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HIV Knowledge and Sexual Risk Taking Among Young Transgender Women
in Chicago and Boston

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2009

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An abstract of
a thesis submitted to the Faculty of
the Rollins School of Public Health of Emory University
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Abstract

HIV Knowledge and Sexual Risk Taking Amongst Young Transgender Women in Chicago and Boston

Purpose: The fundamental aim of this analysis is to investigate the association between HIV knowledge and sexual risk taking, as affected by social stress, among young transgender women (YTW) aged 16-29.

Methods: These data were collected via in-person surveys. A total of 300 YTW ages 16-29 were recruited through multiple convenience and referral-based sampling techniques and were enrolled over a period of 36 months. Due to three incomplete surveys, this analysis examines data from a sample of n=297 YTW. Two outcomes were modeled using multivariate regression: HIV knowledge and sexual risk taking. Models controlled for age, race/ethnicity, and education.

Results: Almost all participants (95%) believed that condom use can prevent HIV and STIs. However, only 17% of sexually active participants who believed this also reported using condoms consistently. Just over one-third of all participants (34%) perceived that they were likely at risk for HIV infection, and 86% agreed that having multiple sexual partners is a risk factor for HIV. Furthermore, more than half (53%) of sexually active participants reported having multiple sex partners in the past 3 months. Only 23% of these participants reported consistent condom use during that time.

Conclusion: The significant gaps in the literature addressing transgender health include the association between HIV knowledge and sexual risk taking. The strong association between these factors, as affected by social stress, demonstrates a need for more research. There is an urgent need for programs and interventions to reduce risky sexual behaviors among YTW.

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in memoriam clients of Team 1 and Team 9 as well as those enrolled in TRIOS (TRansforming Inpatient to Outpatient Success) and the PATH (Partners in AIDS Treatment and Health) Program. I will forever carry your hope and perseverance.

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Author's Note: The term LGBT (lesbian, gay, bisexual, transgendered) has emerged as an umbrella term for persons expressing non-heterosexual sexualities and/or gender identities. Within this group, young transgender women (YTW) are often described as part of a larger community of LGBT people, which encompasses both self-identified homosexual/gay and bisexual individuals and individuals who identify as queer, questioning, heterosexual, transgendered, pansexual, down low, different gender loving, or any other non-straight sexual orientation, including asexuality. This group also encompasses individuals who self-identify as gender queer, non-binary, and anyone who identifies as somewhere along the gender continuum. While YTW are identified as a major risk group for HIV/AIDS incidence and violence, this paper seeks to examine the unique situation of transphobia, relationship equity, history of sex work, social support, and psychological distress as they relate, specifically, to communities of self-identified young transgender women. Terms will be used where appropriate.

CHAPTER I: INTRODUCTION

The term "transgender" is an umbrella term that includes persons whose gender identity, expression, or behavior does not conform to societal gender norms associated with sex at birth.¹ Transgender persons experience a gender identity that is different than their anatomic sex; they may seek to alter their physical appearance by undergoing cosmetic procedures, using hormones, or having sex reassignment surgery. Other persons do not choose a physical transition, but rather express their gender identity through varied presentations and behaviors.² Within the transgender umbrella, different labels have been used to describe gender-variant persons, including MTF (male-to-female), FTM (female-to-male), transsexual, cross-dresser, transvestite, drag queen/king, gender queer, and others.³ The analysis conducted here focuses on the MTF population, more specifically, young transgender women (YTW).

Over the past decade, a small but growing literature has documented an increased risk of for STI and HIV acquisition or transmission.^{4, 5, 6} Transgender persons often engage in numerous risky sex behaviors, such as having multiple sex partners or unprotected sex, frequently within the context of commercial sex work.⁷ Since no effective evidence-based HIV prevention interventions have been identified for transgender persons^{8, 9}, there remains an urgent need to better understand both sexual risk behaviors, and the contextual factors underlying these risk behaviors. Once understood, these factors can be used to inform the development of new interventions or the adaptation of existing evidence-based interventions to meet the unique HIV prevention needs of transgender populations.^{10, 11}

Only a few estimates of HIV prevalence among transgender women (TW), and even fewer for YTW have been conducted in the United States. Those that have been

conducted rely upon sampling methodologies that may not be adequately representative for use in estimating national HIV prevalence. In the absence of more robust methods, estimates of HIV burden in transgender populations must be viewed with the understanding that the results of a nationally representative sample of transgender persons may supersede and contradict much of the extant research. Unfortunately such a sample does not exist at present.

