2020

Social Support and HIV Among Young Transwomen of Color

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This is to certify that the doctoral study by

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2020

Abstract

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MS, Chicago State University, 1993

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Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Public Health

Walden University

February 2020

Abstract

HIV is an emerging epidemic among young transgender women of color (YTWC). Researchers have documented the challenges and issues that YTWC encounter, including discrimination, isolation, and violence. However, little is known about whether social support can impact these challenges as an avenue to improve HIV preventive behaviors and HIV status. Using secondary data from the Life Skills HIV study, this research assessed how social support affects HIV preventive behaviors among 298 YTWC residing in Chicago. The study was grounded in the modified social-ecological model and Spearman's rank correlation and logistic regression analyses was used to determine whether there was an association between social support and HIV preventive behaviors, (in terms of 4 types of drug use history, 2 types of HIV test results), and condom use self-efficacy (in terms of 2 perceptions of condom use). Results indicated that social support was not associated with illicit drug use, HIV testing history, and HIV testing status. However, perceived social support significantly increased HIV testing communication, that is, intention of asking a new partner to do an HIV test (OR = 1.195, 95% CI = [1.011, 1.413], p = 0.037) and increased condom use self-efficacy, the ability to discuss safer sex with a new partner (r = 0.227), p = <0.001) in YTWC. Implications for positive social change include evidence that social support should be included in the design of all tailored, population-specific safer-sex health prevention programs for YTWC.

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Dedication

I want to pay special thankfulness, warmth and appreciation to the persons below who made my study successful and assisted me at every point to accomplish my goal: Lisa Kuhns, Ph.D. MPH, Amy Johnson, Ph.D. MSW, and Robert Garofalo, MD, MPH, for sharing their valuable research. A special thanks to Dr. Gary Beringer, Dr. P. H. for his vital support and assistance. His encouragement made it possible to achieve this goal. My colleagues from the AIDS Foundation of Chicago, whose support and sympathetic attitude at every point during my research helped me to work in time. Special appreciation to Aimee Ferraro, PhD, MPH and Angela Prehn, PhD my chair and committee chair who through their reviews, reminders and constant motivation, encouraged me to meet the deadlines and submit the final paper.

My Mom and Dad, my son, and his family and friends, my sister and brother who motivated and inspired me beyond words; they assisted me wholeheartedly and also extended their support emotionally. Moreover, to my loving husband, Rodney, who passionately encouraged me to endure, stood by my side and sacrificed all the way through the highs and lows of this incredible journey.

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Introduction

The Centers for Disease Control and Prevention (CDC, 2019) reported that 2,351 transgender women were diagnosed with HIV in the United States between 2009 and 2014. More than half (56%) are young African American transgender women (ages 16-29), indicating an emerging epidemic in this population. Young transwomen of color (YTWC) have increased health disparities that place them at a higher risk for HIV (Poteat, Reisner & Radix, 2014). In Chicago, for example, "22% YTWC self-reported HIV-infection in a sample of 51 YTWC, and 59% reported HIV sexual risk behaviors (e.g., unprotected anal intercourse in the two last years" (Garofalo, Deleon, Osmer, Doll, & Harper, 2006, p. 234). Overall YTWC are disproportionately impacted by HIV (Gamarel et al., 2018).

Given YTWC's increased burden for HIV, it is important to address the social determinants of health that elevate their risk (Poteat, Scheim, Xavier, Reisner, & Baral, 2016). Notably, research has shown that social and structural factors such as racial and social segregation, access to health care, stigma, social networks, developmental status, and gender relations all impact YTWC's sexual health (Brennan et al., 2012; Poteat, Scheim, Xavier, Reisner, and Baral (2016). Social support and behavioral health have been identified as essential to promoting HIV risk behavior change in young transwomen (Golub, Walker, Longmire-Avital, Bimbi & Parsons, 2010). Social support is essential to YTWC, as family acceptance may be lacking. People in general who have access to social support are more likely to be more successful in incorporating behavior change and

coping with stressful situations and less likely to experience poor outcomes (Vyavaharkar, et al., 2007). Assessing social support as a strategy is key to identifying prevention programs that are effective and efficient in reducing HIV transmission in YTWC.

Prevalence of life stressors and high-risk lifestyles put transgender people at risk for HIV infection and transmission compared to the general population (Gamarel et al., 2018). For example, more than half of all YTWC are at risk for HIV due to histories of addiction, injection drug use, sexual practices, and high-risk social networks (Nemoto, Operario, Keatley, Han & Soma, 2004). Practices that place YTWC at high vulnerability incorporate numerous sex accomplices, unprotected responsive butt-centric intercourse, business sex work, sex affected by liquor and medications, and needle use for infusing medications and sexual orientation-related hormones or silicone (Wylie, et al., 2016). The higher rates of risk behavior may be due to not only the social networks of YTWC but also because mental health problems are frequently reported in the transgender communities. Studies have shown high rates of depression, emotional distress, loneliness, and social isolation in transgender populations (Palazzolo, Yamanis, De Jesus, Maguire-Marshall & Barker, 2016). Mental health problems are frequently reported in transgender communities as stigma and bias continue to elevate depression. Studies have indicated high rates of sorrow, passionate pain, dejection, and social seclusion in transgender individuals (Palazzolo et al., 2016). Mental health issues lead to more high-risk sexual behavior, which leads to higher risks of HIV/AIDS (Palazzolo, et al., 2016).

Limited research has been done on YTWC (Poteat et al., 2016). YTWC remain an interesting and understudied population necessitating further research to distinguish and understand how the intersections of gender identity and sexual orientation influence HIV and sexually transmitted infection (STI) risk (Poteat et al., 2016). For example, YTWC must navigate socially stigmatized race, gender, and sexual identities alongside routine youth developmental changes. This unique experience of YTWC affects their sexual health and places them at elevated risk for HIV and STIs.

The Chicago HIV landscape presents a dynamic picture of the epidemic for YTWC. In 2015, Chicagoans ages 20–29 had the highest percentage of new HIV infections compared to other age groups 30-39 and 40-49, (Chicago Department of Public Health [CDPH], 2016). The disease impacts Chicago's African American community disproportionately. African Americans represent 31.3% of the city's population yet accounted for 50.5% of Chicagoans living with HIV in 2014 (CDPH, 2016). Researchers in Chicago found that 40% of the YTWC reported being HIV positive in a sample of 51 (Garofalo et al., 2006). This Chicago study assessing the needs of HIV risk behaviors of YTWC found that incarceration, homelessness, employment, and access to care were barriers for HIV care services, (Garofalo et al., 2006).

Understanding the risk factors of women may aid in providing support and behavioral health services to YTWC. In addition, educating those who interact with YTWC may help to remove obstructions to HIV preventive behaviors (drug use history, HIV testing communication, and HIV testing history). Most importantly, investing in HIV preventive services and programs for YTWC is an effective and efficient strategy to

ensure that all transgender women will have an equal opportunity to achieve health equity (Palazzolo et al., 2016).

The general public widely misunderstands people who are transgendered and do not appreciate the challenges YTWC face with discrimination, stigma, hate crimes, medical distrust, isolation, and health disparities (Poteat et al., 2016). The population of YTWC have high levels of depression, attempted suicide, illegal drug use, and rejection from family (de Haan, Santos, Arayasirikul, & Raymond, 2015). This research study can potentially help the HIV prevention community, HIV service providers, and public health professionals understand the specific needs of YTWC. In addition, a larger social change impact could be the improvement in the lives of transgender people by including the provision of social support as the main ingredient of interventions designed to promote HIV prevention. However, combating transphobia among health professionals and promoting culturally competent health care is critical to the success of such support.

This study utilized secondary data from the Life Skills HIV research study assessing HIV-related risk behaviors among YTWC (see Garofalo et al., 2012). Data collected between June 2008 to May 2011 were utilized. Three-hundred transgender participants were approved to participate in the study via a network of transgender-serving organizations and direct administration of surveys to hard-to-reach subpopulations such as homeless and young transgender women in the sex trade (Grant et al., 2010).

Chapter 1 addresses the background of social influences, the theory on which the study was based, and how professionals could potentially use the information from this

study to target YTWC in health education and increase access to HIV prevention options and care services. An even more substantial social change impact could be the improvement in the lives of transgender people by combating transphobia among health professionals and promoting culturally competent health care. In this chapter I also examine the transgender HIV epidemic and review the problem statement, the purpose of the study, research questions and hypotheses, assumptions, limitations, the definition of terms, and significance of the study, followed by a summary.

Problem Statement

Human immunodeficiency virus (HIV) remains a pandemic that disproportionally impacts communities of color in Chicago despite the delivery of targeted interventions and biomedical modalities. A unique emerging community in the Chicago epidemic is YTWC. Several research studies have indicated disproportionate rates of HIV for YTWC over the general population as well as STIs (Escudero et al., 2015; Mayer, Grinsztejn, & El-Sadr, 2016). In Chicago, transgender women represent only 1%–2% of the population, but 40% of them are living with HIV (Garofalo et al., 2006). HIV continues to escalate with YTWC, and the pertinent triggers and other factors continue to increase the threat to transgender women (Mayer et al., 2016). Decreasing survival sex work, increasing condom usage and early onset of PrEP usage and adherence are critical goals of HIV prevention strategies and HIV behavior change for YTWC. In a society where transphobia is significant, social support is critical to HIV prevention; researchers over the years have found the positive impact that social support has on behavior change (Garofalo et al., 2012; Mayer et al., 2016).

However, HIV surveillance data for the transgender population is in its infancy, and the CDPH and the CDC are deficient in HIV data for transwomen. Significant is the abundance of research that supports the multiple challenges that the population endures such as isolation, legal exclusion, marginalization, stigma, and discrimination (Brennan et al., 2012; Garofalo et al., 2012). The behavioral risk factors, social determinants of health, and inequities seen with YTWC represent the foundation for this study. My intent with the study was to examine the relationship between access to social support and HIV preventive behavior adoption among YTWC in Chicago. The importance of this study is that it may help increase effective social support services and HIV prevention interventions that empower YTWC to take greater control of their lives to reduce HIV transmission (Garofalo et al., 2012); Reisner, Perkovich & Mimiaga, 2010). In addition to social services, behavioral health is a critical system of support needed by YTWC that can assist in increasing exploration of gender identity, social transition and HIV disclosure. Understanding the effect of social support and HIV preventive behaviors will allow for employing culturally sound HIV prevention programs that use structural interventions and policies.

Purpose of the Study

In this study I examined whether YTWC who have social support may be more likely to be empowered to utilize HIV preventive behaviors (drug use history, HIV testing history, HIV testing communication) as compared to other YTWC without social support. With this research project I aimed to assess the differences between YTWC in Chicago who have social support and behavioral health services compared to those who

do not in regard to reducing HIV transmission. HIV prevention efforts in the past have not specifically addressed these issues related to YTWC (Garofalo et al., 2012).

Most counteractive endeavors for HIV transmission have focused on men who engage in sexual relations with men (MSM) and do not address YTWC (Mayer et al., 2016; Stover et al., 2016). To effectively address HIV and transgender women of color, programs need to focus on social support, advocacy training, and empowerment and utilize social media that directly focuses on transgender women of color (Mayer et al., 2016; Reisner, Keatley, & Baral, 2016). For this research study I utilized secondary data from an ongoing network-based participatory research (community-based participatory research), a two-stage cross-sectional examination investigating HIV-related conduct among youthful transgender ladies in Chicago and Los Angeles **(**Brennan et al., 2012) to answer three research questions related to social support and the implementation of HIV preventive behaviors.

Research Questions and Hypotheses

RQ1: Is there a relationship between the preventive behaviors of YTWC and social support?

$H_0 1._1$: There is no statistically significant relationship between HIV preventive behaviors of YTWC, in terms of drug use history, and social support.

$H_a 1._1$: There is a statistically significant relationship between HIV preventive behaviors of YTWC, in terms of drug use history, and social support.

$H_0$1.$_2$: There is no statistically significant relationship between HIV preventive behaviors of YTWC, in terms of HIV testing communication, and social support.

H_a1.$_2$: There is a statistically significant relationship between HIV preventive behaviors of YTWC, in terms of HIV testing communication and social support.

$H_0$1.$_3$: There is no statistically significant relationship between HIV preventive behaviors of YTWC, in terms of HIV testing history, and social support.

H_a1.$_3$: There is a statistically significant relationship between HIV preventive behaviors of YTWC, in terms of HIV testing history, and social support.

RQ2: Is there an association between social support and HIV status among YTWC?

$H_0$2: There is no association between social support and HIV status among YTWC?

H_a2: There is a statistically significant association between social support and HIV status among YTWC?

RQ3: Does social support predict condom self-efficacy and use among YTWC?

$H_0$3: Social support does not predict condom self-efficacy and use among YTWC.

H_a3: Social support predicts condom use self-efficacy and use among YTWC.

Theoretical Foundation for the Study

CDC (2007) created a four-level model of the factors affecting health to inform its health promotion programs that is grounded in social-ecological theory. Researchers modified this model to fit the complexities of HIV for specific populations (Baral, Logie, Grosso, Wirtz, & Breyer 2013). The theoretical framework for this study stemmed from this modified social-ecological model (Figure 1) examining individuals in a greater context for which they live. The levels include individual, social, and sexual networks and community and public policy. YTWC are exposed to an array of intersecting factors that include systems of health, education, criminal justice, housing, healthcare, and employment (Poteat et al., 2014). The modified social-ecological model is a construct that allows for the understanding the context and elements that put YTWC at risk for HIV or allow them to employ HIV preventive health behaviors. The paradigm may assist in explaining the lack of adoption of prevention behaviors within this community.

The intersectional rings in Figure 1 display how dynamics of the levels of influence contribute to aspects at other levels that can guide preventive health decision making. The model stipulates it is important to work with YTWC across all levels. As prevention programs and strategies are made, they need to address structural impacts on transgender women of color. The major components of the modified social-ecological model on which this study was premised are the various aspects of an individual's environment associated with access to health-seeking behaviors (Barrington, Wejnert, Guardado, Nieto & Bailey, 2012).

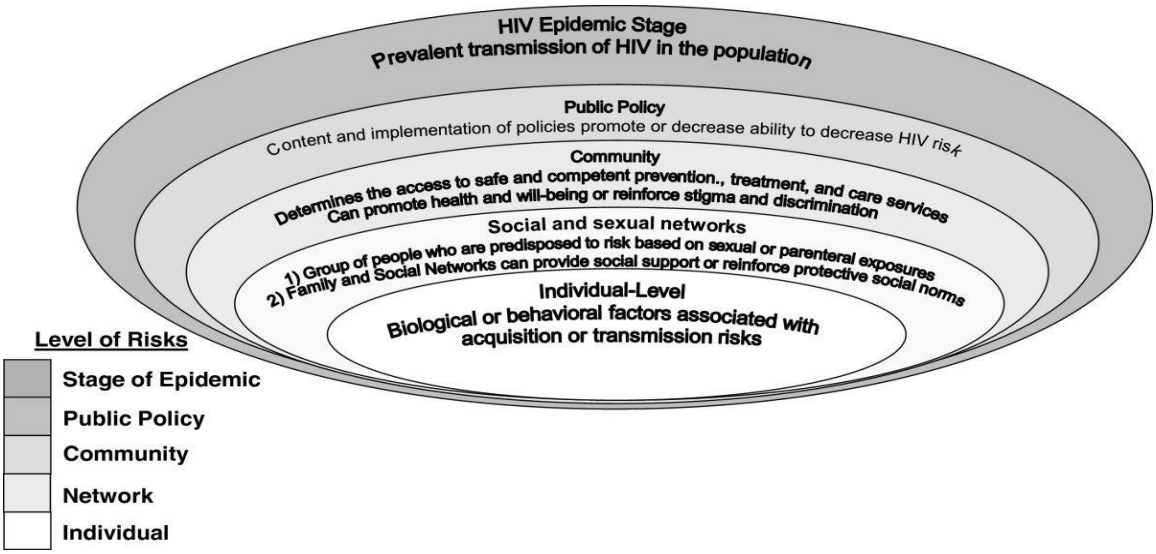

Figure 1. Modified social-ecological model (Baral, Logie, Grosso, et al. (2013, p.482).[1]

The first intersectional level, the individual level, includes intrapersonal attributes such as values, knowledge, beliefs, preferences, and self-efficacy. Within this domain are an individual's age, education, income, and health history that impact an individual's behavior. It is important to understand the individual to prevent HIV, that is, it is vital that the individual-level intervention be culturally tailored. This includes skills building (e.g., condom negotiation) that is delivered by a person similar to the individual (Henny et al., 2012).

The second level incorporates an interpersonal network or organization, for example, relatives, every one of whom impacts a person's conduct, which can elevate the person's capacities. For example, in a recent study in Chicago and Los Angeles, sex without condoms was associated with the lack of parental support (Wilson, Iverson, Garofalo, Belzer, 2012). The social and sexual network is the second level that can influence an individual's behavior and response, and it is essential to understand the

social drivers of an individual's social network that are out of an individual's control. For YTWC, their social network can represent their chosen families that facilitate behaviors in their lives (Lev, 2013).

The third level, community, incorporates the surroundings in which YTWC have social relationships, such as educational, work, and community settings, that can attribute to factors that affect health. Researchers have indicated that community factors are linked to HIV risk behaviors (Latkin, German & Vlahov, 2013). The community relationships between the community and YTWC, are complex and diverse. The community for YTWC include expanded dangers of contracting HIV infection due to a multitude of unique stressors, medication and liquor accessibility, community violence, and questions about place identity. This level also includes community organizations that can influence behavior and practice.

Finally, the fourth level looks at the policies that can obstruct health. These include the societal systems such as health, economic, educational, and social policies that can lead to health inequities (CDC, 2007; Krug, Mercy, Dahlberg, & Zwi, 2002). The fourth level is critical in that policies can support general economic development programs, educational opportunities, and protective laws and policies that help YTWC to be more sustainable. Therefore, effective interventions for YTWC need to be multilayered and multidimensional to meet the unique needs of the population.

