messages (social media, news outlets) have an influence.
- ❖ *Key question*: Think about a time when you were out with friends or family. What positive or negative experiences contribute to smoking when out with peers or family?

Probe: which of these is the most influential/ important?

Cessation:

- ❖ *Key question*: What would make it easier or more difficult for you to abstain from smoking?
- ❖ *Key question*: What types of programs would you be interested in to help you stop smoking?
- ❖ *Key question*: Describe some things that would prevent you from being interested in a stop smoking program. In your opinion what could be done to help with these barriers?
- ❖ *Key question*: What type of interest would you have in an online stop smoking program? What type of interest would you have in an in person stop smoking program?

- ❖ Key question: Think about alternative activities to smoking. Describe which could be most beneficial for you and why?
- ❖ Key question: Who can you think of that would be a good person to help with not smoking and why?

Probe: anything that would prevent you from abstaining (barriers)?

Probe: anything that would help you abstain (facilitators)?

Conclusion: Wrap up the discussion, clarify and summarize. Thank you for participating

Interviewer decides when to ask the question according to rapport

Appendix F: Interview Guide (Former Smoker)

Introduction:

Thank you for taking time to participate in this interview about Smoking & HIV.

[Review the purpose of this interview. Make sure they have signed the consent and the non-identifying demographic sheet. Explain there are no right or wrong answers and their input is important. Begin with something to break the ice and get them comfortable.]

Interviewer's Question List (The headings in caps are the constructs that these questions are designed to explore)

❖ **Smoking behavior:**

Key question: To gain a better perspective on how you feel about smoking, we wanted to ask why did you smoke and how frequently did you smoke?

Key question: What are your family member's feelings about smoking? Tell me about the role that smoking played in your household growing up? For example, were your parent's/family member's smokers?

Key question: Are you currently in a relationship or dating? If so, please tell me about your relationship. Is your partner a smoker?

If Yes: does your partner smoke?

How do you feel about your partner smoking?

Key question: When you became a regular smoker, who'd you smoke with and what would you talk about as you shared a cigarette?

Key question: Think of the last two to three times you smoked. Where were you? Think about a situation in which you decided to smoke afterwards. What was that situation and how long after did you decide to smoke?

Key question: Can you think of a time when you felt stressed and did not decide to smoke afterward? Tell me more about this situation and how you coped with it.

How was living with HIV related to you smoking?

Probe: reasons?

Perceived Susceptibility

❖ *Key question:* I am interested in knowing more about how you feel smoking has impacted you. Tell me what you know about how your medication is helping you?

- ❖ *Key question:* Tell me what you know about the impact smoking has on your health. Do you know of any potential side effects of smoking while taking your prescribed medications, if so describe them to me?
- ❖ *Key question:* What did you think about while you were smoking? Were these thoughts only brought up when you were smoking?
- ❖ *Key question:* Can you think of a time when you felt smoking might have caused you discomfort? Tell me about this experience.
- ❖ *Key question:* Are there any situations in which you feel smoking has helped you to feel better? Please tell me about these experiences and what specifically did smoking help with.

Perceived Severity

- ❖ *Key question:* I am also interested in knowing more about how you feel about the potential impact of smoking on your overall health. How do you feel about the thought of smoking impacting your CD4 count?
- ❖ *Key question:* What impact do you think smoking can have on your health in the future? What bad things can happen from smoking long-term?
- ❖ *Key question:* When you're feeling down what helps make you to feel emotionally better? When you smoked, did it help make you feel emotionally better? If so describe to me the tradeoff between smoking helping you to feel emotionally better but making you feel physically worse.

Coping:

- ❖ *Key question:* I would like to talk with you more about how you handle stress. Describe to me some situations when you feel stressed. When stressed how long do this typically last and what do you do to help when you feel stressed?
- ❖ *Key question:* Think about a time when something good happened, what feelings did you experience? Did you smoke after this experience? Now think about a time when something bad happened, what feelings did you experience. Did you smoke after this experience?
- ❖ *Key question:* What do you do when you're feeling stressed? Please provide me with some examples.