Baral and colleagues conducted a literature review and meta analysis in which they estimated HIV prevalence by pooling estimates of the worldwide prevalence of HIV among TW.¹² They estimated HIV prevalence among TW in the US to be 21.7% (18.4 – 25.1), with TW thought to be 34.2 (31.2—37.5) times more likely to be HIV positive than cisgender adults of reproductive age in the United States.¹² Similarly, Herbst et al. conducted a systematic review of HIV prevalence and risk behaviors among transgender person within the United States and found that 27.7% of TW tested positive for HIV infection, with the highest HIV infection rates being among African Americans. In this study, high-risk HIV risk factors such as unprotected receptive anal intercourse, multiple casual partners, and sex work were frequently reported. In addition, other factors influencing HIV risk were identified as unmet transgender-specific healthcare needs, mental health, physical abuse, and social isolation.¹³

Similarly, another study conducted with a large internet sample, drawn from the United States, suggested that the primary HIV risk factor across a broad range of transgender individuals (including TW, transgender men, and gender non-conforming individuals) is self-reported sexual activity with cisgender males. Gender non-conformity was not independently associated with HIV risk.¹⁴

A comparison of rural and non-rural transgender participants revealed no significant difference in HIV positive status. Rural TW are more likely to be white than their non-rural counterparts, and conversely, Latina/Hispanic TW were more likely to live in non-rural locations than in rural locations. Stigmatization, anxiety, and general levels of psychosocial distress appeared to be significantly higher for rural transgender men and women.¹⁵

A large study of HIV prevalence and risk factors among TW found that, among a sample recruited through outreach (streets and high-risk venues), the majority of the sample reported binge drinking, drug injection, unprotected anal intercourse and recent involvement in sex work. When controlling for confounders, they found that TW who reported any unprotected anal sex during sex work were 2.24 times as likely to report being HIV-positive than those reporting no unprotected anal sex. Any injection drug use, whether licit (hormone replacement therapy) or illicit, resulted in 1.65 times higher odds of HIV-positive status. In this sample, being non-Hispanic and non-white were associated with higher odds of being HIV-positive.¹⁶

A study of gender minority stress in adolescents revealed that gender minority adolescents report higher rates of substance use, including alcohol use and abuse, cigarette use, marijuana use and abuse, and use and abuse of non-marijuana illicit drugs. Gender minority adolescents were also more likely to have experienced any bullying, as well as more likely to experience bullying through any particular modality (in-person, phone calls, text messages, online, etc).¹⁷

A proposed model for conceptualizing HIV risk behaviors in the context of transgender population is the Gender Affirmation model.¹⁸ The central idea is that individuals engage

in activities that involve known risks—such as unprotected sex, sex with multiple partners, or drug and needle sharing—in pursuit of gender affirmation, or positive attention paid towards one’s gender identity. The need for gender affirmation often outstrips the individual’s awareness of any risks. The feeling that such affirmation is scarce motivates the acceptance of its associated risks.

[Insert Figure 1.0]

An examination of HIV/AIDS programming with respect to TW identified a few modifications that should be made to better accommodate TW, central among which was the need to measure gender identity through instruments that honor and validate such identities. Sevelius et al. also noted the perception that transphobia and lack of trans-competency are to be expected in health care encounters, serving as a major barrier to transgender engagement with health care providers. Lastly, they identify high rates of sex work and incarceration as indicative of systemic factors that detract from efforts to curtail HIV amongst TW. If serious gains are to be expected in HIV among TW, then major sociopolitical gains for TW may be a prerequisite.¹⁹

A study of associations between health outcomes and transgender-specific treatment courses found that hormone treatment appears to be somewhat protective against negative mental health and substance use outcomes, including suicidal ideation, binge drinking and recent non-injection drug use. Breast augmentation appeared also to have a protective effect against suicidal ideation and binge drinking. HIV status appeared to be independently associated with breast augmentation and gender confirmation surgery, but this effect was not seen in logistic regression, perhaps suggesting that an underlying

factor, such as economic means for pursuing expensive surgery, is more directly related to HIV status than specific treatment options.²⁰

Objective & Aims

The objective of this analysis is to explore associations between HIV knowledge and sexual risk behaviors among a sample of YTW in Chicago and Boston. Included in this objective are the following aims:

1. To explore social stressors and their impact on the composite variable, HIV knowledge.
2. To explore how both HIV knowledge and social stressors impact sexual risk behaviors.

CHAPTER II: LITERATURE REVIEW

Introduction

This literature review offers a synthesis of the existing research on the transgender population organized under selected themes: (1) HIV risk factors and prevalence; (2) HIV treatment and prevention interventions; and (3) healthcare, stigma, and harassment.