This model was more applicable to the present study than other theories such as the health belief model, transtheoretical model, social cognitive theory, theory of reasoned action, and theory of planned behavior. Most of these models focus on changing

an individual's behavior. The modified social-ecological theory has a multifaceted approach and is relevant to HIV and the societal factors that allow for health inequities and injustices faced by YTWC. Historically, most prevention programs and interventions have had a focus on changing individual behavior, but the social-ecological theory focuses on the interplay between multiple systems and behavior (DiClemente, DiClemente, Salazar & Crosby, 2013). Notably, researchers indicate that multiple influences facilitate adolescent sexual risk behavior (Kotchick, Shaffer, Miller and Forehand, 2001).

Nature of the Study

The present study was a quantitative, correlational study of secondary data from the Life Skills HIV study, a cross-sectional study that assessed HIV-related risk behaviors among YTWC. The original research study conducted by Garofalo et al., (2012) obtained data from a baseline sample of 300 and conducted the study on 50 YTWC between June, 2008, and May, 2011. A correlational design was the most efficient methodology for statistical analysis as the purpose of the current study was to examine the relationship between social support factors and HIV preventive behaviors (see Creswell & Creswell, 2017).

The research questions were answered by coding the independent variables, preventive health variables, and social support variables numerically for analysis. Aspects of the population experience were defined utilizing background variables, which included four socioeconomic variables (education, income, employment, and incarceration). The independent variables included four perceived social support variables (family and

friends support, emotional support, comfort) assessed on a 12-point scale. The three dependent variables included HIV preventive behaviors (drug use history, HIV/STI testing history, HIV testing communication), condom self-efficacy, and HIV status. Statistical analysis were performed with SPSS and included correlation and logistic regression analysis.

Literature Search Strategy

The review of the literature included an examination of the literature from the parent study (Garofalo et al., 2012). Then I conducted a search to find appropriate information on the challenges, structural issues, and factors that may predispose the YTWC to HIV. I reviewed additional research on socioecological theories and social support as they related to the research questions. I used MEDLINE, CINAHL, and ERIC from the EBSCO database to identify peer-reviewed journal articles published between March, 2013, and December 2019. The following keywords were used in the search: *HIV, transgender, transgender male to female, transgender women of color, YTWC, transwomen, HIV and African American women, HIV and health disparities, HIV and social-ecological model, transgender and social support, transgender youth and HIV interventions,* and *African American women*.

The types of studies included in the review were a meta-analysis, cross-sectional, community-based participatory research and culturally specific interventions designed for transgender women, as well as studies that explored the social determinants of health and challenges that impact YTWC. Studies included randomized controlled trials, cohort, and

case-control studies. The population of interest was transgender male to female (MTF) African Americans under the age of 30.

In this section, I present current research on YTWC to examine the vulnerabilities, social determinants, and stress factors that impact their health and how they access health care services. Research studies were selected based on the ability to retrieve information and evidence related to the research questions, the inclusion of keywords, and specific to YTWC.

The literature assessment incorporated resources from the online databases of EBSCOhost and ProQuest to acquire past and current peer-reviewed articles on the key constructs in the examination. The primary areas of research investigated were transwomen, transwomen and HIV, and transwomen and social support practices. Search results revealed sources that included journal articles, books, dissertations, and websites. I utilized over 160 articles as a part of the literature review related to transgender health. In instances where research on transgender African Americans was not identified, research on general transgender population was included. In instances where transgender research was not found, research on the entire LGBT population was included. First, I describe the literature on the background, systemic challenges, and barriers of YTWC.

Literature Review Related to Key Variables and Concepts

Young Transgender Women of Color

YTWC are misunderstood and are a distinctly understudied population in the United States (Poteat et al., 2016). The limited available data suggest that transgender youth who are gender dysphoric are at elevated risk for negative mental and medical

health outcomes (Bouman, de Vries & T'Sjoen, 2016). Gender dysphoria, formerly referred to as "gender identity disorder," indicates the misalignment between body and internal sense of gender. The mental health outcomes include depression, isolation, stigma, low self-esteem that can lead to higher susceptibility to HIV acquisition, suicide, and alcohol and substance use at levels greater than compared to their peers (Trujillo, Perrin, Sutter, Tabaac & Benxgotsch, 2017; Garofalo et al., 2006). YTWC are an often defenseless community in danger for emotional pathology and substance use (Reisner, Biello et al., 2016). Reisner, Biello et al., (2016) found in a recent observational study of 298 young transwomen, 41.5% had one or more mental health issues or substance dependence diagnoses. It is important to define and understand the key variables and vulnerabilities that put YTWC at risk for HIV (Reisner, Biello et al., 2016). Understanding the vulnerabilities of YTWC and the elevated risk amplifies the need for social support to address the multifaceted challenges.

Transgender women of color are known to be exceptionally vulnerable to HIV infection. For example, data from a recent meta-analysis study that included 29 studies from 1990–2003 showed a 28% HIV prevalence identified through HIV laboratories, and an additional 11% self-identified as HIV positive (Brennan et al., 2012). In comparison, (Clark, Babu Wiewel, Opoku & Crepaz, 2017) reported a prevalence of 78% for transgender women of color and reported only 11% for white women. Just two investigations have straightforwardly looked at the HIV health needs of transgender people along with those of other highly vulnerable populations. Nemoto and associates (2004) talked with three gatherings: male-to-female transgenders (n = 25), gay and cross-

sexual men (*n* = 122), and hetero ladies (*n* = 26). Transgender persons reported the greatest number of sexual partners. Transgender persons and heterosexual women were more likely to inject drugs than were the men, and less likely to be tested for HIV. A recent study comparing YTWC to MSM indicated that YTWC viral suppression and linkage to care rates are much lower than for a similarly marginalized population (Wiewel, Torian, Merchant, Braunstein & Shepard, 2016). YTWC face a variety of vulnerabilities affecting their behavior. It is integral that research inquiries are aware of the issues and address the concerns.

HIV and Sexually Transmitted Infections

Estimates of HIV prevalence among transwomen adults range from 11%–78% (Keller, 2009). A study of YTWC in Chicago found that HIV rates were higher among African American youth compared to other racial/ethnic groups (CDPH, 2013). While Los Angeles- and San Francisco-based studies reported ethnic differences in HIV seroprevalence among MTF transgender individuals, with African Americans and Latinas having the highest infection rates (Garofalo et al., 2006). Although limited information exists on the HIV surveillance of transgender youth of color, research recommends that they are in danger of acquiring HIV and that they face tremendous difficulties coming to terms with sexual orientation without accessible and appropriate human services (Poteat et al., 2016). Garofalo, Kuhns, Reisner and Mimiaga, (2016) conducted a meta-analysis of the global burden of HIV infection in YTWC and recorded an HIV prevalence of 19% (95% *CI*: 17 - 21); YTWC had a 49-fold increased odds of HIV infection compared with all adults of reproductive age.

In the United States, a meta-analysis of 29 studies with transgender women showed an HIV prevalence of 28% through laboratory-confirmed blood samples (and 12% through self-report (Baral, Poteat, Strömdahl, et al., 2013). Data from local testing of over 500 transgender women with no known previous positive HIV test results in Miami, San Francisco, and Los Angeles found 12% HIV infection, suggesting a high percentage of undiagnosed HIV infection in this population (Schulden et al., 2008). Schulden et al. (2008) reported through analysis of these newly diagnosed HIV infections by age that the highest number were detected among those ages 20–29 years (i.e., 45% of all cases). Studies among YTWC ages 16–29 years have documented the prevalence of HIV infection approaching those of adults (Wilson et al., 2010). Researchers found that similar to other high-risk populations (i.e., MSM), racial/ethnic minority transgender women have a higher prevalence of HIV and STIs but lower rates of sexual risk behavior, particularly among YTWC (Garofalo et al., 2006).

In a recent comparison study of young Black transgender women who have sex with men (YBTWSM) and young Black men who have sex with men (YBMSM), the YBTWSM had significantly higher nonviral STIs (Crosby, Salazar, Hill & Mena, 2018). The study compared the two groups and YBTWSM that were HIV uninfected had a 33.3% chlamydia rate while YBMSM that were HIV uninfected were at only 15.2%. In the same groups for Gonorrhea YBTWSM were at 23.8% while YBMSM was at 8.1% (Crosby et al., 2018).

In an investigation of transgender persons 16–25 years old in Chicago, 49% revealed unprotected open, receptive anal intercourse (Garofalo et al., 2006). The

intersection between the young MSM community and the young transgender community demonstrates a critical bridging population regarding disease transmission. The term "bridging" explains circumstances where HIV can be transmitted from high-risk populations to vulnerable populations. Patterson et al., (2012) indicated that bridging behaviors among MSM and transgender populations are situations where HIV can be transmitted from female sex workers often from the YTWC population to MSM often involving injection drug usage.

City-level details regarding STIs are not accessible for transgender individuals. However, HIV information is available. In 2011, there was a 34.5% expansion in HIV cases detailed among transgender women from the earlier year, and 5-year patterns demonstrated an expanding number of HIV disease cases (CDPH, 2013). An investigation of YTWC in Chicago found that HIV rates were higher among African American youth compared to other racial/ethnic groups (Garofalo et al., 2006). National information additionally demonstrates that African American and Latina transgender women are overwhelmingly more inclined to be HIV-positive than the general transgender, general African American /Latina, and general U.S. populations (Harrison-Quintana, Lettman-Hicks, & Grant, 2011).

Another study conducted in New York City (New York Health Department, 2016) from 2010 through 2014, with 234 transwomen indicated that 98% of women receiving a diagnosis of HIV infection were transgender women of color. This study population mirrors the current YTWC study population; the transgender population was

predominantly African American or Latinx, and sexual contact with a male was the predominant transmission category.

In a current NIH-funded R01 study of young transgender women in Chicago conducted by principal investigators at Ann and Robert H. Lurie Children's Hospital, 182 participants were enrolled and received both HIV and urine-based STI testing (Olson, Garofalo, Rosenthal & Spack, 2019). The researchers in this study at baseline reported that 20% were found to be HIV positive; at four- and 12-month follow-ups, there was one new HIV diagnosis with each follow-up period. However, an interesting finding was that fewer than expected cases of STIs had been diagnosed. It was hypothesized that more cases would be found with anal swab testing (Olson et al., 2019).

YTWC experience further barriers that negatively impact their sexual health (Wilson et al., 2010). Research and activism sources demonstrate that transgender minorities are unmistakably confronting challenges getting to quality, extensive human services, healthcare; discovering steady, moderate housing; and finding legitimate work (Harrison-Quintana et al., 2011). They are also at elevated risk for a range of high-risk sexual behaviors (e.g., unprotected receptive anal sex, participation in sex work) and multiple forms of abuse. Understanding the social systems, stress factors, and environments that impact YTWC can contribute to understanding the social support needed to promote HIV preventive behaviors. Emotional support from friends and significant others promotes decreasing physical and emotional stress (Thoits, 2011). The next sections explore the social, environmental, and health disparities that affect YTWC and are related to physical and mental health.

Discrimination and Medical Mistrust

Many researchers study how processes of both social inclusion and exclusion affect health negatively (Thoits, 2011). Transgender individuals have been heavily discriminated against, isolated, and bullied (Grant et al., 2010). Furthermore, they have experienced stigma, shame, and fear (Winter et al., 2016). These startling disparities for YTWC compared to non-transgender women, cisgender women, and Caucasian women lead to a lack of access to health care, preventive health care services, and screening services (Grant et al., 2010). More importantly, it is a result of the lack of social and family support that prevent YTWC from accessing preventive behaviors and care and treatment services (Garofalo et al., 2012).

Researchers have collected and accumulated evidence over the last few decades showing that social support is positively associated with mental health, physical health, and longevity (Thoits, 2011; Umberson & Montez 2010). Evidence additionally shows social help shields YTWC from harming physical and emotional wellness effects of pressure presentation, despite the fact that these defensive impacts are less sensational and stable than the immediate impacts of social ties on wellbeing (Thoits, 2011).

In one of the most extensive surveys of over 6000 transgender females highlighted from the National Transgender Discrimination Study (NTDS) shows that transgender minorities report expanded rates of being denied therapeutic care because of prejudice inclination (Grant et al., 2010). More than 33% of African American and Latino/transgender respondents to the NTDS recognized putting off social insurance out

of dread of segregation, which additionally impacts the individual seriousness of STIs and the probability of transmitting diseases.

Violence

According to the Southern Poverty Law Center, transgender women of color were murdered at a rate of 1 per week, identifying this group as the most victimized by hate violence, Michaels (2015). Steiglitz (2010) indicated that transgender youth are often subjected to violence at an increased rate. The researcher's study indicated that numerous transgender individuals live with the consistent fear and risk of violence. Worldwide research archived a sum of 2115 transgender deaths between January 2008, and April 2016 (Winter, et al., 2016). Numerous more killings likely go unreported or are distorted as homicides of gay and lesbian individuals. Since 2017, nationally, twenty-seven YTWC were murdered (HRC, 2017).

Non-lethal violence against transgender people is also widespread (Huffington Post, 2017; Blumberg, 2017; Michaels (2015). The national US demonstrated that 35% of people who communicated their sex character or sex rebelliousness amongst kindergarten and grade 12 (around ages 5 to 18 years) succumbed to physical viciousness, and 12% move toward becoming casualties of sexual brutality. In a similar report, 7% of transgender working adults had been physically attacked at work, and 6% sexually (Steiglitz, 2010).

Due to transphobia and discrimination in employment, YTWC experience violence throughout their lifespan (Nemoto, Bödeker & Iwamoto, 2011). Also, the high employment rates increase the draw for young transwomen into the sex trade. Working

within the sex trade often leads to trauma, depression, and increased violence (Nemoto et al., 2011). In addition to violence, YTWC experience high rates of homelessness as examined next.

Homelessness

Homelessness is an enormous stressor on YTWC as it can increase their likelihood of violence. Placing people who are homeless in affordable supportive housing combined with supportive services lead to improved health, reduced hospital use, and decreased health care costs (Doran, Misa, & Shah, 2013). Homelessness is an intense issue within the YTWC population as one in five transgender experience homeless in their lives (Shelton, 2015). YTWC are more likely to be homeless, thrown out of their home due to a lack of gender expansion. Gender expansive is the point at which an individual personality is more extensive than the generally held meanings of sex and sex articulation in aspects of their life. Transgender individuals in the United States will probably be segregated when looking for a home, and more than one of every ten have been removed from their homes, given their sexual orientation personality (Choi, Wilson, Shelton & Gates 2015). The U.S. Bureau of Housing and Urban Development (HUD) issued direction expressing that prejudice in transgender leaseholders or homebuyers in view of sexual orientation personality or sex generalizations constitutes sex segregation and is denied under the Fair Housing Act (FHA), (Kattari, Whitfield, Walls, Langenderfer-Magruder & Ramos, 2016). Unfortunately, a general lack of cultural sensitivity training has contributed to enhanced discrimination, eviction, and homelessness of transgender people in the United States. Robust, specific legal

safeguards from gender identity discrimination, including at the local and state levels, is required (Kattari et al. 2016).

Family rejection and discrimination and violence have contributed to a large number of YTWC who are homeless in the United States – an estimated 20-40% of the more than 1.6 million homeless youth are LGBT (Shelton, 2015). Unfortunately, social service providers and homeless shelters that work with YTWC are untrained and fail miserably to provide culturally appropriate transgender services (Choi et al. 2015). According to Choi et al. (2015) this includes the denial of shelter based on their gender identity; inappropriately housing them in a gendered specific area and not providing appropriate safeguarding and confidentiality with their medical histories. Most importantly, safeguarding any medical prescriptions or hormonal therapy in shelters is almost impossible. Not only are YTWC vulnerable to homelessness and the lack of confidentiality, but they also endure isolation as examined in the next section.

Isolation

Social isolation is correlated with loneliness and depression (Cacioppo & Cacioppo, 2014). Researchers reported increased family rejection, solitude, and depression with lower social support for YTWC (Yadegarfard, Meinhold-Bergmann & Ho, 2014). The same researchers indicated while there are some protective factors (PANSI-positive) associated with suicidal behavior, the protective factors were less evident in avoiding sexual risk behaviors. Protective factors include feelings of empowerment, increased self-worth, and confidence with doing well at work or school as measured through a Likert scale (Sinniah et al., 2015). Due to a limited extent to social

detachment and restricted comprehension of their lives or encounters, transgender people confront numerous difficulties to their wellbeing and prosperity (Garofalo et al., 2006). Data suggest that particularly MTF transgender individuals, with whom the bulk of available research has been done, are confronted with stigma, exposed to stressful environments, and participate in behaviors that compromise their health and place them at risk for human immunodeficiency virus (HIV) and other sexually transmitted diseases [STDs]; Garofalo et al., 2006).

The researchers (Garofalo et al., 2006) explore the real-life challenges, social and behavioral health, and HIV-risk behaviors of YTWC. As the research indicates, YTWC need access to interventions, health services, and social support (Grossman & D'Augelli, 2007; Graham, et al., 2014). Although more research has been done to examine the social determinants and environmental factors that impact the YTWC, there is a lack of data on how social support services enhance the health-seeking behaviors of young women.

Stigma

Consistent stigma and stress have been significantly associated with anxiety, depression, suicide and substance use to cope in transwomen (Hatzenbuehler, McLaughlin, Nolen-Hoeksema, 2008; Reisner, Biello et al., 2016). Results add to a developing assemblage of proof archiving that basic types of shame hurt the health of sexual minorities (Hatzenbuehler, 2009). Several researchers have indicated that stigma is not a direct link to high rates of HIV as compared to access to health care, insurance, and transportation (Raiford, Hall, Taylor, Bimbi & Parsons, 2016). However, other researchers have argued that stigma may be part of the root causes of accessing

transportation, health care, and insurance (Clement et al., 2014). Fear and stigma lead to depression, discrimination, and isolation. This fear is a significant factor in accessing transportation, seeking health care, and medical insurance. For the transgender population, fear is in three different areas which are specifically HIV stigma, HIV discrimination and transgender stigma coupled together inflict a hardship that causes and discourages access to critical HIV medical services (Mosack, Stevens, Brouwer, & Wendorf, 2016). HIV stigma is the negative beliefs about people living with HIV and the fearfulness of transmission while HIV discrimination is negative beliefs and the unjust and unfair treatment and access to care for HIV positive individuals. HIV discrimination is the misconception of how an individual acquired HIV, the judgment regarding their sexual behavior and gender nonconformity (UNAIDS, 2014). Transgender stigma is more about the differences and bias and pre-judgment of an individual. It is based on negative attitudes and reinforces the inequities found within the transgender population.