Probe: How does this make you feel?

Coping Strategies:

- ❖ *Key question* (Emotional Control): In addition to hearing more about what you do when experiencing stress, I would also like to know more about your decisions in determining a solution to stressful situations. How do you feel about going to your doctor's visits? What do you feel when you're at the doctor's office? What do you after the visit is over?

- ❖ Key question (Emotional Control): When you're stressed, what type of thoughts do you have when working through a stressful situation? Please provide me with some examples. In addition to hearing more about what you think when resolving stressful situations, I would also like to know more about potential solutions that result from brainstorming. When you're stressed after receiving bad news, what are some things you can do to help deal with the stress?
- ❖ Key question: (Disengagement Beliefs): I would also like to know more about potential solutions that result from brainstorming. What is a situation that you feel is not easily resolved? When faced with an issue that is not easily resolved what strategies do you use to approach a solution?

Media/Peer messages:

- ❖ Key question: I also would like to know more about the people around you (family, friends etc.) and their impact on how you handle stress. Are there people in your life that influence whether or not you smoke? If so, please tell me about them.

Probe: which of these people is the most influential/ important?

- ❖ Key question: Not only am I interested in hearing about how family and friends impact how you handle stress, but I'm also interested in hearing how media outlets (including Facebook, Snapchat and the news) impact how you handle stressful situations as well. When you were smoking did social media messages influence you to smoke? For example, seeing a friend post a negative story on Facebook.
- ❖ Key question: What media messages influence whether or not you smoke? For example, does seeing friends on Facebook smoking impact your decisions to smoke? If so, please tell me which media messages (social media, news outlets) have an influence.
- ❖ Key question: Think about a time when you were out with friends or family. What positive or negative experiences contribute to smoking when out with peers or family?

Probe: which of these is the most influential/ important?

Cessation:

- ❖ Key question: What made it easier or more difficult for you to abstain from smoking?
- ❖ Key question: When considering quitting what type/s of programs interested you?
- ❖ Key question: Describe some things that would prevent you from being interested in a stop smoking program. In your opinion what could be done to help with these barriers?
- ❖ Key question: What types of alternative activities do you engage in instead of smoking? Describe which could be most beneficial for you and why?
- ❖ Key question: Who can you think of that helped you quit smoking? Is there anyone who you can think of that was not helpful in quitting?

Probe: anything that would prevent you from abstaining (barriers)?

Probe: anything that would help you abstain (facilitators)?

Conclusion: Wrap up the discussion, clarify and summarize. Thank you for participating

Interviewer decides when to ask the question according to rapport

Appendix G: Recruitment Flyer



SMOKERS STUDY (IRB# Pro00004737)

HIV-POSITIVE? BETWEEN THE AGES OF 18–24? A SMOKER?



USF research team seeking **HIV- positive** youth (men and women) who are **current or former smokers** for a study to investigate the social and behavioral aspects of smoking



- ✦ ALL INFORMATION IS CONFIDENTIAL
- ✦ COMPLETE ONE APPROXIMATELY 90 MINUTE INTERVIEW
- ✦ YOU CAN EARN A \$20 GIFTCARD TO WALMART OR 7-11
- ✦ PARTICIPANTS WILL COMPLETE ONE-ON-ONE INTERVIEW
- ✦ TRANSPORTATION ASSISTANCE IS AVAILABLE

For more information call: Todd Wells, MPH at (727) 317-9082

Appendix H: Demographic Capture Sheet

DEMOGRAPHICS SHEET

PLEASE DO NOT WRITE YOUR NAME ON THIS FORM. This form will be stored separately from any other information that you complete during this study and will not be linked to your interview responses. The information will allow us to provide an accurate description of the study sample.