Most existing research focuses on TW, among whom risk behaviors and HIV prevalence are generally thought to be highest. Among TW, well-known and documented HIV/AIDS risk factors include binge drinking, drug injection, unprotected anal intercourse, psychological distress, and recent involvement in sex work.¹⁶ For TW, sex with cisgender men, particularly unprotected receptive anal intercourse, is a significant predictor of HIV risk.¹⁴

HIV Risk Factors and HIV Prevalence

HIV risk has been associated with multiple structural and societal factors. Well-known and documented HIV/AIDS risk factors that disproportionately impact the transgender population include binge drinking, drug injection, unprotected anal intercourse, and recent involvement in sex work.¹⁵ High rates of HIV infection among transgender persons in the United States have been reported in limited studies. Meta-analyses estimate HIV prevalence among TW ranging from 22% to 28%, with significant racial/ethnic disparities noted.^{12, 13} In the Herbst et al. meta-analysis, African-American TW were estimated to have extremely high prevalence rates as high as 56.3% in studies relying on confirmatory HIV testing. Other studies reported that being non-Hispanic or non-White was associated with higher odds of an HIV positive status, as compared to individuals identifying as White or of Hispanic origin.^{16, 21}

In a systematic review and meta-analysis of HIV prevalence in 15 countries (Argentina, Brazil, El Salvador, Peru, Uruguay, Australia, India, Indonesia, Pakistan, Thailand, Vietnam, Italy, Netherlands, Spain and the United States), Baral et al. found that among studies gathered in the United States (US), TW had an estimated HIV prevalence of 21.74% compared to a pooled estimate of 19.1% among the 15 countries examined.¹² The review also found that in the US, TW were 34.2 times more likely to contract HIV than cisgender women and that TW who had unprotected anal intercourse during sex work were 2.24 times more likely to report an HIV positive status than TW who did not report unprotected anal sex. The goal of this study was to posit a worldwide estimate of HIV prevalence for TW, though the methodology notably limited the countries included in this estimate to those described in English, French, and Spanish-language studies.¹² HIV risk factors such as unprotected receptive anal intercourse, multiple casual partners, and sex work, regardless of HIV status were reported in the Herbst et al. study. In addition, other factors affecting HIV were identified such as unmet transgender-specific healthcare needs, mental health, physical abuse, and social isolation.¹³ In addition to heightened sexual risk among trans women, substance abuse is another mechanism through which risk for HIV is increased in this population. In a study of transgender persons with substance abuse, needle use was the most common HIV risk factor noted for TW in comparison to the general population.²² This finding suggests a common risk behavior and potential overlap between two high-risk groups: transgender individuals and persons who inject drugs. The authors suggest future research to clarify the needle-use practices of TW and identify the specific substances for which needles are used and/or shared.²² Reback and Fletcher report that injection drug use among TW,

whether licit or illicit, resulted in 1.65 higher odds of an HIV positive status. Reisner et al. found that transgender and gender non-conforming youth ages 13-18 exhibited higher rates of alcohol use and abuse, marijuana use and abuse, and use and abuse of non-marijuana illicit drugs, which can temporarily lower inhibitions about risky sexual behavior.¹⁷

Santos et al. conducted a study of TW in San Francisco to examine the possible correlation between drug use and an HIV positive status. The authors found high rates of drug use among TW, including marijuana, methamphetamine, crack cocaine, and “club drugs.” However, methamphetamine was the only drug that was significantly associated with HIV, with rates of HIV infection between 3.02 and 3.89 times higher than those reporting no methamphetamine use. Among the TW sampled, drug use during sex and weekly use was associated with the highest odds of HIV infection.^{23, 24} While most of the authors agree that substance abuse and sex work are risk factors for HIV among transgender persons, specifically TW, Feldman et al. indicate sex with cisgender men as the primary HIV risk factor for both transgender men and women.¹⁴ A study of transgender men attending STD clinics reported that 10% were HIV infected,²⁵ although this may be a higher percentage than the general transmale population. This is likely attributed to ascertainment bias undermining external validity.