Depression and Suicide

The compilation of all the factors mentioned above (HIV/STI, violence, discrimination, stigma, underemployment, and homelessness) all affect the emotional and behavioral well-being of transgender people. Psychological signs, such as despondency and suicidal ideation, have been reported among transgender persons (Nemoto et al., 2004). In a recent study, over 41% of the participants indicated suicide attempts, contrasted with just 1.6% of the general population (Haas, Rodgers, & Herman, 2014). The researchers suggested that this was apparent in youth that expressed gender identity and nonconformity at an early age. In the same study, the principal investigators cited

that seven percent of transgender adults had been assaulted at work, and six percent had been sexually assaulted (Winter et al., 2016).

An Australian national examination found that 56% of transgender individuals had been determined to have depression sooner or later in their lives, four times the rate for the overall public, 38% had been determined to have uneasiness, and around half higher than the foundation rate (Winter et al., 2016). Risk factors for self-destructive conduct in the transgender community incorporate separation, verbal and physical abuse, being perceived as transgender, disguised transphobia, poor educational capabilities, joblessness and destitution, and a deficiency of social help (Grossman & D'Augelli, 2007). Family and companion support, stigma, and suicidal ideation were significantly and independently correlated with despondence (Nemoto et al., 2011).

Transgender Women, Condoms, and Pre-Exposure Prophylaxis

In a recent research study of 184 young MSM and transgender women residing in New York City, were provided with educational information on Pre-Exposure Prophylaxis (PrEP) and completed a computerized survey (Golub, Gamarel, Rendina, Surace & Lelutiu-Weinberger, 2013). The survey results indicated that most were highly interested in PrEP at just over 50% (Golub et al., 2013). The researchers indicated that the most highlighted barriers were health outcomes and side effects, drug-resistance, and access to support services, including screening and counseling. The obstacles and catalysts were rated as higher and more critical than their white counterparts. The acceptance of PrEP was notably higher when available free of charge, and access to supportive services were available (Golub et al., 2013).

In a cohort study, researchers enrolled 1603 HIV-negative people, of whom 1225 (76%) received PrEP to assess demographic and behavioral characteristics that are associated with PrEP uptake and adherence (Grant et al., 2014). The results from the investigation showed that the take-up was higher among those revealing condomless receptive anal intercourse (416/519 [81%] versus 809/1084 [75%], p=0·003) and having serological proof of herpes (612/791 [77%] versus 613/812 [75%] p=0·03). Of those utilizing PrEP, HIV occurrence was 1·8 contaminations for every 100-man years, contrasted and 2·6 diseases for every 100 man a very long time in the individuals who simultaneously did not pick PrEP (HR 0·51, 95% *CI* 0·26– 1·01, balanced for sexual practices. PrEP drug concentrations were increased among individuals of older age, with higher educational levels, those engaged in non-condom receptive anal intercourse, who multiple sexual partners, and who had a history of syphilis or herpes (Grant et al., 2014). Stigma regarding the use of condoms and the connection to sex work makes YTWC more reluctant to get tested for HIV, utilize condoms, get some information about their partners status, utilize clean needles and injection gear (Auerbach, Kinsky, Brown & Charles, 2015). Also, stigma prevents access to biomedical prevention options such as PrEP (Escudero et al. 2015).

The United States-based meta-analysis of HIV in transgender populations projected that 24–75% of transgender women sell sex (Herbst et al., 2008). Law enforcement often targets YTWC that possess condoms as evidence of sex work (Rhodes, Simic, Baros, Platt, & Zikic, 2008). The eventual outcomes of these police practices incorporate decreased access to condoms amid sex work, condom arrangement with

customers, and more condomless sex in sex laborers. Frequently transgender women kept in prison or detained because of sex work are regularly set in male accommodations, where they are ridiculed, and subject to sexual and brutality threats (Rhodes et al., 2008). Due to the consequences, the female condom could be an important alternative for transgender women.

Transgender Women and Reassignment Surgery

Current research indicates that interventions such as reassignment surgery and what is more, hormone treatment may lessen emotional distress in transgender youth (de Vries, et al., 2014). De Vries and associates show that comprehensively, transgender women confront shame and hindrances to getting to transgender-particular health care services. Sexual orientation reassignment medical procedure (GRS) or sex reassignment medical procedure (SRS) is where a transgender individual can modify their current qualities to coordinate with their identified gender (Sifferlin, 2017). Not having access to SRS is associated significantly with depression, low self-esteem, and decreased access to health care (Dhejne, et al., 2011). Noteworthy is that researchers have documented that access to surgery causes depression due to the high amounts of hormones (Kranz et al., 2015).

Additionally, experts agree in regard to utilizing medicinal mediations, including hormonal medications and SRS that can be suitably employed for the treatment of sex dysphoria, are in this way therapeutically vital. Recently there has been a significant increase in the use of hormone therapy that suppresses the onset of puberty and difficult to change physical sex characteristics through surgical procedures (Gorin-Lazard, et al.,

2012). According to the researchers, the puberty-suppressing hormones, particularly gonadotropin-discharging hormone (GnRH) analogs, are at present being utilized to treat young people with sexual orientation dysphoria at the beginning of pubescence. GnRH analogs stifle the generation of testosterone and estrogen and postpone the physical changes that happen amid pubescence that is difficult to change with the medical procedure (Gorin-Lazard et al., 2012). Gorin-Lazard and colleagues stated that the use of the hormones has two major elements that include 1) delaying the physical changes that are impossible to change with surgery that will facilitate SRS and 2) allowing individuals that are nonconforming the additional time to investigate their growth concerns.

Current Transgender Research Studies

Much of current studies reviewed as a part of this literature review consist of meta-analysis, correlational, and small sample studies (Schiltz and Lagos, 2017). The study of transgender and social determinants of health impacts and attitudes have been typically qualitative and utilized respondent survey instrumentation. Also, a few studies utilize one-on-one interviewing methods for small samples of the population. There is a considerable gap between conducted and published research determined through the literature review that we identify which suggests there are considerable barriers and discrimination amongst the publication process for transgender research (Irvine, 2014). Most of the focused populations are from convenience samples with research hospitals, community organizations, and partnerships for community participatory research methods. A few studies utilize recruitment methods, such as outreach and social network practices. Most of the research has utilized transgender women in the sex trade, while

prominent of the population it is not a functional assessment and should not be used as a generalization of the population (Schilt & Lagos 2017). The proposed research study will use two sources of evidence to inform the development and validation of the proposed model. First is a review of the evidence, published literature related to the identified syndemic socio-environmental, interpersonal, and intrapersonal variables that impact young transgender women (YTWC). Also, is the auxiliary investigation of cohort information among YTWC at enhanced risk for HIV in Chicago.

The review of literature addressed women of color within the transgender community, from a range of geographic locations, ages, socioeconomic status and comprising both MTF and female to male transgender individuals. Furthermore, the literature review involved various study analysis, including meta-analysis, tested correlations between sociodemographic variables, stigma, eliminating health disparities, and promoting transgender culturally competent and appropriate health care. The methodology that this study used to address the existing gap in knowledge is detailed in Chapter 3, which covers research design and rationale, instrumentation, threats to validity, ethical procedures, and a summary.

Definitions

Condom self-efficacy: The measure comprises of things about person's apparent capacity to utilize condoms surveyed youth's view of their capacities to get and utilize condoms with high internal consistency (Ritchwood, Penn, Peasant, Albritton & Corbie-Smith, 2017).

HIV prevention programs: Mediations that intend to end the transmission of HIV more often than not center around keeping the transmission of HIV through an integrated blend of behavioral, biomedical and structural strategy methodologies (Hankins & de Zalduondo, 2010).

HIV preventive behaviors: Defined as engagement in sexual health protective factors related to safer sex, drug histories, and HIV communication. Preventive behaviors were evaluated on the intention not to use drugs, drug use history, sex with drug use, HIV testing history and negotiation with a partner on HIV testing and the discussion of results (Sharma, Sullivan & Stephenson, 2017).

Social support: A broad construct studied across multiple disciplines, which likely contributes to the absence of a universal definition. Seeman (2008) defines social support as the diverse group of supports that assist an individual emotionally (loved and cared for) informationally (delivery of information) and instrumentally (assistance with services) related to disease outcome. Social support measured by six items from the Multidimensional Scale of Perceived Social Support) and HIV incidence among YTWC residing in Chicago.

Transgender: An umbrella term used to portray the full scope of individuals whose sexual orientation personality and sex part do not relate to what is associated with their sex allocated during childbirth or social desires (Meier and Labuski, 2013).

Women of color: A wide-ranging paradigm that illustrates women of color as women who self-identify as African American, Latina, Native American, and mixed-race/ethnicity (Ong, Smith & Ko, 2018).

Young transwomen of color: Transgender women (male-to-female) between the ages of 16-24 (Garofalo et al., 2006).

Assumptions

Presumptions are not testable but rather are explanations about perceptions and encounters identified with the examination depict or associate ideas that underestimated or are thought to be valid; they are grounded from a hypothetical system (Nenty, 2009). Three assumptions guided the current study: (1) The participants answered the survey questions honestly and candidly. (2) The inclusion of participants included an accurate determination of gender identity. (3) The inclusion criteria of the sample were correct and therefore, ensured that the participants have all experienced the same or similar situations related to the study. Proper inclusion criteria elevated the external, internal validity, and improved the homogeneity of the sample population (Salkind, 2010). Nonetheless, this analysis may open doors to information previously not researched; results may not be generalized beyond the involved subjects (Logie, James, Tharao, & Loutfy, 2012). In any case, these suspicions if discovered genuinely guarantee that the conclusions and recommendations created in the examination, are reflective of the exact conditions and events studied.

Scope and Delimitations

This secondary correlation analysis examined the impact of social support on the intentions of health preventive behaviors. The analysis identified a specific population - YTWC- that are underserved and lack critical epidemiological profiles, population size, and representation within health monitoring activities. The current study focused on

many of the challenges observed in transgender correlational studies. Most research studies neglect to (1) accomplish proper example measure and factual power; (2) enlist and recognize suitable investigation members; (3) legitimately determine birth sex and additionally sexual orientation identity; (4) survey present and past gender support treatment and (5) utilize community members and doctor partners in all phases of research (Reisner, Deutsch et al., 2016). The current study responded to the challenges by utilizing secondary data that achieved the appropriate sample size, had the target population enrolled through gender identity, assessed social support and utilized physician stakeholders at all stages of the research (Garofalo et al., 2012).

The study included survey responses of 300 participants of the Life Skills survey about their health-seeking behaviors and social support experiences, as contained in the Multidimensional Scale of Perceived Social Support (Paikoff & Brooks-Gunn, 1991). The sampled population was limited to the focus population (YTWC) recruited at the point of the data collection between June 2008 and May 2011.

Delimitations are those components described as the elements that the researcher has the power to exclude or include when establishing the research plan (Creswell & Creswell, 2017). The elements consisted of research questions and variables, selection of the theoretical foundation framework, the methodology, and the choice of study participants. In this study, intentionality was directed to YTWC and the emerging epidemic of HIV. Not to limit participants, communities of color were chosen and included both Latina and African American women. A follow-up study could include a

group of FTM (female to male) transgender participants to decrease the limitations and present perspectives from both transgender women and transgender men of color.

Significance, Summary, and Conclusion

Significance

The aftereffects of this investigation may add to a growing body of literature concerning the connection between social help and HIV-chance. HIV analysts are starting to pressure the significance of looking in danger vulnerabilities and conditions for minimized populaces (Giorgio et al., 2017). Social help as an ensuring component can adjust the deliverance of HIV benefits and may accentuate the significance of the connection between social help and HIV incidence.

This investigation is intended to give some confirmation that expanding social help might be a proper HIV prevention system for YTWC. Network-based organizations offering interventions to the transgender community in Chicago may consider offering intercessions aimed at expanding social help, and future research ought to survey the adequacy of the probability of these interventions in lessening HIV in YTWC.

Summary

The transgender community is a subgroup of the LGBT community and often are the least of the groups that are a primary research group or considered partners on research opportunities. More importantly, is that African American transgender is even more marginalized and are often not brought to the table for leadership development or workforce development (Schilt & Lagos (2017). Only a few articles are represented that highlight African American transgender and HIV. A review of the literature overall

showed that the transgender population is highly vulnerable to HIV, violence, discrimination, depression and are often stigmatized and misunderstood. Moreover, the multiple issues with accessing health care and HIV primary care services are problematic for YTWC. However, no studies focused on the emerging HIV epidemic in the transgender population with the employment of social support as an intervention to combat the multiple issues plagued by the population.

Conclusion

More research is needed on YTWC population and what is needed for them to access to care and to decrease the gaps in the literature. This current research concentrated on the African American transgender perspective, needs, and services. Specifically, the research focus on young transgender populations their needs, access challenges, and perspective on HIV prevention. The methodology that this study used to address the existing gap in knowledge is detailed more in Section 2, which covers research design, rationale, instrumentation, threats to validity, ethical procedures, and an overall of the current research overall presentation.

Section 2: Research Design and Data Collection

Introduction

I used a quantitative correlational study to examine the impacts of social support on HIV preventive practices among YTWC. Social support is a noteworthy factor in promoting both physical and psychological wellness results of everyone from young people to seniors (Clark, 2005). YTWC are characterized as women who self-recognize as African American, Latina, Native American, and blended race/ethnicity (Ong et al., 2018).

The determination of any relationships between variables could allow public health professionals to focus on and tailor health strategies to alleviating barriers and developing a deeper understanding of what is needed to care for the YTWC population. The parent study was an evaluation of a population-specific tailored Life Skills small group training on YTWC to examine their involvement in the intervention and their subsequent HIV prevention behaviors (Garofalo et al., 2012). This section introduces the research methodology that I used for the current study involving secondary data analysis and presents the background of the parent study.

Background on Parent Study

The parent study was a two-stage cross-sectional examination evaluating the HIV-related risk practices among YTWC in both Chicago and Los Angeles (Garofalo et al., 2012). The motivation behind this investigation (Life Skills) was to pilot test a mediation model to build up an HIV risk reduction program that could help impede the spread of HIV among YTWC. The parent study analyzed 300 YTWC to evaluate the impact of

sexual behavior, HIV sexual behavior, violence, and access to social support on HIV related risk behaviors (Garofalo et al., 2012). The current study used the three hundred participants in the study collected at baseline that were all YTWC aged 16-24.

The parent study included a specific population of young transgender women so that the differences in prevention behaviors can presumably be attributed only to age differences rather than to other variables. The parent study included a collection of information on social support systems, but data were not analyzed on how social support may increase or decrease adoption of HIV prevention programs and behaviors.

Research Design and Rationale

This dissertation study involved secondary data analysis using Spearman's rank correlation and logistic regression analysis design as the specific aim was to understand the relationship between social support and HIV preventive behaviors among YTWC. The design was appropriate so that many variables could be compared measuring both exposure and outcome of the specific population over a specific period. The regression study design is most suitable to examine the relationship, odds, and make inferences regarding the variables within the population and show whether there is a positive or negative relationship (Abreu, Siqueira, Cardoso & Caiaffa, 2008). I employed the logistic regression design in the current study by exploring how social support affects preventive behaviors in YTWC grounded in nominal and numeric code responses to the survey. Then again, the partner configuration would not have been suitable as it starts by choosing a populace of people who are at risk of for a particular sickness or wellbeing result and tails them longitudinally (Creswell & Creswell, 2017). Fittingly, cross-

sectional examinations start by choosing an example population and getting information to group all people in the example as either having or not having the health result. I considered a quantitative logistic regression model investigation the most reasonable avenue to investigate recognitions inside the population to assist in understanding social support and evaluation of HIV preventive practices.

Methodology

In the original research study, a life-skills curriculum was developed with information from focus groups and peer facilitators to garner information needed by YTWC to increase healthy options (Garofalo et al., 2012). Focus group members were not permitted to partake in the intervention study. The focus group facilitators "planned and executed the final intervention programs with six cohorts of six to ten members" (Garofalo et al., 2012, p. 422) The members went to "six mediation sessions and were additionally required to take part in one and up to five nonincentivized singular sessions with both of the two group facilitators" (Garofalo et al., 2012, p. 422). The primary role of the individual sessions was to furnish members with a custom-fitted arrangement to decrease HIV risk practices (Garofalo et al., 2012, p. 422). Facilitators of the intervention groups were transgender-identified peers. Several identifying questions were asked at the onset of the study and 6 months after the study completed to compare positive and negative health-seeking behaviors.

In the original investigation, computerized surveys were used to collect responses to research questions to increase understanding regarding how various variables correlate in the adoption and use of health-seeking behaviors and options. The variables of this

investigation was the behavioral intention, perceived usefulness, social support, and self-efficacy of YTWC (Garofalo et al., 2012).

Participants were qualified to take an interest in the Life Skills program on the chance that they were: "(1) 16 to 24 years of age; (2) self-identified as transgender, transsexual, as well as female with a natural or birth sex of male; (3) equipped and prepared to talk and comprehend English; (4) willing and able to sign a consent of participation; (5) did not appear to be under the influence of drugs or intoxicated; and (6) they did not participate in the focus groups utilized to create the Life Skills curriculum" (Garofalo et al., 2012, p. 422-423). Demographic questions for the participants included (a) age, (b) gender at birth, (c) race, (d) ethnicity, and (e) identified gender. Additionally, an evaluation to sign consent was conducted with each participant to assess alertness and ability to participate (Moore & Miller, 1999). Participation in the study was completely voluntary.