For the following items, please select response that is most descriptive of you or fill in the appropriate blank:

Gender: female male transgender

Age: _____

Ethnicity:

- Asian or Pacific Islander
- Black/African American
- Caucasian/White
- Native American
- Latino/Hispanic
- More than one race (specify): _____

Income Level (yearly):

- 0 - \$5000
- \$5001-\$10,000
- \$10,001- \$15000
- \$15,001 - \$20,000
- \$20,001 - \$25,000
- > \$25,001

Level of Education:

- < 8th grade
- Some high school
- High school diploma
- Some college
- Associates degree
- Bachelors or Graduate degree

Sexual Orientation:

- Straight
- Gay
- Bi-Sexual
- Lesbian

Other (specify) _____

HIV Transmission Category:

- Male to male sexual contact
- Perinatal
- Injection drug use
- Male-to-male contact and injection drug use
- Heterosexual contact
- Other (specify) _____

Date of Diagnosis: _____

Year began smoking: _____

How many cigarettes do you smoke weekly: _____

Appendix I: List of Codes Used to Identify Constructs During Analysis (*n=number of passages coded*)

Final Categories and Codes

Smoking

cig
cigar
cigarette
black
mild
pack
smoke
smoked
SMOKING

Perceived Susceptibility

cancer
heart
die
death
HIV
meds
medication
light
headed
killing
dead
health

Family Smoking

mom
dad
girlfriend
boyfriend
smoke
aunt
uncle
grandmother
grandfather
smoker
smokers

Coping

stress
stressful
stressed
cope
coping
smoke
write
exercise
TV
music
read
COPING

cook
outside
family
work
running
reading
jogging
exercise
relax
relaxer
chill
chill out

Cessation

online
in-person
patch
group
gum
in
one on one

Note: codes used as programming tools for regular and supercodes in ATLAS.ti.

Supercodes are in all capital letters

Appendix J: Participant Interview Run Times

Participant #	Interview Time in Minutes
1	22
2	22
3	27
4	27
5	28
6	28
7	25
8	26
9	35
10	21
11	32
12	29
13	31
14	21
15	24
16	25
17	23
18	26
19	26
20	27
21	22
22	22
23	18
24	16
25	18

Appendix K: Resource List

Tampa Area Resource List

Mental Health

Crisis Center of Tampa Bay: Free, confidential crisis counseling, along with referrals to a Crisis Center service or to over 4,600 other community resources.

One Crisis Center Plaza Tampa, FL 33613

813-964-1964 or Call 2-1-1 www.crisiscenter.com

Francis House

4703 N. Florida Ave., Tampa, FL 33603

813-237-3066 www.francishouse.org

Mental Health Care, Inc. (Gracepoint)

5707 N. 22nd St., Tampa, FL 33610

813-272-2244 www.mhcinc.org

Metro Wellness and Community Centers

1315 E. 7th Ave., Tampa, FL 33605

813-232-3808 info@metrotampabay.org or www.metrotampabay.org

Metro Wellness: Individual Counseling, Psychiatric Evaluations and Medications

Appointments only. Please call 813-232-3808 and ask for the Metro Program Specialist or send an email to goodmentalhealth@metrocharities.org or info@metrotampabay.org.

Metro Wellness: Living, Learning and Loving HIV/AIDS Support Group a confidential, peer and therapist led discussion group for individuals affected by HIV/AIDS. Appointments required for participation. Confidentiality is maintained. Tuesdays, 1-3 pm. Call 727-321-3854 and ask for the Metro Program Specialist or send an email to goodmentalhealth@metrocharities.org.

USF Psychological Services Center: The Psychological Services Center (PSC) at the University of South Florida is a teaching, research, and service clinic. The PSC offers affordable outpatient mental health services to the Tampa Bay community. The PSC is equipped to provide assessment and therapeutic services for adults, children, families, and couples.