Previous studies have suggested that the need for and access to gender affirmation may be connected to behaviors that are a higher HIV risk. When interviewed, transgender persons state that they understand the HIV risks, however, gender affirmation or the process by which individuals affirm their gender identity through social interactions, may

take priority over their overall health. Said interactions, include but are not limited to high-risk and/or transactional sexual encounters for gender affirmation.¹⁸

Multiple studies found high-risk behaviors such as sexual behaviors or non-medical body modification, such as injection of silicone or silicone-like substances to simulate gender-specific fat deposition, to be associated with a need for gender affirmation. This suggested a need to focus on gender affirmation in addition to high-risk behaviors to create effective interventions.^{18, 26} The authors posit that the emotional need for gender affirmation is so strong that many transgender persons will accept risky sexual behaviors if these sexual encounters fulfill that emotional need. Reducing stigma through interventions that provide gender affirmation should be incorporated into strategies to prevent HIV. These strategies can include everything from friends, family, and strangers using the correct pronoun and name to being respected and treated “like a lady” or “like a man” in their various expressions of gender, depending on the social context.¹⁸

Treatment and Intervention

Some transgender individuals may choose to undergo surgical or medical treatments to aid their transitions. A study investigating TW’s use of transition-related medical care and behavioral outcomes associated with HIV risk, including mental health, substance abuse, and high-risk sexual behaviors, showed that TW who undergo treatments such as hormone therapy, breast augmentation, and genital surgery experience lower rates of suicidal ideations, recent non-injection drug use, and binge drinking.²⁰ In addition, findings indicated a significant association between a negative HIV status and having a transition treatment, such as breast augmentation or genital surgery.

Several studies have highlighted the paucity of HIV prevention interventions specifically targeted to the transgender population, as well as the lack of education of those teaching HIV prevention programs about delivering such interventions to transgender persons. In a qualitative study by Rhodes et al., the TW participants expressed a desire and a need for specific transgender-targeted interventions. They further suggested including education for the overall cisgender populations regarding the transgender community to help improve understanding and break down perceived barriers.²⁷ Another study found that health care and health promotion systems do not serve the transgender population well, sometimes excluding transgender persons completely from access to health resources.¹⁹ Health care access is also impacted by socioeconomic factors, such as lack of housing and community support. Santos et al. found a connection between successful HIV treatment and stable housing. Their findings suggest that being homeless or having an unstable housing situation was highly negatively correlated with being on ART, suggesting that linkages to care may have minimal impact in cases where housing is unstable or unavailable.²⁴ While 77% of the HIV-positive TW in this study had been linked to care within 3 months of diagnosis, only 65% reported being on anti-retroviral therapy, and only 44% reported being virologically suppressed, which strongly correlated with lack of or unstable housing.²⁴

Healthcare, Stigma, and Harassment

Transgender persons experience stigma and discrimination from the general public, researchers, and clinicians. In the healthcare setting, transgender persons report experiencing exclusion, mistrust, and discrimination. TW navigate a healthcare system

that is often resistant and at times hostile towards transgender persons' needs.²⁸ Bradford et al. found that participants who sought care for hormone therapy, transgender-related surgery, or gynecological care were more likely to experience discrimination than those who did not reveal their transgender status or seek medical intervention for physically transitioning to their gender identity. Those in lower socioeconomic brackets reported experiencing even higher odds of discrimination.²⁹

Flentje et al. show that the transgender population exhibits higher rates of both mental and physical health problems than their cisgender counterparts, but do not have equivalently high rates of service utilization.²² Some research suggests that the lower rates of healthcare utilization may be related to limited economic resources among the transgender population, such as the National Center for Transgender Equality's survey of transgender discrimination in health care in which 48% of their sample indicated postponing needed medical care due to an inability to afford that care.³⁰ Somewhat anecdotal findings via informal discussions suggest that those who are unable to afford trans-related care, such as hormonal treatment, may seek it out through non-medical sources. In a mixed-methods study of a Spanish-speaking immigrant Latino community in rural North Carolina, two TW from the 30 community members sampled were interviewed. These women reported that they chose to acquire hormonal treatment through non-medical sources rather than seeking a legal prescription. Hormone treatment is not generally covered by insurance, and while buying non-prescription hormones is expensive, obtaining hormones through this route saves the additional financial and emotional cost of a doctor visit.³¹ Another study with a comparable transgender sample size of two transgender Latino immigrants in the southeastern United States also found

that the surveyed women accessed non-medical sources of hormonal treatment due to the higher cost of accessing such drugs from formal medical sources.²⁷