The Life Skills curriculum comprised "knowledge on sexual health, HIV 101, safer sex techniques, healthy communication, partner negotiation, and how to identify and navigate community services" (Garofalo et al., 2012, p. 424). During the last session, "participants established personal risk reduction plans aimed to identify risky behavior and alternate behavior options" (Garofalo et al., 2012, p. 422). All participants "received $10 per session, a round-trip fare card for public transportation and a $25 bonus was given to participants with perfect attendance at the last session" (Garofalo et al., 2012, p. 422). Also, "safer sex supplies (i.e., condoms, lubricant) were available at each group session" (Garofalo et al., 2012, p. 422).

A baseline and a 3-month follow-up assessment were employed to assess the efficacy and the plausibility and agreeableness of the mediation. The two appraisals were performed utilizing sound audio-computer-assisted self-talking innovation. The principal investigator for the parent study supplied SPSS files with the electronic data for this dissertation project. Only the data for those variables included in this study were provided. The dataset was completely de-identified. Data was transferred from the principal investigator computer files to a dropbox file and was available for secondary data analysis. Most critically, each data set in the archive was complemented by records that detailed the experimental procedures and included the codebook.

Population

The population researched in the "parent study was YTWC individuals aged 16 to 24 residing in Chicago" (Garofalo et al., 2012, p. 422). In more specific terms, the population comprised women of African and Latino descent who experienced nonconformity between their true gender identity and their external sexual organs. For this study, a sample of 300 YTWC from Chicago were included by utilizing secondary baseline data from the Life Skills study (L. Kuhns, personal communication, May 29, 2018). "The mean age of respondents was 21 years [*SD* 2.4]" (Garofalo et al., 2012, p. 422). All participants "were born anatomically male; 29% illustrated their gender as male, 4% as female, and 67% as transgender [all respondents self-identified along the transgender spectrum throughout the eligibility screening]" (Garofalo et al., 2012, p. 422).

Sample Selection

The research sample included in the parent study, "participants that self-identified as transgender, minority and between the ages of 16-24" (Garofalo et al., 2012, p. 422). Furthermore, all participants were required to reside in the Chicagoland area to participate in the study. All members were given an interview to evaluate qualification and provide informed consent. The parent study had 300 YTWC participants who provided a sufficient sample size for the fundamental goal of the examination.

However, the "sample size was carefully fixed per the approved parent study protocol, the sample size of the intervention was limited to approximately 50 participants" (Garofalo et al., 2012, p. 422). While a "larger sample size in the parent study would have increased power to detect behavior change for outcomes of interest, the funding mechanism, and scope of the study were limited to a total sample of 50" (Garofalo et al., 2012, p. 422). Because of the smaller "sample size, and thus reduced power to detect effects, the significance level was set at $p \leq 0.10$" (Garofalo et al., 2012, p. 424). The impact estimate in the partner examination was small, utilizing Cohen's (1988) criteria. With an alpha = 0.05 and control = 0.80, the anticipated example measure required with this impact estimate (G*Power 3.1 software) is around $N = 63$ for the easiest between/inside correlation (Faul, Erdfelder, Lang & Buchner, 2007). Hence, the proposed test size of 300 was more than sufficient for the fundamental goal of the study.

The majority of the YTWC populations were enrolled from a neighborhood clinic and HIV community-based organizations. Enrollment strategies included outreach efforts, internet-based life, and interpersonal network practices. Most of the current

research on transgender populations utilized recruitment of transgender women in the sex trade which, while prominent of the population, it is not a good assessment and should not be used as a generalization of the population (Schilt & Lagos 2017). The parent and current study did not focus on transgender women in the sex trade. A large, multifaceted HIV treatment center located in Chicago conducted the research.

Data Collection

The survey for this study was administered face to face using computer technology at a local community-based organization as researchers found that this was more productive and reliant than internet-based administration of surveys (Garofalo et al., 2012). Computerized facilitation amplified the level of conveying and documenting sensitive information and accuracy of responses comparatively and was higher than telephone surveys or mixed-mode questionnaires (Pealer, Weiler, Pigg, Miller, & Dorman, 2001; Kreuter, Presser & Tourangeau, 2008).

Data collection took place from June 2008 to May 2011. Baseline data was collected on three-hundred transgender participants for the study via a network of HIV serving organizations, or transgender serving organizations, and direct administration of surveys to hard-to-reach subpopulations like homeless and young transgender women in the sex trade (Grant et al., 2010). The recruitment strategy of venue-based and networking sampling was designed to maximize responses (Grant et al., 2010). Participation was voluntary and confidential (Grant et al., 2010).

Email communication was sent to the Principal Investigator of the original study, at a major research hospital in Chicago, the organization responsible for the study, to gain

access to the dataset. Contacts made with principle investigators Lisa Kuhns and Amy Johnson responded not only with permission but willing to share the data codes and data in SPSS. The survey questions were based on the experiences of focus groups conducted before the creation of the intervention from known transgender people and were formatted in a variety of question types (Schilt & Lagos, 2017). No historical or legal documents were used as sources of data. For this study, the data set utilized was the sample on the survey questions on the multidimensional scale of perceived personal social support.

The independent variables, social support, and preventive health variables were coded numerically for analysis to answer the research questions. The variables include the four background socioeconomic variables (education, income, employment, and incarceration), to describe the population. Three preventive health variables (drug use history, HIV testing communication, and HIV Testing History) and three perceived social support subscales (family friends, and significant other) were used from a 12-point scale to examine the perceived support and preventive health behaviors.

A questionnaire assessed the demographic information of the participants of the Life Skills intervention and provided data regarding the participants. The assessment was used to determine whether the individuals of the parent study were a representative sample of the target population for generalization purposes (Salkind, 2010). A four-scale questionnaire was used to assess the variables educational level (Grade 8 – College Degree), employment status (employed, unemployed or student), household income (less

than 10,000 – 80,000) and whether the respondent had ever been incarcerated (served time in jail or prison).

The dependent variables were taken from a multi-month follow-up, an electronic review and clinical visit and include: condom utilization, and viability, getting to HIV screenings, drug user health and psychological well-being and appropriation of HIV treatment adoption and acceptance. The following section elements elaborate on how these factors were operationalized, assessed, and estimated.

Instrumentation and Operationalization of Constructs

Two scales were used to collect information on HIV behaviors and social support in the parent study. The Health Protective Communication scale (HPCS) is a self-report scale that assesses how often the respondents discuss health protective topics while interacting with a new, first-time sexual partner (Garofalo et al., 2012). Items addressed in the scale include protective health concerns related to safer sex, drug histories, HIV testing communication, and HIV status. Several questions were used from the scales to measure the protective health concerns, for the categorical variables (both binary and ordinal). The questions measured health protective behaviors of the respondents with a 12-level subscale. All the questions had the option for refusal to answer. The Health Protective Communication Scale (HPCS), was used to assess how often the YTWC discuss health protection, drug use before sex, HIV communication, and HIV status. The questions from the scales explored aspects of the participant's behaviors associated with a risky behavior; specifically, communication about the number of communications with partners about HIV testing. Scored statistics were used to evaluate the relationship

between the factors and sexual risk behaviors. The statistics focused on participants drug use history, HIV testing communication, and HIV status.

The HPCS widely used has shown good internal reliability and results of the research have shown the scale to have the sound psychrometric capability to work across diverse populations (Catania, 1998). The Health Protective Communication scale is a self-report scale that assesses how often the respondents discuss health protective topics while interacting with a new, first-time sexual partner (Garofalo et al., 2012). Attention was paid to the homogeneity of the participants recruited for the parent study, to increase instrument validity the length of the instrument and preparedness of the participants (Fisher, Davis, Yarber, Davis, 2010).

Social support was measured by the total score on the Multidimensional Scale of Perceived Social Support (MSPSS), which is a continuous variable (Zimet, Dahlem, Zimet & Farley, 1988). The MSPSS quantifies perceived support but concentrates on the scale of satisfaction with perceived social support from family, friends, and a significant other. The 12-item questionnaire designed to measure perceptions of social support relating to the extent to which the YTWC feel they have support of their family, friends and a special person. A total score can be calculated, and the total score ranging from 1-2.9 is considered low support, a score of 3-5 could be considered moderate support and a score of 5.1 to 7 could be interpreted as high support. MSPSS also widely used has exhibited suitable internal reliability, and an examination of research has shown the scale to have ample capacity to measure social support across diverse populations (Canty-Mitchell & Zimet, 2000). Noteworthy, was the attention and detail paid to the pretraining

and preparedness of the participants, timing, and length of the survey and understanding of the items to make the test more valid (Zimet, Powell, Farley, Werkman & Berkoff, 1990). All the participants in the parent study participated in pre-implementation skills building, baseline assessments, and introduction and practice questions.

The outcome variables for this analysis were HIV screening results (confirmed positive or negative HIV status). Adoption of prevention options were measured utilizing questions from the combined HPCS and the MSPSS to understand the outcomes of the participants as a part of the three-month follow-up assessment. In the parent study, Cronbach's alpha, a measure of inter-item reliability, for the ten individual variables was used to determine the reliability of the developed instrument.

To increase the validity, attention was paid to the item quality and utilization of well-written items. Organization of the variables was organized into tables for each variable measure and displayed prior to the results.

Research Questions, Hypothesis, and Study Variables

RQ1: Is there a relationship between the preventive behaviors of YTWC and social support?

$H_0 1._1$: There is no statistically significant relationship between HIV preventive behaviors of YTWC, in terms of drug use history, and social support.

$H_a 1._1$: There is a statistically significant relationship between HIV preventive behaviors of YTWC, in terms of drug use history, and social support.

$H_{01.2}$: There is no statistically significant relationship between HIV preventive behaviors of YTWC, in terms of HIV testing communication, and social support.

$H_a1.2$: There is a statistically significant relationship between HIV preventive behaviors of YTWC, in terms of HIV testing communication and social support.

$H_01.3$: There is no statistically significant relationship between HIV preventive behaviors of YTWC, in terms of HIV testing history, and social support.

$H_a1.3$: There is a statistically significant relationship between HIV preventive behaviors of YTWC, in terms of HIV testing history, and social support.

The independent variable, social support, was measured by the Multidimensional Scale of Perceived Social Support (MSPSS) instrument, and the total score constitutes a continuous variable. The dependent variables for RQ1, the HIV preventive behaviors, were measured in terms of drug use history, HIV testing communication, and HIV testing history. Drug use history included the following four variables:

The HIV preventive behaviors included participants responses to drug use history.

- Illicit drug use: a categorical variable with two levels (yes vs. no);
- Poly (more than one) illicit drug use: a categorical variable with two levels (yes vs. no);
- Drug use during sex: a categorical variable measuring the number of times participants had unprotected insertive vaginal sex while under the influence of alcohol and/or drugs.

- Frequency of drug use before sex: an ordinal variable with 5 levels (1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Often, and 5 = Always).

HIV testing communication included the following two variables:

- Perception of asking a new partner to do an HIV test: an ordinal variable with 5 levels (1 = Very good, 2 = good, 3 = neutral, 4 = bad, and 5 = Very bad);
- Intention of asking a new partner to do an HIV test: an ordinal variable with 5 levels (1 = Very likely, 2 = Likely, 3 = Neither likely nor unlikely, 4 = Unlikely, and 5 = Very unlikely).

The last HIV preventive behaviors were regarding HIV testing history and included the following two variables:

- Ever been tested for HIV: a categorical variable with two levels (yes vs. no);
- Number of times tested for HIV: a continuous variable.

RQ2: Is there an association between social support and HIV status among YTWC?

$H_0$2: There is no association between social support and HIV status among YTWC?

H_a2: There is a statistically significant association between social support and HIV status among YTWC?

The independent variable, social support, was measured by MSPSS instrument, and the total score constitutes a continuous variable.

The dependent variable, HIV status of each participant, was measured through the administration of an HIV screening, in terms of the following two variables:

- Results of the most recent HIV Test: a categorical variable with two levels (positive vs. negative);
- Confirmed HIV status: a categorical variable with two levels (confirmed positive/self-report positive vs. confirmed negative).

RQ3: Does social support predict condom self-efficacy and use among YTWC?

$H_0$3: Social support does not predict condom self-efficacy and use among YTWC.

H_a3: Social support predicts condom use self-efficacy and use among YTWC.

The independent variable, social support, was measured by the Multidimensional Scale of Perceived Social Support (MSPSS) instrument, and the total score constitutes a continuous variable. The dependent variable, condom self-efficacy, and use was assessed using the following two variables:

- Perception of overall frequency of condom use: an ordinal variable with five levels (1= Very Good, 2 = Good, 3 = Neutral, 4 = Bad, and 5 = Very Bad);
- Ability to discuss safer sex with a new partner: a scale of 0 (cannot do at all) to 10 (certain can do), which was treated as a continuous variable

Data Analysis Plan

Data were imported into and analyzed using SPSS. SPSS was used to conduct the data analysis as it is a program that can be used to perform various analyses needed for this study, such as descriptive statistics and bivariate statistics and create tables and graphs.

Data for the study variables, independent and dependent variables, were examined for missing values. Participants with missing values for the independent variable and/or dependent variables were excluded from the data analysis. Responses such as “Do not know” or “Unknown” were included in the analysis for descriptive/summary statistics but excluded from the data analysis for inferential statistics.

Descriptive statistics were used to summarize the sample demographics. Frequency tables were used to summarize the categorical and ordinal dependent variables, including illicit drug use, poly illicit drug use, drug use and sex, frequency of drug use before sex, perception of asking a new partner to do an HIV test, intention of asking a new partner to do an HIV test, ever been tested for HIV, results of most recent HIV Test, confirmed HIV status, and perception of overall frequency of condom use. Descriptive statistics were used to summarize the continuous dependent variables, including number of times tested for HIV and ability to discuss safer sex with a new partner, and the independent variable (i.e., social support). Normality of data for the continuous study variables were examined via Shapiro-Wilk normality test.

Correlation and logistic regression analysis were utilized to look at relationships between the independent and dependent variables (Bewick, Cheek & Ball, 2003). Peng, Lee, and Ingersoll (2002) showed that logistic regression examination can be utilized to evaluate the connection between a categorical dependent variable and an independent variable (social support). Spearman’s rank correlation coefficient can be used to determine the association between a continuous and categorical variable when the variables were not normally distributed (Frankfort-Nachmias & Leon-Guerrero, 2017).

Specifically, logistic regressions for binary responses (Agresti and Kateri 2002) were used to determine if there was a relationship between each categorical dependent variable with two levels, including illicit drug use, poly illicit drug use, drug use during sex, ever been tested for HIV, results of most recent HIV test, and confirmed HIV status, and the independent variable, i.e., the social support. Ordinal logistic regressions (Agresti & Kateri, 2002) were used to determine there was a relationship between each categorical dependent variable with more than two levels, including frequency of drug use before sex, perception of asking a new partner to do an HIV test, intention of asking a new partner to do an HIV test, and perception of overall frequency of condom use. For ordinal logistic regression, the validity of the proportional odds assumption was checked based on the χ^2 score test (Agresti & Kateri, 2002). A nonsignificant test result ($p > 0.01$) indicates the proportional odds assumption is satisfied (Agresti & Kateri, 2002). Odds ratios and the associated 95% confidence intervals were used to quantify the strength of the relationship between the dependent and the independent variables.

Threats to Validity

The validity of the research study was based on how well the instrument can perform at measuring the variables. In a recent study on cancer research, a study evaluated the Multidimensional Scale of Perceived Social Support with cancer patients and found the scale to be both reliable and valid (Shumaker, Frazier, Moser & Chung, 2017). For this investigation, the phenomena investigated were the encounters with social support and the behavioral change to get to HIV preventive practices. The legitimacy of the investigation, in this way, relied upon the capacity of the exploration strategy

appropriateness to address the examination question of the investigation. The utilization of the correlational research design gave data to address the exploration of each of the research questions and study goals. One crucial limitation was the involvement of participants under the age of 18, which caused for additional IRB approval processes for future replication for the study. The first threat was recruitment and retention in the study. The population was hard to reach population, and recruitment for the study was challenging. Challenges arose from transportation issues, violence, sexual assault, and incarceration rates. Noteworthy is that retention in this study was supported extensively by "linking the intervention to a community-based service program providing case management services, meals, and access to support staff" (Garofalo et al., 2012, p. 422). However, one effort to minimize the concerns was as a part of the parent study sensitivity analyses were conducted. The sensitivity analyses were for a "sub-sample of participants who attended at least one intervention session and completed the follow-up assessment" [*n* =37] (Garofalo et al., 2012, p. 424).

External Validity

The study has threats to external validity. External validity referred to the generalizability of study results as a random selection of participants and assignment are crucial to the universal representation of the broader population. (Carlson & Morrison, 2009). Random sampling was not utilized, and the study cannot be generalized to the target population. Other investigation confinements ought to be considered when analyzing these findings. To start with, the "investigation was led with a sample of YTWC from one urban geographic zone, which may constrain the generalizability of

these findings" (Garofalo et al., 2012, p. 420). The plan may have confinements, for example, selection bias.

Selection bias takes place during the recruitment process and can impact both internal and external validity. Bias due to sampling in a cross-sectional study occurs when it is non-random, volunteer, or membership driven. Selection bias occurs when the sample is not representative of the population, and when results differ from each other (DiClemente et al. 2013). The parent study included a homogenous group of YTWC. However, fair sampling and non-random techniques were employed in the parent study design and did not reduce selection bias (DiClemente et al., 2013). Convenience sampling and snowball sampling methods were employed as recruitment techniques. The selection probabilities included a participant selection process inclusive of both exposed and non-exposed participants to social support that were equally distributed in groups for the Life Skills intervention.

Another threat was the Hawthorne effect whereby survey participants modify their responses directly to the innovation of being involved in research (Campbell & Stanley, 1963). The Hawthorne effect could have threatened external validity because generalizability could have been affected if participants were responding dishonestly. This threat was addressed in the cover letter of the survey, where participants were informed that they would have anonymity and confidentiality and could withdraw from the program at any time without penalty (Grant et al., 2010). Fourth, all the measures were self-reported and therefore, may suffer from socially desirable responses (Nugent, 2013).