3711 USF Citrus Dr., PCD 1100, Tampa, FL 33620

813-974-2496 <http://psychology.usf.edu/policies/psychological>

Substance Use

Alcoholics Anonymous: 24hr hotline 813-933-9123

Drug Abuse Comprehensive Coordinating Office- DACCO HIV education, testing, individual and group counseling, substance abuse evaluations

4422 E. Columbus Dr., Tampa FL 33605 813-984-1818 www.dacco.org

Francis House

4703 N. Florida Ave., Tampa, FL 33603

813-237-3066 www.francishouse.org
Metro Wellness and Community Centers
1315 E. 7th Ave., Tampa, FL 33605
813-232-3808 info@metrotampabay.org or www.metrotampabay.org

Smoking Cessation

Fresh Break Smoking Cessation Clinic at the Moffitt Cancer Center
4115 E. Fowler Ave., Tampa, FL 33617
813-745-1751 <http://moffitt.org/research--clinical-trials/research-disciplines/working-groups/freshbreak-smoking-cessation-clinic>
Free Online Class: www.quitnow.net/florida
Quit Coach: 1-877-U-CAN-NOW or 1-877-822-6669
24/7 Smoke Free Text Messages: smokefree.gov/smokefreetxt

St. Petersburg Area Resource List

Mental Health

ASAP- St. Petersburg Office: For HIV+ individuals who complete eligibility screening. Services are available at no cost. Call for appointment.
3050 1st Ave. South, St. Petersburg, FL 33712
727-328-3260 www.asapservices.org

Metro Wellness and Community Centers
3251 3rd Ave. North, Suite 125, St. Petersburg, FL 33713
(727) 321 – 3854 info@metrotampabay.org or www.metrotampabay.org

Metro Wellness: Individual Counseling, Psychiatric Evaluations and Medications
Appointments only. Please call 727-321-3854 Ext. 228 and ask for the Metro Program Specialist or send an email to goodmentalhealth@metrocharities.org.

Metro Wellness: Living, Learning, and Loving HIV/AIDS Support Group a confidential, peer and therapist led discussion group for individuals affected by HIV/AIDS. Appointments required for participation. Wednesdays, 10am-12 pm. Call 727-321-3854 and ask for the Metro Program Specialist or send an email to goodmentalhealth@metrocharities.org

PEHMS (Personal Enrichment through Mental Health Services)

24-hour Suicide Hotline: 727-791-3131
Family Emergency Treatment Center and Mental Health Urgent Care Walk-In Clinic
400 15th St. North, St. Petersburg, FL 33705
10:00 a.m. – 6:00 p.m. – Monday through Saturday
727-552-1053 www.pemhs.org

Suncoast Center for Community Mental Health: Call to find out if eligible
4024 Central Ave., St. Petersburg, FL 33711
727-327-7656 www.suncoastcenter.org

USF Psychological Services Center: The Psychological Services Center (PSC) at the University of South Florida is a teaching, research, and service clinic. The PSC offers affordable

outpatient mental health services to the Tampa Bay community. The PSC is equipped to provide assessment and therapeutic services for adults, children, families, and couples.
3711 USF Citrus Dr., PCD 1100, Tampa, FL 33620
813-974-2496 <http://psychology.usf.edu/policies/psychological>

Substance Abuse

Alcoholics Anonymous: 24 hour hotline 727-530-0415 www.aa.org

ASAP- St. Petersburg Office: For HIV+ individuals who complete eligibility screening. Services are available at no cost. Call for appointment.

3050 1st Ave. South, St. Petersburg, FL 33712

727-328-3260 www.asapservices.org

Bay Area Service Committee of Narcotics Anonymous: 24hr Helpline 727-547-0444

Metro Wellness and Community Centers

3251 3rd Ave. North, Suite 125, St. Petersburg, FL 33713

727-321-3854 www.metrotampabay.org

Westcare Foundation: Substance abuse treatment for HIV+; Out-patient and in-patient services; Medicaid

1735 Dr. Martin Luther King Jr. St. South, St. Petersburg, FL 33705

(727) 502-0188 www.westcare.com/slflorida.jsp

Smoking Cessation

Fresh Break Smoking Cessation Clinic at the Moffitt Cancer Center

4115 E. Fowler Ave., Tampa, FL 33617

813-745-1751 <http://moffitt.org/research--clinical-trials/research-disciplines/working-groups/freshbreak-smoking-cessation-clinic>

Free Online Class: www.quitnow.net/florida

Quit Coach: 1-877-U-CAN-NOW or 1-877-822-6669

24/7 Smoke Free Text Messages: smokefree.gov/smokefreetxt