Internal Validity

Internal validity refers to the strength of the inferences (Carlson & Morrison, 2009). Most threats to internal validity did not apply to this study because this study is assessing relationships, and odds, not causation. However, social desirability bias and design contamination are two threats to internal validity detected. Social desirability bias occurs when respondents select the more favorable answer versus the truth (Fisher, 1993). This bias is a threat to internal validity because the Life Skills research study focused on personal questions about safer sex, drug use, and HIV status. This threat was addressed in the cover letter of the survey, where participants were informed that they did not have to answer any questions they did not wish to answer (Grant et al., 2010).

Design contamination occurs when respondents have an interest in the research succeeding or failing. Contamination is a threat to internal validity because transgender individuals often are discriminated against and at the time of the survey (2008-2010) were and are still seeking health equity, equal rights, and human rights. Therefore, some of the questions posed in the survey may have enticed participants to exaggerate certain experiences to bring more attention and funding to HIV services for transgender individuals.

In a vast amount of research, transgenders were mixed with MSM population, and therefore, the population felt unfairly discriminated against (Poteat & Anderson, 2012). This threat was tackled by encouraging participants to answer truthfully and by ensuring their confidentiality (Grant et al., 2010). Construct validity describes the degree that the

research is assessing what it intends to assess (Carlson & Morrison, 2009). A replication study would address this threat to construct validity.

Ethical Procedures

Permission to use data from the Life Skills Project was granted on July 8, 2016. Before implementation, the parent study was "approved by the Institutional Review Board (IRB) of the Centers for Disease Control, and the local hospital, health department, and community-based organizations" (Garofalo et al., 2012, p. 424). A waiver of "parental consent was obtained for participants under the age of 18 years" (Garofalo et al., 2012, p. 424). The Chicago Department of Public Health Community Review Standards Panel approved all supporting documents and intervention curricula**.** As required by the IRB, the instrument began with informed consent and used and additional consent evaluation. The parent study included a computer-generated survey allowed for anonymity, increased confidentiality, survey refusal, and survey incompletion due to discomfort (Grant et al., 2010). Data storage procedures, data dissemination, and data destruction measures were omitted in the reporting of the survey findings, but for this study, the data was stored on a password-protected computer located in a locked office. For this current study, the secondary data was reviewed after IRB approval was received from Walden University.

Summary

This section described the research design and methodology, sample population, information gathering instrument, data analysis plan, and ethical considerations. The logistic regression model study used archived data from a quantitative survey conducted

by a local community-based organization involving YTWC from 2008 – 2011. Moreover, the study allowed for the examination of relationships between social support and behavior to assess preventive behaviors (Creswell & Creswell, 2017). The current study utilized secondary data to determine the relationship between social support and the relationship between health preventive behaviors, such as condom efficacy and use. Section three presents the study results.

Section 3: Presentation of the Results and Findings

Introduction

This study evaluated the relationship between social support and three dependent variables, HIV preventive behaviors (drug use history, HIV testing communication, and HIV testing history), HIV status, and condom self-efficacy using Spearman's rank correlation and logistic regression analysis. This section presents the statistical findings of the study divided into several sections: a restatement of the research questions, an overview of the study population, the research variables presented through descriptive statistics, and bivariate analyses. The following three research questions and hypotheses were analyzed using SPSS statistical software.

Research Questions and Hypotheses

RQ1: Is there a relationship between the preventive behaviors of YTWC and social support?

$H_0 1._1$: There is no statistically significant relationship between HIV preventive behaviors of YTWC, in terms of drug use history, and social support.

$H_a 1._1$: There is a statistically significant relationship between HIV preventive behaviors of YTWC, in terms of drug use history, and social support.

$H_0 1._2$: There is no statistically significant relationship between HIV preventive behaviors of YTWC, in terms of HIV testing communication, and social support.

$H_a1._2$: There is a statistically significant relationship between HIV preventive behaviors of YTWC, in terms of HIV testing communication and social support.

$H_01._3$: There is no statistically significant relationship between HIV preventive behaviors of YTWC, in terms of HIV testing history, and social support.

$H_a1._3$: There is a statistically significant relationship between HIV preventive behaviors of YTWC, in terms of HIV testing history, and social support.

RQ2: Is there an association between social support and HIV status among YTWC?

H_02: There is no association between social support and HIV status among YTWC?

H_a2: There is a statistically significant association between social support and HIV status among YTWC?

RQ3: Does social support predict condom self-efficacy and use among YTWC?

H_03: Social support does not predict condom self-efficacy and use among YTWC.

H_a3: Social support predicts condom use self-efficacy and use among YTWC.

This chapter covers all the results from data analysis. The chapter addresses data collection, discrepancies, data treatment, statistical testing assumptions, descriptive statistics, data interpretations from correlation and logistic regression analysis, and summary. Tables were created for all of the research questions to show the variable, level, group names, and statistical test.

Data Analysis Plan

Data was imported into and analyzed using SPSS. Data analysis for this study, included descriptive statistics, bivariate statistics, and the creation of tables and graphs. Data for the study variables, independent and dependent variables, were examined for missing values. Two participants with missing values for the independent variable and dependent variables were excluded from the data analysis. Responses such as "Do not know" or "Unknown" were included in the analysis for descriptive/summary statistics but excluded from the data analysis for inferential statistics.

Descriptive statistics was used to summarize the sample demographics. I used frequency tables to summarize the categorical dependent variables, including illicit drug use, illicit polydrug use, drug use and sex, frequency of drug use before sex, and perception of asking a new partner to do an HIV test. I also used frequency tables to summarize the dependent variables of (a) the intention of asking a new partner to do an HIV test, (b) if ever been tested for HIV, (c) results of the most recent HIV test, (d) confirmed HIV status, and (e) perception of the overall frequency of condom use. I used descriptive statistics to summarize the dependent variables of the number of times tested for HIV and the ability to discuss safer sex with a new partner, and the independent variable of social support.

I used binary and ordinal logistic regression analysis to look at relationships between the independent and categorical dependent variables (see Peng et al., 2003). As for the data for the continuous dependent variable, I used Spearman's rank correlation coefficients to determine if there was a relationship between the independent and

dependent variables that have Likert-type or ordinal scales responses and are not normally distributed. For any test, without further specification, a *p*-value less than 0.05 indicated significance. All *p*-values were two-sided as an alternative to test the null hypothesis to check whether a sample was greater or lesser in either direction for values.

Specifically, I used logistic regressions for binary responses to determine if there was a relationship between each categorical dependent variable with two levels, including (a) have you injected drugs, (b) illicit polydrug use, (c) if ever been tested for HIV, (d) results of most recent HIV test, and (e) confirmed HIV status, and the independent variable, social support (see Agresti & Kateri, 2002) . Ordinal logistic regressions were used to determine if there was a relationship between each categorical dependent variable with more than two levels, including (a) frequency of drug use before sex, (b) perception of asking a new partner to do an HIV test, (c) intention of asking a new partner to do an HIV test, and (d) perception of overall frequency of condom use (Agresti & Kateri, 2002). For ordinal logistic regression, the validity of the proportional odds assumption was checked based on the χ^2 score test (see Agresti & Kateri, 2002). A nonsignificant test result ($p > 0.01$) indicates the proportional odds assumption is satisfied (Agresti & Kateri, 2002). I used odds ratios and the associated 95% confidence intervals to quantify the strength of the relationship between the dependent and the independent variables.

Data Collection of Secondary Data Set

Time Frame

The data for this research was collected during the administration of the Life Skills Project (Garofalo et al., 2012) from June, 2008, to May, 2011. The baseline data

consisted of 300 YTWC aged 16-24 via a network of HIV-serving organizations and direct administration of surveys to hard to reach populations (Grant et al., 2010).

Data Treatment

Upon completing the necessary documents for IRB approval, the codebook, data files, and measures inventory were received. The Walden IRB approval number for this study was 11-14-18-0397174. The dataset contained over 1,000 variables, and a smaller data set file of 25 variables was created to correspond to each of the research questions.

Testing Statistical Assumptions

Normality of data for the continuous study variables, including the two continuous dependent variables, number of times tested for HIV and ability to discuss safer sex with a new partner, and the independent variable, social support, were examined via skewness, kurtosis, and the Shapiro-Wilk normality tests (Table 1).

The sample skewness measures degree of distortion from the normal distribution, as a normal distribution is symmetric and has a skewness of zero (Moore, McCabe, & Craig, 2009). A negative skew (i.e., skewed to the left) indicates that the majority of the data are on the right of the mean, while a positive skew (i.e., skewed to the right) indicates that majority of the data are on the left of the mean (Moore et al., 2009). From the results of skewness, number of times tested for HIV (skewness = 3.434) was positively skewed; ability to discuss safer sex with a new partner (skewness = -1.450) and social support (skewness = -2.220) were negatively skewed.

The sample kurtosis is a measure of whether the data are *heavy-tailed* or *light-tailed* compared to a normal distribution (Moore et al., 2009). Positive kurtosis indicates

a heavy-tailed" distribution, and negative kurtosis indicates a light-tailed distribution. (Moore et al., 2009). From the results of kurtosis, number of times tested for HIV (kurtosis = 13.943) had a large value of kurtosis; ability to discuss safer sex with a new partner (kurtosis = 0.986) and social support (kurtosis = -1.129) had moderate levels of kurtosis.

The Shapiro–Wilk test examines the null hypothesis that a sample came from a normally distributed population (Moore et al., 2009). A *p*-value less than 0.05 indicates that the null hypothesis should be rejected and there is enough evidence to claim that the data are not normal. On the contrary, if the *p*-value is greater than 0.05, then the null hypothesis that the data came from a normally distributed population cannot be rejected, and hence there is not enough evidence to claim that the data tested are not from a normally distributed population. The results of the Shapiro-Wilk tests suggested that all three study variables, including, number of times tested for HIV ($p < 0.001$), ability to discuss safer sex with a new partner ($p < 0.001$), and social support ($p < 0.001$), may not be normally distributed.

As the data may not be normally distributed, descriptive statistics such as median and interquartile range were used to summarize the continuous study variables, and Spearman's rank correlation was used to determine if there was a relationship between the continuous dependent and independent variables.

Table 1

Normality Examination of the Study Variables

			Shapiro-Wilk test	
	Skewness	Kurtosis	Statistic	*p*
Number of times tested for HIV	3.434	13.943	0.588	< 0.001
Ability to discuss safer sex with a new partner	-1.450	0.986	0.689	< 0.001
Social support	-2.220	-1.129	0.915	< 0.001

Results

Sociodemographic Factors

Table 2 reports the frequencies and percentages associated with the sociodemographic factors containing a summary of the sample demographics for all YTWC in the study identified as transgender MTF. The sample consisted of 300 participants; 298 were born male (n = 298), two were born female (n = 3, excluded). Results of self-identification of gender included 48.7% identifying as female and 29.5% identifying as trans female (MTF).

Figure 2 shows that the participants ranged in age from 16 to 24 years old at the time of enrollment (See *Figure 2)*. The mean age of participants at the time of enrollment into the study was 21.5 years old (SD = 7.2). Seventy-five percent of the participants were aged 21-24 years old, and twenty-five percent were less than 20 years old.

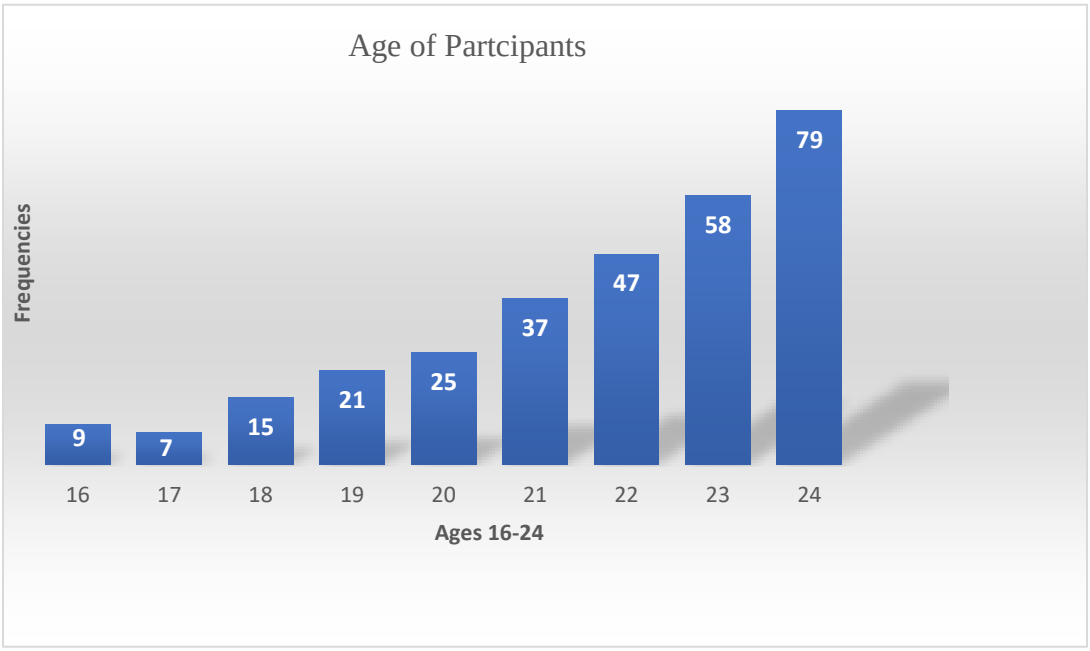

Figure 2. Age of participants (*n* =298).

Table 2 depicts the sociodemographic characteristics of the study population for gender, identification, race and ethnic status, employment, and incarceration history. Table 2 shows that all participants were born male, 48% identify as female and 29.3% identify as trans female, almost 60% had high school or less, over 70% were unemployed, 27% had been incarcerated, and 45% lived on an income of less than $10,000.

Table 2

Sociodemographic (SDG) Characteristics of the Study Population

Characteristics	*Frequency*	*Percent*
Gender at Birth		
Born Male	298	100
Transgender Identification		
Female	145	48.3
Trans Female(MTF)	88	29.3
Trans but do not identify as Exclusively M or F	48	16.3
Other	17	4.7
Race/Ethnicity		
Black or African American	157	52.3
Spanish Origin, Hispanic or Latino	64	21.3
Puerto Rican	71	23.6
Asian	6	2
American Indian or Alaska Native	2	<1
Educational Level		
Less than 8th Grade	4	1.3
Less than High School Diploma	67	22.3
High School Diploma or GED	106	35.3
Completed Technical School	9	4.9
Some College	92	30.6
Four-Year Degree	10	3.3
Some Graduate School	4	1.3
Graduate Degree	8	2.6
Employment Status		
Unemployed	221	73.6
Employed Full-Time	50	16.6
Employed Part-Time	29	9.6
Incarceration History		
No Jail	200	66.7
Jail	83	27.7
Both Juvenile Detention & Jail	10	3.3
Juvenile Detention	5	1.7
Income		
Less than $10,000	136	45.3
$10,000 - $19,999	36	12.7
$20,000 – $29,999	14	4.7
$30,000 - $39,999	16	5.3
$40,000 - $49,999	4	1.6
$50,000 - $59,999	3	1.0
$60,000 - $69,999	8	2.4
$70,000 - $79,999	2	.7
$80,000 or more	9	3.0
Do Not Know	70	23.3
Refuse to Answer	0	0

Note. (n = 298).

Independent Variable

The independent variable social support was measured with the Multidimensional Scale of Perceived Social Support (MSPSS). The measure includes three subscales consisting of family support, friends/peer support, and significant other support. Researchers designed an approach for interpretation that increases validity with any mean scale score ranging from 1 to 2.9 as low support; a score of 3 to 5 as moderate support; and a score from 5.1 to 7 could be considered high support (Zimet, Dahlem, Zimet & Farley, 1988). Table 3 presents the means and standard deviations of MSPSS scores. The mean score for overall social support was 3.18 (*SD* = 1.35), indicating overall, participants had moderate levels of social support.

Table 3

Multidimensional Scale of Perceived Social Support

MSPSS	*Mean*	*SD*
There is a special person who is around when I am in need.	3.17	1.07
There is a special person with whom I can share my joys and sorrows.	3.08	1.34
My family really tries to help me	2.55	1.48
I get the emotional help and support I need from my family.	2.34	1.09
I have a special person who is a real source of comfort to me.	3.11	1.49
My friends really try to help me.	3.41	1.19
I can count on my friends when things go wrong	3.55	1.11
I can talk about my problems with my family	3.71	1.04
I have friends with whom I can share my joys and sorrows	3.68	1.37
There is a special person in my life who cares about my feelings	3.22	1.20
My Family is willing to help me make decisions	2.81	1.04
I can talk about my problems with my friends	3.53	1.21
Significant Other	3.14	1.04
Family	2.86	1.23
Friends	3.54	1.39
Overall	3.18	1.35

Note. (n = 298). Social Support Items Mean Score (Items: 10; Range: 1-7; Higher Score=Greater Social Support. Overall social support was not normally distributed according to the Shapiro-Wilk tests ($p < 0.05$).

Dependent Variables

Table 4 summarizes the frequency counts (for categorical dependent variables) and descriptive statistics (for continuous dependent variables) for the dependent variables of this study.

Dependent variables for RQ1. The three dependent variables of HIV preventive behaviors for RQ1 included drug use history, HIV testing communication, and HIV testing history. Drug use history was measured through four questions, including illicit drug use, poly illicit drug use, drug use during sex, and frequency of drug use before sex. Nearly 40% of the participants (39.1%) reported that they had used illicit drug (not marijuana or alcohol). About one-fourth of the participants (24.5%) had used more than one illicit drug (not marijuana or alcohol). Among the 40 participants who had unprotected insertive vaginal sex, 42.5% had reported that they did that at least once while under the influence of alcohol and/or drugs. Nearly 70% of the participants (66.3%) indicated that they never used drugs before having anal or vaginal sex.

HIV testing communication was measured through two questions, including the perception of asking a new partner to do an HIV test and intention of asking a new partner to do an HIV test. Nearly 70% of the participants (69.4%) indicated that it would be very good to ask their sex partner(s) to get a test to check whether they have HIV. Slightly over 60% of the participants (60.6%) indicated that they were very likely to ask their sex partner(s) to get an HIV test to check whether they have HIV.

HIV testing history was measured with two questions, including ever been tested for HIV and number of times tested for HIV. Majority of the participants (89.2%)

indicated that they had been tested for HIV. Furthermore, the median number of times participants tested for HIV during their lifetime was 5.0.

Dependent variable for RQ2. The dependent variable for RQ2, HIV status, was measured with two questions, including results of most recent HIV test and confirmed HIV status. Nearly one-fourth of the participants (21.1%) indicated that their most recent HIV test was positive. Similarly, nearly one-fourth of the participants (21.1%) self-report positive and (3.4%) were confirmed HIV positive at baseline based on the Qualtrics HIV testing data.

Dependent variable for RQ3. The dependent variable for RQ3, condom efficacy and use, was measured with two questions, including perception of overall frequency of condom use and ability to discuss safer sex with a new partner. Almost two-thirds of the participants (64.3%) believed that it would be very good if they and their partner(s) always use condoms during sexual intercourse. Participants believed that they had great ability to discuss safer sex with a new partner, in terms of asking a new partner to use condoms (M = 8.43, SD = 2.44).

Table 4

Health Protective Communication Scale: Summary of Dependent Variable

Dependent Variable		*N* (%)
Illicit drug use	No	181 (60.9)
	Yes	117 (39.1)
Poly illicit drug use, not marijuana or alcohol	No	224 (75.5)
	Yes	74 (24.5)
Drug usage with sex	None	23 (57.5)
	At least Once	17 (42.5)
Drug usage frequency	Never	198 (66.4)
	Rarely	44 (14.8)
	Sometimes	17 (5.7)
	Often	18 (6.0)
	Always	21 (7.0)

Dependent variable		*N* (%)
HIV testing communication		
Perception of asking a new partner to do an HIV test	Very good	206 (69.4)
	Good	31 (10.4)
	Neutral	43 (14.5)
	Bad	10 (3.4)
	Very bad	7 (2.4)
Intention of asking a new partner to do an HIV test	Very likely	180 (60.6)
	Likely	43 (14.5)
	Neither likely nor unlikely	42 (14.1)
	Unlikely	10 (3.4)
	Very unlikely	22 (7.4)
HIV testing history		
Ever been tested for HIV	No	32 (10.8)
	Yes	265 (89.2)
Number of times tested for HIV	*Md (IQR)*	5 (10)
HIV status		
Results of most recent HIV test	Positive	56 (21.1)
	Negative	200 (75.5)
	Don't know	9 (3.4)
Confirmed HIV status	Self-report positive	55 (18.5)
	Confirmed positive	10 (3.4)
	Confirmed negative	229 (77.1)
	Unknown	3 (1.0)
Condom efficacy and use		
Perception of overall frequency of condom use	Very good	191 (64.3)
	Good	49 (16.5)
	Neutral	33 (11.1)
	Bad	7 (2.4)
	Very bad	17 (5.7)
Ability to discuss safer sex with a new partner	*M (SD)*	8.43 (2.44)

Note. (n = 298). n = 40 for drug use during sex; n = 266 for number of times tested for HIV and results of most recent HIV test. Both of the continuous study variables (number of times tested for HIV and ability to discuss safer sex with a new partner) were not normally distributed according to the Shapiro-Wilk tests ($p < 0.05$), and hence median and interquartile range (*IQR*) were reported, rather than mean and standard deviation.

Bivariate Analyses

Analysis for Research Question 1

Research question 1 asked: Is there a relationship between the preventive behaviors (drug use history, HIV testing communication, and HIV testing history) of YTWC and social support? The dependent variables for RQ1, the HIV preventive behaviors, were measured in terms of drug use history (4 questions), HIV testing communication (2 questions), and HIV testing history (2 questions). The analysis results are discussed as follows.

Analysis results for drug use history. Drug use history was measured using 4 variables, including illicit drug use (a categorical variable with 2 levels: yes vs. no), poly illicit drug use (a categorical variable with 2 levels: yes vs. no), drug use during sex (a categorical variable with 2 levels: none vs. at least once), and frequency of drug use before sex an ordinal variable with 5 levels: 5 levels: 1= Never, 2 = Rarely, 3 = Sometimes, 4 = Often and 5 = Always.

Table 5-8 present the analysis results of logistic regressions for determining if there was a relationship between social support and each of the dependent variables. Table 5 presents the results of the logistic regression analyses for determining if there was a relationship between social support and illicit drug use. The results indicated that there was no statistically significant relationship between social support and illicit drug use (*OR* = 0.854, 95% *CI* = [0.718, 1, 016]; Table 5), poly illicit drug use (*OR* = 0.901, 95% *CI* = [0.742, 1.095]; Table 6), drug use during sex (*OR* = 1.292, 95% *CI* = [0.792, 2.108]; Table 7), and frequency of drug use before sex (*OR* = 1.060, 95% *CI* = [0.890,

1.261]; Table 8). All the 95% confidence intervals for the odds ratios contained 1, indicating the odds ratios were not statistically significantly different from 1.

Table 5

Results of Binary Logistic Regression (Dependent Variable = Illicit Drug Use)

							95% *CI* for *OR*	
Parameter	*B*	*SE*	*Wald*	*df*	*p*	*OR*	Lower	Upper
Social support	-0.158	0.088	3.178	1	0.075	0.854	0.718	1.016
Constant	0.052	0.301	0.030	1	0.863	1.053		

Note. (n = 298). The binary logistic regression was modeling the probability of illicit drug use = "yes". *B* = parameter estimate, *SE* = standard error, *Wald* = Wald chi-square statistic, *df* = degrees of freedom, *p* = p-value; *OR* = odds ratio; *CI* = confidence interval.

Table 6

Results of Binary Logistic Regression (Dependent Variable = Poly Illicit Drug Use)

							95% *CI* for *OR*	
Parameter	*B*	*SE*	*Wald*	*df*	*p*	*OR*	Lower	Upper
Social support	-0.104	0.099	1.096	1	0.295	0.901	0.742	1.095
Constant	-0.795	0.335	5.631	1	0.018	0.452		

Note. (*n* =2 98). The binary logistic regression was modeling the probability of poly illicit drug use = "yes". *B* = parameter estimate, *SE* = standard error, *Wald* = Wald chi-square statistic, *df* = degrees of freedom, *p* = p-value; *OR* = odds ratio; *CI* = confidence interval.

Table 7

Results of Binary Logistic Regression (Dependent Variable = Drug Use During Sex)

							95% *CI* for *OR*	
Parameter	*B*	*SE*	*Wald*	*df*	*p*	*Exp(B)*	Lower	Upper
Social support	0.256	0.250	1.050	1	0.305	1.292	0.792	2.108
Constant	-1.197	0.942	1.613	1	0.204	0.302		

Note. (*n* = 298). The binary logistic regression was modeling the probability of drug use during sex = "at least once". *B* = parameter estimate, *SE* = standard error, *Wald* = Wald chi-square statistic, *df* = degrees of freedom, *p* = p-value; *OR* = odds ratio; *CI* = confidence interval.

Table 8

Results of Ordinal Logistic Regression (Dependent Variable = Frequency of Drug Use Before Sex)

				Hypothesis test				95% *CI* for *OR*	
Parameter		*B*	*SE*	*Wald*	*df*	*p*	*OR*	Lower	Upper
Threshold	DV = 5.00	-2.393	0.3586	44.525	1	<0.001	0.091	0.045	0.184
	DV = 4.00	-1.706	0.3274	27.165	1	<0.001	0.182	0.096	0.345
	DV = 3.00	-1.277	0.3154	16.383	1	<0.001	0.279	0.150	0.518
	DV = 2.00	-0.495	0.3050	2.632	1	0.105	0.610	0.335	1.108
Social support		0.058	0.0888	0.425	1	0.515	1.060	0.890	1.261

Note. (*n* = 298). Responses for dependent variable "Frequency of drug use before sex" were 1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Often, and 5 = Always. The logistic regression applied the cumulative link function to the dependent variable values in descending order (high (5 = always) to low (1 = never)). DV = dependent variable; *B* = parameter estimate, *SE* = standard error, *Wald* = Wald chi-square statistic, *df* = degrees of freedom, *p* = p-value; *OR* = odds ratio; *CI* = confidence interval. The proportional odds assumption was satisfied ($\chi^2(3) = 2.832$, $p = 0.418$).

Analysis results for HIV testing communication. HIV testing communication was measured using 2 variables, including perception of asking a new partner to do an HIV test (an ordinal variable with 5 levels: 1 = Very good, 2 = Good, 3 = Neutral, 4 = Bad, and 5 = Very bad) and intention of asking a new partner to do an HIV test (an ordinal variable with 5 levels: 1 = Very likely, 2 = Likely, 3 = Neither likely nor unlikely, 4 = Unlikely, and 5 = Very unlikely). Tables 9-10 present the analysis results of logistic regressions for determining if there was a relationship between social support and each of the dependent variables. The analysis results suggested that there was no statistically significant relationship between social support and perception of asking a new partner to do an HIV test ($p = 0.149$; Table 9). Furthermore, the 95% confidence intervals for the associated odds ratios contained 1, indicating the odds ratios were not statistically

significantly different from 1 *(OR* = 1.144, 95% *CI* = [0.953, 1.372]). However, there was a statistically significant relationship between social support and intention of asking a new partner to do an HIV test (*p* = 0.037; Table 10). In particular, participants with more social support were less likely to intend to ask a new partner to do an HIV test (*OR* = 1.195, 95% *CI* = [1.011, 1.413]).

Table 9

Results of Ordinal Logistic Regression (Dependent Variable = Perception of Asking a New Partner to Do an HIV Test)

				Hypothesis test				95% *CI* for *OR*	
Parameter		*B*	*SE*	*Wald*	*Df*	*p*	*OR*	Lower	Upper
Threshold	DV = 5.00	-3.315	0.4726	49.199	1	<0.001	0.036	0.014	0.092
	DV = 4.00	-2.391	0.3747	40.708	1	<0.001	0.092	0.044	0.191
	DV = 3.00	-0.955	0.3199	8.912	1	0.003	0.385	0.206	0.720
	DV = 2.00	-0.395	0.3138	1.589	1	0.208	0.673	0.364	1.245
Social support		0.134	0.0929	2.086	1	0.149	1.144	0.953	1.372

Note. (*n* = 298). Responses for dependent variable "Perception of asking a new partner to do an HIV test" were 1 = Very good, 2 = Good, 3 = Neutral, 4 = Bad, and 5 = Very bad. The logistic regression applied the cumulative link function to the dependent variable values in descending order (high (5 = very bad) to low (1 = very good)). D*V* = dependent variable; *B* = parameter estimate, *SE* = standard error, *Wald* = Wald chi-square statistic, *df* = degrees of freedom, *p* = p-value; *OR* = odds ratio; *CI* = confidence interval. The proportional odds assumption was satisfied ($\chi 2(3) = 11.070$, $p = 0.011$).

Table 10

Results of Ordinal Logistic Regression (Dependent Variable = Intention of Asking a New Partner to Do an HIV Test)

				Hypothesis test				95% *CI* for *OR*	
Parameter		*B*	*SE*	*Wald*	*df*	*p*	*OR*	Lower	Upper
Threshold	DV = 5.00	-1.987	0.3367	34.841	1	<0.001	0.137	0.071	0.265
	DV = 4.00	-1.575	0.3155	24.908	1	<0.001	0.207	0.112	0.384
	DV = 3.00	-0.555	0.2918	3.616	1	0.057	0.574	0.324	1.017
	DV = 2.00	0.127	0.2898	0.193	1	0.661	1.136	0.644	2.004
Social support		0.178	0.0855	4.341	1	0.037	1.195	1.011	1.413

Note. (*n* =298). Responses for dependent variable "Intention of asking a new partner to do an HIV test" were 1 = Very likely, 2 = Likely, 3 = Neither likely nor unlikely, 4 = Unlikely, and 5 = Very unlikely. The logistic regression applied the cumulative link function to the dependent variable values in descending order (high (5 = very unlikely) to low (1 = very likely)). DV = dependent variable; *B* = parameter estimate, *SE* = standard error, *Wald* = Wald chi-square statistic, *df* = degrees of freedom, *p* = p-value; *OR* = odds ratio; *CI* = confidence interval. The proportional odds assumption was satisfied ($\chi^2(3) = 3.204$, $p = 0.361$).

Analysis results for HIV testing history. HIV testing history was measured using 2 variables, including ever been tested for HIV (a categorical variable with 2 levels: yes vs. no) and number of times tested for HIV (a continuous variable). Tables 11 and 12 present the analysis results of logistic regression and Spearman's rank correlation coefficient for determining if there was a relationship between social support and each of the dependent variables. The analysis results indicated that there was no statistically significant relationship between social support and ever been tested for HIV ($p = 0.711$; Table 11). The 95% confidence intervals for the associated odds ratios contained 1, indicating the odds ratios were not statistically significantly different from 1 *(OR* = 0.950, 95% *CI* = [0.723, 1.248]). There was also no statistically significant relationship between social support and number of times tested for HIV ($p = 0.438$; Table 12).

Table 11

Results of Binary Logistic Regression (Dependent Variable = Ever Been Tested for HIV)

							95% *CI* for *OR*	
Parameter	*B*	*SE*	*Wald*	*df*	*p*	*Exp(B)*	Lower	Upper
Social support	-0.052	0.139	0.138	1	0.711	0.950	0.723	1.248
Constant	2.280	0.491	21.574	1	<0.001	9.781		

Note. (*n* = 298). The binary logistic regression was modeling the probability of ever been tested for HIV = "yes". *B* = parameter estimate, *SE* = standard error, *Wald* = Wald chi-square statistic, *df* = degrees of freedom, *p* = p-value; *OR* = odds ratio; *CI* = confidence interval.

Table 12

Spearman's Rank Correlation t Between Social Support and Number of Times Tested for HIV

	Number of times tested for HIV
Social support	0.048 (0.438)

Note. (*n* = 266). Number in parentheses is *p*-value.

Analysis Results for Research Question 2

Research question 2 asked: Is there an association between social support and HIV status among YTWC? The dependent variable for RQ2, the HIV status, was measured using two variables: results of most recent HIV test (a categorical variable with two levels: positive vs. negative) and confirmed HIV status (a categorical variable with two levels: confirmed positive/self-report positive vs. confirmed negative). The analysis results are presented in Tables 13 and 14. The analysis results indicated that there was no statistically significant relationship between social support and results of most recent HIV test ($p = 0.177$; $OR = 1.161$, 95% $CI = [0.935, 1.441]$; Table 13) and confirmed HIV status ($p = 0.110$; $OR = 1.181$, 95% $CI = [0.963, 1.447]$; Table 14). The 95% confidence

intervals for the associated odds ratios contained 1, indicating the odds ratios were not statistically significantly different from 1.

Table 13

Results of Binary Logistic Regression (Dependent Variable = Results of Most Recent HIV Test)

							95% *CI* for *OR*	
Parameter	*B*	*SE*	*Wald*	*df*	*p*	*Exp(B)*	Lower	Upper
Social support	0.149	0.110	1.821	1	0.177	1.161	0.935	1.441
Constant	0.811	0.367	4.896	1	0.027	2.250		

Note. (*n* = 298). The binary logistic regression was modeling the probability of results of most recent HIV test = "negative". *B* = parameter estimate, *SE* = standard error, *Wald* = Wald chi-square statistic, *df* = degrees of freedom, *p* = *p*-value; *OR* = odds ratio*; CI* = confidence interval.

Table 14

Results of Binary Logistic Regression (Dependent Variable = Confirmed HIV Status)

							95% *CI* for *OR*	
Parameter	*B*	*SE*	*Wald*	*df*	*p*	*Exp(B)*	Lower	Upper
Social support	0.166	0.104	2.559	1	0.110	1.181	0.963	1.447
Constant	0.747	0.342	4.757	1	0.029	2.110		

Note. (*n* = 298). The binary logistic regression was modeling the probability of confirmed HIV status = "confirmed negative". *B* = parameter estimate, *SE* = standard error, *Wald* = Wald chi-square statistic, *df* = degrees of freedom, *p* = *p*-value; *OR* = odds ratio; *CI* = confidence interval.

Analysis Results for Research Question 3

RQ3 asked: Does social support predict condom self-efficacy and use among YTWC? The dependent variable for RQ3, condom self-efficacy and use, was measured using two variables: perception of overall frequency of condom use (an ordinal variable with 5 levels: 1 = Very good, 2 = Good, 3 = Neutral, 4 = Bad, and 5 = Very bad) and ability to discuss safer sex with a new partner (a continuous variable ranging from 0 to 10, with higher scores indicating better ability to discuss safer sex with a new partner). The analysis results are presented in Tables 15 and 16. The analysis results indicated that there was no statistically significant relationship between social support and perception of overall frequency of condom use ($p = 0.715$; Table 15). Furthermore, the 95% confidence intervals for the associated odds ratios contained 1, indicating the odds ratios were not statistically significantly different from 1 *(OR* = 1.032, 95% *CI* = [0.871, 1.224]). However, there was a statistically significantly positive relationship between social support and ability to discuss safer sex with a new partner ($p < 0.001$; Table 16). The relationship between social support and ability to discuss safer sex with a new partner was considered weak according to Cohen (1988), absolute values of correlations: 0.10-0.29 indicated week relationships, 0.30-0.49 indicate moderate relationships, and ≥ 0.5 indicate strong relationships. Nonetheless, participants who had more social support reported a better ability to discuss safer sex with a new partner.

Table 15

Results of Ordinal Logistic Regression (Dependent Variable = Perception of Overall Frequency of Condom Use)

				Hypothesis test				95% *CI* for *OR*	
Parameter		*B*	*SE*	*Wald*	*df*	*p*	*OR*	Lower	Upper
Threshold	DV = 5.00	-2.701	0.3705	53.152	1	<0.001	0.067	0.032	0.139
	DV = 4.00	-2.331	0.3472	45.068	1	<0.001	0.097	0.049	0.192
	DV = 3.00	-1.337	0.3130	18.233	1	<0.001	0.263	0.142	0.485
	DV = 2.00	-0.488	0.3019	2.609	1	0.106	0.614	0.340	1.110
Social support		0.032	0.0869	0.133	1	0.715	1.032	0.871	1.224

Note. (*n* = 298). Responses for dependent variable "Perception of overall frequency of condom use" were 1 = Very good, 2 = Good, 3 = Neutral, 4 = Bad, and 5 = Very bad. The logistic regression applied the cumulative link function to the dependent variable values in descending order (high (5 = very bad) to low (1 = very good)). DV = dependent variable; *B* = parameter estimate, *SE* = standard error, *Wald* = Wald chi-square statistic, *df* = degrees of freedom, *p* = p-value; *OR* = odds ratio; *CI* = confidence interval. The proportional odds assumption was satisfied ($\chi^2(3) = 2.435$, $p = 0.487$).

Table 16

Spearman's Rank Correlation Between Social Support and Ability to Discuss Safer Sex with a New Partner

	Ability to discuss safer sex with a new partner
Social support	0.227 (<0.001)

Note. (*n* = 298). Number in parentheses is *p*-value.

Summary

Table 17 summarizes the analysis results of the three research questions. For RQ1, there was a statistically significant relationship between social support and HIV testing communication, in terms of intention of asking a new partner to do an HIV test. In particular, participants with more social support were less likely to intend to ask a new partner to do an HIV test. There was no statistically significant relationship between HIV testing communication, in terms of perception of asking a new partner to do an HIV test. There was no statistically significant relationship between social support and drug use history, in terms of illicit drug use, poly illicit drug use, drug use during sex, and frequency of drug use before sex. There was no statistically significant relationship between social support and HIV testing history, in terms of ever been tested for HIV and number of times tested for HIV.

For RQ2, the analysis results suggested that there was no statistically significant relationship between social support and HIV status, in terms of results of most recent HIV test and confirmed HIV status.

For RQ3, the analysis results suggested that there was no statistically significant relationship between social support and condom self-efficacy and use, in terms of perception of overall frequency of condom use. However, there was a statistically significantly positive relationship between social support and condom self-efficacy and use, in terms of ability to discuss safer sex with a new partner. In particular, participants who had more social support would have better ability to discuss safer sex with a new partner.

Table 17

Summary of Statistical Analyses

	Dependent variable		Analysis performed	Results
RQ1	Drug use history	Illicit drug use	Binary logistic regression	Not significant
		Poly illicit drug use	Binary logistic regression	Not significant
		Drug use during sex	Binary logistic regression	Not significant
		Frequency of drug use before sex	Ordinal logistic regression	Not significant
	HIV testing communication	Perception of asking a new partner to do an HIV test	Ordinal logistic regression	Not significant
		Intention of asking a new partner to do an HIV test	Ordinal logistic regression	Significant
	HIV testing history	Ever been tested for HIV	Binary logistic regression	Not significant
		Number of times tested for HIV	Spearman's rank correlation	Not significant
RQ2	HIV status	Results of most recent HIV test	Binary logistic regression	Not significant
		Confirmed HIV status	Binary logistic regression	Not significant
RQ3	Condom self-efficacy and use	Perception of overall frequency of condom use	Ordinal logistic regression	Not significant
		Ability to discuss safer sex with a new partner	Spearman's rank correlation	Significant

Section 4 will discuss the interpretation of the results as related to the broader body of literature, theoretical framework, and recommendations. The next section will focus attention on the core outcomes related to social change recommendations for YTWC residing in Chicago. Recommendations are discussed for increasing the capacity of the overall HIV service sector to increase prevention, healthcare and advocacy, and policy work for YTWC in order to improve social conditions and health outcomes of the population. In the next chapter, the interpretation of findings, recommendations, and implications for social change are examined.

Section 4: Application to Professional Practice and Implications for Social Change

Introduction

The purpose of this study was to examine the association between social support and HIV preventive behaviors, condom self-efficacy, and HIV status with YTWC. HIV preventive behaviors were defined as three preventive options (drug use history, HIV testing communication, and HIV testing history) among YTWC. Results from the binary and ordinal logistic regression analyses showed that there was no association between social support and drug use history and HIV status. Results from binary logistic regression analysis and Spearman's rank correlation were not significant for HIV testing history. Ordinal regression analyses were conducted and showed no association for HIV testing communication and perception of overall frequency of condom use. However, a statistically significantly negative association was found between social support and the intention of asking a new partner to do an HIV test ($p = 0.037$). Participants with more social support were less likely to intend to ask a new partner to do an HIV test ($OR = 1.195$, 95% $CI = [1.011, 1,413]$). Lastly, using the Spearman's rank correlation it was shown that there was a statistically significant positive association between social support and the ability to discuss safer sex with a new partner ($r_s = 0.227$, $p < 0.001$). In this chapter, I examine the interpretations of findings, the limitations of the study, recommendations for further research, and implications for social change.

This study was designed to assess secondary data from Chicago as there is an emerging YTWC HIV population there with numbers of infected individuals ranging from 28%-56% but limited supportive epidemiological data within the local health

department. Garofalo et al., (2012) have been conducting innovative research as well as serving the population of interest. Few resources are available for the population. The sample of this study included 298 YTWC collected from baseline data, as this group of participants did not participate in the actual study and did not receive the intervention services offered through the Life Skills project (HIV prevention program).

The sample size of 298 was adequate compared to the number of the overall population. The transgender population represents only 1%-2% of the population. G*Power3 was used to determine that a sample size of at least 68 was needed to obtain sufficient power. I used logistic regression and Spearman's rank correlation analyses to look at relationships between the independent and dependent factors (Bewick et al., 2003). I used the binary and ordinal regression methods to model the relationship between the ordinal outcome variable including four variables for drug use history, two variables for HIV testing communication, one variable for condom-self-efficacy, and the independent variable, social support. I used Spearman's rank correlations to assess the relationships between variables that are not normally distributed (one variable for HIV testing history, one variable for condom self-efficacy) and social support without making any assumptions about the frequency distribution of the variables. In the Spearman's rank correlation analysis, the data are converted to ranks prior to calculating the coefficient (Hauke & Kossowski, 2011).

Interpretation of the Findings

Disadvantageous Social-Economic Status

A total of 298 MTF transgender participants with an average age of 21.5 (*SD* = 7.2) were a part of the study. Over half of participants (52.3%) were African American. A majority of the sample reported financial hardship, living on less than $10,000 a year (73.6%) and were unemployed (73.6%). About 60% (58.9%) had only a high school diploma/GED or less, and over a third of the participants (32.7%) had been incarcerated. The demographics of the transgender women in this study are consistent with other transgender literature, where transgender women were found to be less educated (41%-71% with high school diploma/GED or less; Antebi-Gruszka, Millar, Cain, & Gurung, 2018; Baguso et al., 2019; Brennan et al., 2012; Holder, Perez-Gilbe, Fajardo, Garcia, & Cyrus, 2019; Jin et al., 2019; Parsons, Antebi-Gruszka, Millar, Cain & Gurung; Shan et al., 2018;), experience poverty (26%-80% with low income; Chung, Anand, Sprague & Campbell, 2016; Holder et al., 2019; Jin et al., 2019; Parsons et al., 2018; Shan et al., 2018), have history of incarceration (35%-52% with history of incarceration; Brennan et al., 2012; Bukowski, et al., 2018; Chung et al., 2016), and be unemployed (12%-75% with unemployment; Brennan et al., 2012; Jin et al., 2019; Shan et al., 2018). Furthermore, several studies had shown the social-economic disparities when transgender individuals were compared to the general population (Crissman, Berger, Graham & Dalton, 2017; Reisner, Deutch, Basin et al., 2016; Schneider, 2010; Xavier, 2006) and when transgender minorities were compared to white transgender individuals (Crissman

et al., 2017; Erich, Tittsworth, Meier, and Lerman, 2010; Ezell, Ferreira, Duncan, & Schneider, 2018).

The high prevalence of transgender women with disadvantageous social-economic status in the study may, in part, be explained by antitransgender discrimination based on gender presentation (Baguso et al., 2019; Jin et al., 2019). For example, lower income levels among YTWC were found to be associated with greater odds of being subjected to discrimination (Bradford, Reisner, Honnold and Xavier (2013). In comparison to white trans women with higher income and levels of education, essential services, access to care, and psychosocial support may be significantly more challenging both economically and geographically for YTWC to access (Ezell et al., 2018). Nonetheless, these systematic barriers commonly faced by young transgender women (i.e., lack of access to education, financial hardship, incarceration, and unemployment) could potentiate HIV transmission rates and lead to suboptimal access to HIV care (Bukowski et al., 2018; Jin et al., 2019). Policies that promote access to better socioeconomic status, such as GED programs, job training programs, and housing programs for transgender women may mitigate high-risk behaviors, and for those who are living with HIV, may be a facilitator to HIV care (Jin et al., 2019; Neumann, Finlayson, Pitts & Keatley, 2017). In the next section, HIV prevalence for YTWC is discussed.

HIV Prevalence for Young Transgender Women of Color

In this study, according to the results of the most recent HIV tests, the HIV prevalence rate was 21.1% for the study participants. Furthermore, with 18.5% self-reporting positive at baseline, this implies that around 3% were newly tested HIV

positive. The HIV prevalence rate of the YTCW in this study is comparable with past transgender women research, where the HIV prevalence rates ranged from 13% to 45% (*N* ranged from 60 to 2,136; Brennan et al., 2012; Bukowski et al., 2018; Dlamini, 2009; Holder et al., 2019; Jin et al., 2019; Johnson, Parsons et al., 2018; Poteat et al., 2016; Reback & Fletcher, 2014; Reisner, Mimiaga, Garofalo, & Kuhns, 2018). Transgender women experience a high burden of HIV in the United States (Bukowski et al., 2018) and were almost 50 times more likely to be HIV positive over the general population (Jin et al., 2019; Poteat et al., 2016; Reback & Fletcher, 2014). Moreover, recent studies have shown that YTWC have higher HIV prevalence than any other population, such as MSM and the general population (Baguso et al., 2019; Ezell et al., 2018; Neumann et al., 2017). The higher HIV prevalence rates in transgender women, especially those who are racial and/or ethnic minorities, may reflect the impact of society's marginalization of transgender women (Holder et al., 2019), as evidenced by lower education attainment, poverty, incarceration, and unemployment that may be due in part to the risk behaviors (Brennan et al., 2012; Shan et al., 2018) such as substance use, drug use during sex, and condomless sex, which will be discussed in the next section.

HIV Risk Behaviors

A unique risk behavior of HIV among transgender women was the high rate of substance use (Shan et al., 2018). In this study, nearly 40% of the YTWC (39.1%) reported that they had used an illicit drug, and about one-fourth of the participants (24.5%) had used more than one illicit drug. These findings are consistent with the findings in previous research, where rates of substance use for transgender women

between 6% and 66% were reported (Baguso et al., 2019; Jin et al., 2019; Neumann et al., 2017; Parsons et al., 2018; Reback & Fletcher, 2014; Shan et al., 2018). The common substance use for this YTWC may be to cope with gender dysphoria, stress, anxiety, stigma, discrimination, and other hardships associated with their gender presentation (Neumann et al., 2017; Reback & Fletcher, 2014).

In addition to the evidence indicating that substance use was common, sexual intercourse under the influence of drugs or alcohol was also highly prevalent in the study participants, with 42.5% (17 out of 40) reporting that they had sexual intercourse under the influence of drugs or alcohol at least once. This finding was similar to what was reported in the systematic review conducted by Neumann et al., (2017), where approximately 39% of transgender women had had sex while drunk or high. This finding was, however, much lower than what was discovered in Shan et al. (2018), where a high proportion (85.4%) of the 200 transgender women who reported using drugs (total N = 498) had done so during intercourse.

Drug and alcohol use may play a role in acquiring or transmitting HIV infection by compromising cognitive or behavioral abilities to use condoms (Nuttbrock et al., 2013; Reback & Fletcher, 2014) and undermining the will or ability to negotiate safer sexual practices (Neumann et al., 2017; Shan et al., 2018). Although risky sexual behaviors were not defined consistently across the various studies, a vast majority of transgender women (22%-59%) could not consistently use condoms with their stable or causal partners (Brennan et al., 2012; Holder et al., 2019; Jin et al., 2019; Johnson et al.; 2018; Neumann et al., 2017).

Although this study did not measure prevalence of condomless sex directly, the study investigated participants' perception of overall frequency of condom use and ability to discuss safer sex with a new partner. Almost two-thirds of the participants (64.3%) believed that it would be very good if they and their partner(s) always use condoms during sexual intercourse and participants believed that they had great ability to discuss safer sex with a new partner, in terms of asking a new partner to use condoms. However, notably 8.1% thought it would be bad or very bad to use condoms during sexual intercourse, and another 11% did not have any preferences regarding condom use during sexual intercourse. Transgender women may forgo condoms during sexual intercourse because they are less knowledgeable of their HIV status (Holder et al., 2019) or they try to affirm their gender identity (Neumann et al., 2017). Unprotected receptive anal intercourse among young transgender women could place them at risk for both acquiring and transmitting HIV infection (Brennan et al., 2012). Therefore, future HIV routine outreach intervention programs for transgender women should focus on encouraging their consistent condom use during sexual intercourse. In the next section, HIV test communication and testing history will be discussed.

HIV Test Communication and Testing History

In this study, it was found that nearly 80% of the participants (79.8%) indicated that it would be good or very good to ask their sex partner(s) to get a test to check whether they have HIV. Furthermore, over 75% of the participants (75.1%) indicated that they were likely or very likely to ask their sex partner(s) to get an HIV test to check whether they have HIV. Also, majority of the participants (89.2%) indicated that they had

been tested for HIV. These results are similar to the findings in Brennan et al., (2012) and may indicate that YTWC is a population with higher awareness of HIV risk and a higher willingness to get tested (Holder et al., 2019).

Despite the relatively high rates of HIV testing, it should be noted that 10.8% of the YTWC had indicated that they have never been tested for HIV. This presents a possibly missed opportunity in HIV prevention efforts and a lack of adherence to currently recommended clinical guidelines for comprehensive medical care for the transgender population (Johnson et al., 2018). One possible explanation is the hesitation to obtain a HIV test may be that the YTWC may feel their HIV infection is inevitable and fear they might receive a stigmatized diagnosis which would lead to additional stigmatizing health care and discrimination (Bukowski et al., 2018). Studies have indicated that discrimination among transgender women may contribute to the worsening of their gender transition due to low social support, and lead to the vulnerability of HIV-related risk behaviors (Shan et al., 2018). In the next section, social support and its association with HIV preventive behaviors, HIV status, and condom self-efficacy among YTWC will be discussed.

Social Support and Its Association With HIV Preventive Behaviors (Research Question 1), HIV Status (Research Question 2), and Condom Self-Efficacy (Research Question 3) Among Young Transgender Women of Color

In this study, participants were found to have moderate levels of social support, with less support from family and more support from significant other and friends (Overall mean = 3.18; The sub-scale means were 3.14 for significant other, 2.86 for

family, and 3.54 for friends). These findings are similar to earlier research such as Bockting, et al., (2005); Garofalo et al., (2006); Grossman & D'Augelli (2007; Rodriguez-Madera and Toro-Alfonso (2005), and Russell, Huebner, Diaz, and Sanchez (2010), where limited familial support and isolation for transgender women were reported. YTWC are in the transition from early adolescence to young adulthood, and may struggle to develop a coherent sense of self while feeling shame about their identities, experiencing pressures to conform to familial, peer, and gender norms, and hiding their true feelings to avoid rejection and discrimination (Brennan et al., 2012). Instead of support and understanding from family, friends, and other adults, transgender women often experience social rejection and marginalization, which often result in negative consequences, such as poverty, unemployment, lower education attainment, incarceration, and substance use, as evidenced by the findings of this study.

Literature have suggested that the marginalization experienced by YTWC may result in less access to social support and limiting an individual's ability to utilize HIV prevention options (Brennan et al., 2012; Neumann et al., 2017) and hence contributes to higher likelihood of HIV infection (Bukowski et al., 2018; Jin et al., 2019; Shan et al., 2018). Research also suggests that individuals are able to conduct behavior change, increase self-esteem, develop self-care behaviors, and have better health outcomes (both mentally and physically) if they have adequate social support from family and other social networks (Gielen, McDonnell, Wu, O'Campo & Hansen, 1996; Heaney & Israel, 2008; Miller & DiMatteo, 2013; Mosack et al., 2016; Stevens, O'Campo & Faden, 2001; Trejos-Herrera, Bahamón, Alarcón-Vásquez, Vélez, & Vinaccia, 2018; Waite, 1995). It is

important to examine social support and its association with HIV preventive behaviors, HIV status, and condom self-efficacy among YTWC (Bukowski et al., 2018). In this study, Spearman's rank correlation and logistic regression (binary and ordinal) analyses were performed to examine the association between social support and, HIV preventive behaviors (drug use history, HIV testing communication, and HIV testing history) (RQ1), HIV status (RQ2), and condom self-efficacy (RQ3). Results are interpreted for each of the research questions below.

Research Question 1: Social Support and HIV Preventive Behaviors

RQ1 of this study examined if there was a relationship between social support and HIV preventive behaviors, including drug use history, HIV testing communication, and HIV testing history.

Social support and drug use. The study found no statistically significant relationship between social support and drug use history, in terms of illicit drug use, poly illicit drug use, drug use during sex, and frequency of drug use before sex. This finding contradicts assertions from Botvin and Griffin (2011) and Nuttbrock et al., (2013) indicating that social influences from peers may increase the likelihood of drug use, especially when it is at a point of experimentation in young adult life. This may be because participants in this study seemed to receive more support from friends (M = 3.54), followed by significant other (M = 3.14) and family (M = 2.86). Researchers have found having strong social ties, marriage and a significant other can promote positive health behaviors, as a significant other can monitor, regulate and facilitate behaviors for medical and treatment adherence and use of preventive options (Waite, 1995). For

example, a spouse may inhibit, regulate, or facilitate health behaviors in ways that promote a partner's health (Waite, 1995). Therefore, the social influences from peers on drug use may be canceled out by the support from significant others, and hence in this study, it was found that there was no statistically significant relationship between social support and drug use.

Social support and HIV testing communication. The analysis results of this study revealed that the perception of asking a new partner to do an HIV test was not statistically significantly associated with social support. On the other hand, the intention of asking a new partner to do an HIV test was significantly associated with social support. In particular, the study found that with more social support YTWC were less likely to intend to ask a new partner to do an HIV test.

Several decades of research suggest that partners in primary partnerships may identify themselves as having lower possibilities for HIV and other STIs, particularly if they consider themselves to be in a mutually monogamous partnership (Hoff, Beougher, Chakravarty, Darbes, & Neilands, 2010). For HIV testing to occur, there must be a perceived and elevated risk of HIV transmission (Bowers, Branson, Fletcher & Reback, 2011). Furthermore, it has been demonstrated that when one partner is having sex outside of a relationship and the risk for HIV/STI is elevated, HIV testing may be more of an urgency for partners to discuss and act upon (Sullivan, Salazar, Buchbinder & Sanchez, 2009). In this study, participants demonstrated moderate levels of support for significant others, which may be an indication that the YTWC had moderately close relationships with their partners and hence may regard themselves as having lower risk for HIV/STI.

The nature and strength of social relationships predict HIV testing negotiation and the intention of sharing HIV testing results crossing experiment (Dyson, Mobley, Harris & Randolph, 2018). This relationship may explain the findings of this study that YTWC with more social support were less likely to intend to ask a new partner to do an HIV test. Nonetheless, social support may improve empowerment in YTWC, facilitating self-preservation and health responsibility (Mena & Vaccaro, 2017). In the next section, the results of the investigation of association between social support and HIV testing history were presented.

Social support and HIV testing history. In this study, it was found that there was no statistically significant relationship between social support and HIV testing history, in terms of ever been tested for HIV and the number of times tested for HIV. The findings were different from previous research, where social support has been demonstrated to have a positive and robust association with HIV testing (Scott, et al., 2014; Sevelius, Patouhas, Keatley, & Johnson, 2013). Findings of this study could imply that the complex and competing factors behind social support (e.g., life stressors and other factors that were not examined in this study) might not lead the participants to seek out HIV testing. For example, in addition to social support, Scott et al. (2014) have shown that stigma of racism and homophobia was also associated with delayed HIV testing among young African American MSM. The research presented provides the practical needs for identifying the factors facilitating HIV testing for YTWC. Efforts to improve HIV testing for YTWC and increase the quality of care need to consider the

complexities of the social systems that directly impact this specific population (Moodley & Kagee, 2017).

Research Question 2: Social Support and HIV Status

RQ2 of this study examined if there was a relationship between social support and HIV status, in terms of result of the most recent HIV test (self-report of HIV status) and the confirmed HIV test results. It was found that there was no statistically significant relationship between social support and HIV status, in terms of results of the most recent HIV test and confirmed HIV status. Transgender women were more likely to be HIV positive than any other population (Ezell et al., 2018; Poteat et al., 2016).

Studies have found that social support protects YTWC with HIV against negative stressors and is a catalyst for disclosure and enhances medical and treatment adherence (Galvan, Davis, Banks, and Bing, 2008; Moodley & Kagee, 2017). Research by Gore-Felton et al. (2002) established that individuals who live with debilitating conditions such as HIV/AIDS but have a secure social network have a more enhanced quality of life, stay more medically adherent to HIV treatment, and have a better prognosis. Having social support for individuals that are HIV positive allows individuals to come to terms with the illness and deal with the isolation, stigma, and trauma of living with HIV (Gore-Felton et al., 2002). Although social support was not found to be significantly related to HIV status in this study, the practice of social integration may still play an important role during the process of reconnecting YTWC that are HIV positive with their community.

Research Question 3: Condom Self-Efficacy and Social Support

The final research question of this study explored the relationship between social support and condom self-efficacy of YTWC. The results suggested that there was no statistically significant relationship between social support and condom self-efficacy and use, in terms of perception of the overall frequency of condom use. However, there was a significant association between social support and condom self-efficacy, in terms of ability to discuss safer sex with a new partner. In particular, participants who had more social support would have better ability to discuss safer sex with a new partner. This finding agreed with the findings from past research, where social support was found to be positively associated with condom self-efficacy (Meekers & Klein, 2002; Ryan, Russell, Huebner, Diaz, & Sanchez, 2010; Wulfert & Wan, 1995). Young women are generally regarded as having a disadvantage about condom efficacy (Meekers & Klein, 2002). Researchers reported, "if a woman wants to use male condoms, she must get her partner to use them" (Harvey & Bird, 2004, p. 2). As discussed in the earlier section, transgender women tend to have unprotected sex in order to affirm their gender identity (Neumann et al., 2017), and unprotected intercourse among young transgender women place them at risk for both acquiring and transmitting HIV infection (Brennan et al., 2012). The finding of this study suggests that social support could serve as the main driver that promotes condom self-efficacy as a health preventive behavior to prevent HIV infection and achieve better health outcomes (Ryan et al., 2010).

Interpretation of Findings According to the Theoretical Framework

The modified socio-ecological model (MSEM) substantially aligns with this current research and is a useful theory that defined the barriers across various levels that impact the HIV risk for YTWC. The literature review shows that YTWC are dealing with multiple systems as well as personal social systems (Harrison-Quintana et al., 2011). Barriers identified through previous research that impacted YTWC included employment, housing, education, incarceration, stigma, violence, and discrimination as well as lack of social support (Garofalo et al., 2006; Poteat et al., 2016). The modified social-ecological theory has a multifaceted approach and is relevant to HIV and these factors that can help facilitate a climate of health inequities and injustices that occur among YTWC. Historically most prevention programs and interventions have had a focus on changing individual behavior, but the social-ecological theory focuses on the interplay between multiple systems and behavior needed for YTWC (DiClemente, et al., 2013).

This study identified that YTWC received moderate levels of social support from family, friends, and significant others. However, the study findings suggested a lack of associations between social support and drug use history, HIV testing history and HIV status. Though, in this study condom self-efficacy and HIV testing communication were identified as having some significant associations with social support. As such, the mixed findings of social support and HIV preventive behaviors, HIV status and condom self-efficacy in this research suggest that social support may not be enough to counter the multiple factors and barriers that are challenges for YTWC. YTWC live within the intersections of discrimination, isolation, stigma, and being transgender women (Meyer,

2008). As discrimination, stigma, violence and depression have been shown in public health to be pervasive, social support may not provide enough protective factors against the different levels of life stressors for YTWC.

The modified social ecological theory indicates that various levels of life events and stressors are a part of the YTWC life and their ability to cope and accept prevention options. Qualitative research indicated that social support could have both positive and negative outcomes in medication adherence for diabetes (Miller & DiMatteo, 2013). Research shows that YTWC have a very complex social support network and it needs to be measured at different levels and examined through various analysis at different levels of the MSEM to identify true relationships and significant results (Ezell et al., 2018).

Limitations of the Study

For the first time, a large sample of data regarding the YTWC transgender community was available for analysis. The research demonstrates the multiple issues and concerns specific to the YTWC community and focus on the particular challenges and barriers of the community. Structural factors such as racial and social segregation that are fundamental causes of health outcomes were not studied as an association with social support. The data measured represents the complexities of the population in showing both positive and negative associations for drug use history, HIV testing history, and HIV status. However, the issues of selection and memory bias are significant. The researcher had no access to the respondents and had no ability to select instruments or coding of data. These limitations had some impact on the ability to conduct analysis and demonstrate significant findings. The results reported here may not reflect the health and

well-being of the entire YTWC community, but they do provide a snapshot of experiences of young African American, MTF transgender residing in urban cities. Therefore, the results of this study cannot be generalized to a larger population.

Additionally, it is also possible that the level of social support and adoption of prevention behaviors reported in this sample of YTWC recruited from HIV service organizations may differ significantly from YTWC who do not access such services. The sample may overrepresent those who have the desire and means to seek out services for their HIV and thus may experience relatively lesser stigma than individuals who do not access such organizations.

Further limitations should be considered when evaluating the results of the current analysis. Due to errors in participant memory, self-report of condom use, drug use, and HIV preventive behavior may be less accurate than other measures. For this reason, participants were asked only about recent preventive behavior (i.e., within the past four months). Those who report a low frequency of sexual risk behaviors may over-report them and those who report a high frequency of sexual risk behaviors may under-report them (Schroder, Carey, & Vanable, 2003), indicating possible bias in reporting among both groups.

Participant memory and reporting bias could have influenced the reported association between social support and HIV preventive behaviors and condom self-efficacy in either direction. Avenues to minimize social desirability and recall reporting bias was created in the research design with shorter recall periods and validation of the study instruments. Also, the 33-item Marlowe-Crowne Social Desirability Scale

(MCSDS) in which the participant responds true or false to a set of socially desirable but unbelievable statements (Crown & Marlowe, 1960) was used to determine the impact on the findings. The MCSDS helped in measuring whether the participants responded truthfully or if they were distorting themselves to manage their own personal presentation. Social desirability was relevant as it was used to assist in predicting whether or not participants were answering the questions how they thought researchers perceived they would answer or answered truthfully. Finally, the study utilized bivariate analyses to determine the relationship between social support and HIV preventive behaviors, HIV status and condom self-efficacy. Identifying other variables such as depression, coping self-efficacy, stigma, and discrimination could also be associated with the acceptance of prevention options, HIV testing and condom self-efficacy. Therefore, to fully understand the relationship between social support and health outcomes for YTWC, additional factors should be considered simultaneously.

Recommendations

This study provided evidence that social support was associated with two positive HIV preventive behaviors - intention of asking a new partner to do an HIV test and ability to discuss safer sex with a new partner. However, the results were not statistically significant for other factors such as drug use and HIV testing history. One recommendation would be to repeat the study with different racial minorities and with an older population, as most studies found during the review of existing literature were inclusive of all races and youth. This recommendation is made because of the additional disparities, access to health care, and health inequities compounded by race that are

significantly associated with HIV preventive behaviors (Brondolo, Gallo, & Myers, 2009).

Future research might consider mixed methods and longitudinal designs to recruit individuals when they first contact a health care provider and follow those individuals as they advance through their transition. The transition for YTWC has different and varying levels and stages where social support would be crucial. Data collection would need to be done with focus groups and detailed individual interviews, which would help evaluate the relationship between social support of friends, family, and a significant other at various age levels. Recruitment could include YTWC who seek or have access to a physician, hormonal therapy, or HIV medication and can exclude those who identify as transgender but who do not seek medical treatment.

Analyses found that those who receive social support have better prevention behaviors than those who do not, but we do not know the number of YTWC who desire care and have not been able to obtain it or those who anticipate receiving care in the future. Many YTWC may not seek care due to the stigma and discrimination they receive from providers. A complete understanding of this community should include a qualitative investigation of social support. Detailed individual and group interviews are essential for the generation of research tools specific to the YTWC population. Future research projects should begin by organizing focus groups of YTWC of different ages and identities to evaluate various demographic factors (age, race, educational level, and annual income) within the population for social support tools and coping strategies.

Social support should also be included in the design of tailored, population-specific safer-sex health prevention programs for transgender women of color.

Implications for Professional Practice and Social Change

The findings of this research mean that for YTWC, support from family, significant others, and friends could be used as a predictor for preventive health behaviors, but social support did not influence drug use, HIV testing history, and HIV status experiences. This finding was also counterintuitive—a possible explanation is that family support may lead to higher self-esteem and confidence, that enhances increased utilization of HIV preventive behaviors. Both family and parental support have been found to predict HIV preventive behaviors in YTWC although this study only found moderate levels of social support. Family support was highly correlated with higher self-esteem, sexual self-efficacy, and late onset of sexual activity for transgender youth (Stotzer, Ka'opua, & Diaz, 2014). However, family and social support were not related to the number of sexual partners, drug use behaviors, incarceration, and trading sex for drugs (Qiao, Li & Stanton, 2014). Support from a significant other was found in public health research to be essential to promoting HIV preventive behaviors (Waite, 1995).

The primary recommendation is for the Lifeskills program (Garofalo et al., 2012) to be replicated across the country to enhance HIV prevention knowledge, increase self-esteem, and self-efficacy amongst transgender people in America. However, the Life Skills program should also be enhanced with social support skills building such as resiliency, self-management and responsible decision-making skills because multiple

studies have shown the importance of social support in relation to positive health outcomes for YTWC (Ezell et al., 2018).

Two positive HIV preventive behaviors were identified in this study that provided evidence that social support was significantly connected with the intention of asking a new partner to do an HIV test and ability to discuss safer sex with a new partner. Healthcare and community-based providers could potentially serve as a source of social support to improve healthcare outcomes and improvement of these preventive behaviors in YTWC.

In the past decade, there have been significant developments in the association between social support and healthcare access and outcomes. Studies indicate that YTWC experience disproportionate economic marginalization, stigma, and discrimination in healthcare (Baral, Poteat et al., 2013). Social change is warranted to address the systemic barriers that plague this community of YTWC and to enhance the human rights of this population (Trans Gender Law Center, 2016). Social support is a vehicle that aids in securing and guarding individuals against traumatic events. For YTWC, social support can provide the psychological resources and coping strategies for them to have the ability to combat the many challenges they face. Social support can increase self-empowerment and advocacy skills and provide the skills for YTWC to make better decisions about their health outcomes.

Social support has been proposed as a means of improving the reliability of the adoption of prevention behaviors. Therefore, the social change recommendation for practice are to incorporate more social support services anti-stigma/racism programs, and

cultural responsiveness training on transgender health for health care providers. Healthcare providers can represent the first line of defense by offering a cohesive, coordinated approach to limit risk factors and share preventive options to reduce the likelihood of HIV transmission among YTWC. More importantly is that YTWC needs leadership skills, advocacy training, and need to be a part of the implementation of HIV prevention programs to help diminish HIV transmission rates.

Conclusion

This study examined whether social support can impact HIV preventive behaviors to decrease and improve HIV preventive behaviors and HIV status. Researchers have found that transgender women often do not access health care due to discrimination (Jaffee, Shires & Stroumsa, 2016). Using secondary data from the Life Skills HIV study, this research sought to assess how social support affects HIV preventive behaviors among YTWC. While this goal was achieved, not all the data supported a positive association between perceived social support and HIV preventive behaviors. However, this study raised critical concerns about what components should be an integral part of prevention programs. Social support was negatively correlated with all of the preventive options except for HIV testing communication and condom efficacy. These results indicate that there might be other variables that can explain these associations. This study has filled that gap in the literature with the collection of data through the lens of YTWC self-assessments of preventive behaviors including drug use history, HIV testing communication and history, HIV status, and condom self-efficacy. Nonetheless, further research on this topic, and specifically in this population, is still needed.

There are still too few interventions that have been developed that are culturally sensitive to the unique HIV prevention and treatment needs of YTWC, and extant interventions do not focus on the multitude of factors that promote heightened risk in this population. This study indicates that more studies should focus on social support as a factor in promotion of health behaviors not only with YTWC but with other hard to reach and disproportionate populations impacted by HIV. Specifically, this study found that social support can impact two preventive behaviors among YTWC: (1) HIV testing communication in terms of intention of asking a new partner to do an HIV test; and (2) condom self-efficacy and use in terms of ability to discuss safer sex with a new partner. It is therefore critical that public health programs and other medical care professionals make sure that social support is included in HIV/AIDS prevention and care programs.

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Appendix A
Permission to Reprint

January 24, 2020

Dr. Stefan Baral
Associate Professor, Department of Epidemiology
Bloomberg School of Public Health

Dear Dr., Baral:

I am completing a doctoral dissertation at Walden University entitled " Social Support and HIV Among Young Transwomen of Color." I would like your permission to reprint a copy of your Figure modified socio-ecological model in my dissertation from the following:

Baral, S., C.H. Logie, A. Grosso, A.L. Wirtz, and C. Beyrer, *Modified social ecological model: a tool to guide the assessment of the risks and risk contexts of HIV epidemics.* BMC Public Health, 2013. **13**: p. 482.

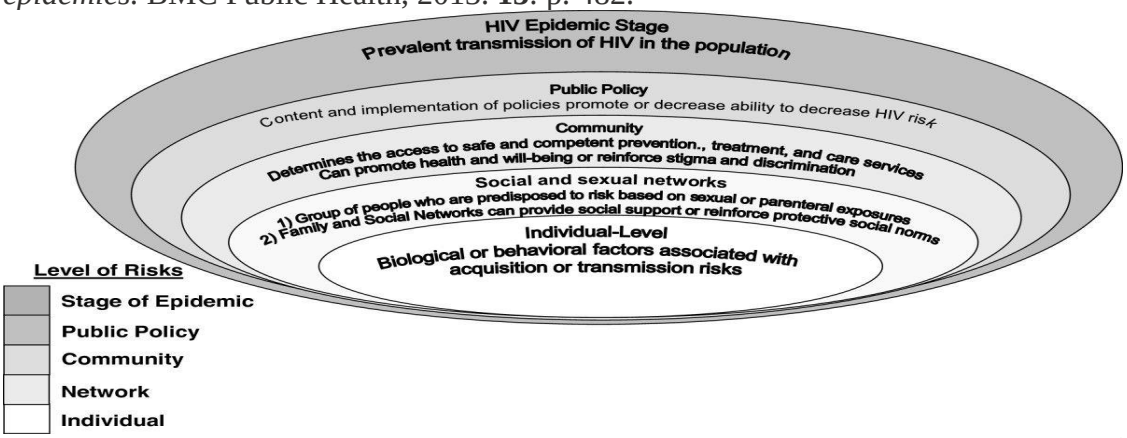

Figure 1. Modified social-ecological model (Baral, Logie, Grosso, et al. (2013, p.482).[1]

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Jan 26, 2020

Dr. Stefan Baral
Associate Professor, Department of Epidemiology
Bloomberg School of Public Health

Date