Sevelius et al. found the presence of “transphobia” expressed by doctors and staff created a barrier for TW to be included in HIV/AIDS care, potentially impacting retention in HIV care, antiretroviral therapy (ART) adherence, and ultimately viral suppression.¹⁹ In a study investigating participation barriers in HIV vaccine clinical trials, TW in Georgia expressed mistrust towards the research community.³² This mistrust included the belief that transgender persons may not be fully informed of risks associated with research and clinical studies, and that research on transgender populations is likely to be exploitative. Participants suggested the need for cultural competency training and hiring transgender staff in order to create non-stigmatized research and clinical environments, as well as partnering with local transgender organizations, which could offer guidance on policies and practice. For the transgender population, accessing healthcare is rife with issues of discrimination and stigma from doctors, clinicians, and staff; in order to start addressing the needs of the transgender population, researchers recommend education for cisgender persons and suggest actions to end transphobic, inappropriate, and invasive comments and questions.^{19, 32}

The decision to disclose one’s gender identity to researchers, healthcare or service providers is complex. Levitt et al. conducted a study with a diverse sample of transgender individuals with various gender identities; they found some participants did not identify as transgender, but chose other gender labels (e.g., women, men, genderqueer). Study participants reported they found it difficult to balance expressing their gender identity with the fear of being a target for violence or discrimination by membership in a

stigmatized group. While being recognized and addressed as the gender with which they identify is an essential issue for transgender persons, doctors, clinic staff, teachers and cisgender peers may persist in incorrect pronoun use or challenge gender identity.³² Sherman et al. recommended that protocols to accurately and respectfully assess gender identity be established for researchers and clinicians to decrease stigma as a barrier to accessing medical and other professional services, as well as to participating in research. Stigma experienced by the transgender population impacts quality of life and healthcare-seeking behavior.³³ In a national survey of discrimination in health care among transgender persons, researchers found that 28% of respondents reported postponing necessary medical care out of fear for discrimination. In the same study, 19% reported being refused care due to their gender identity, 28% reported being subjected to verbal harassment, and 2% reported being victims of physical violence in medical settings. Compounding these problems, 50% of respondents indicated a need to teach their medical provider about basic transgender information.³⁰ One study found that transgender individuals expressed concern that if they disclosed their gender identity service quality might be compromised, either through sub-standard care, notes in medical records that could cause trouble with future healthcare and service providers, or discriminatory referral to other medical providers solely on the basis of having a transgender identity.³⁴ When surveying LGBTQ adolescents, Mitchell et al. found that transgender and gender non-conforming persons experienced the highest rates of sexual harassment-related distress. Statistically, transgender youth had the highest odds of experiencing sexual harassment related distress (OR=6.5), followed by gender non-conforming youth (OR=5.5) when compared to their cisgender peers. These two subgroups were also at the

highest risk for experiencing non-distressing sexual harassment, i.e., harassment that does not cause interference with school work or other responsibilities, relationships with friends, and relationships with family.³⁵ Transgender and gender non-conforming youth were more likely to have experienced bullying in person, by phone, text, online, or other methods.¹⁷

Gaps in Literature

Currently, a dearth exists in the literature regarding the health needs and HIV risk factors focused on the transgender population. The difficulty is furthered by the lack of population estimates, which makes a determination of rates problematic without an established population denominator. Consequently, an ongoing challenge is presented in monitoring HIV infection, developing and evaluating HIV prevention strategies, and assessing treatment efficacy in this vulnerable population.

CHAPTER III: MANUSCRIPT

Contribution of the Student

The work herein is the product of a secondary data analysis performed by the student. The student did not have a role in producing the survey or the collection of data through survey implementation. However, the student did perform all work after data collection independently, including analysis of the data, the construction of regression models, summation of results in tables, and all writing. The student's thesis advisor and committee members provided advisement throughout this process.

Introduction

The term "transgender" is an umbrella term that includes persons whose gender identity, expression, or behavior does not conform to societal gender norms associated with sex at birth.¹ Transgender persons experience a gender identity that is different than their anatomic sex; they may seek to alter their physical appearance by undergoing cosmetic procedures, using hormones, or having sex reassignment surgery. Other persons do not choose a physical transition, but rather express their gender identity through varied presentations and behaviors.² Within the transgender umbrella, different labels have been used to describe gender-variant persons, including MTF (male-to-female), FTM (female-to-male), transsexual, cross-dresser, transvestite, drag queen/king, gender queer, and others.³ The analysis conducted here focuses on the MTF population, more specifically, young transgender women (YTW).

Over the past decade, a small but growing literature has documented an increased risk of for STI and HIV acquisition or transmission.^{4,5,6} Transgender persons often engage in numerous risky sex behaviors, such as having multiple sex partners or unprotected sex, frequently within the context of commercial sex work.⁷ Since no effective evidence-based HIV prevention interventions have been identified for transgender persons^{8,9}, there remains an urgent need to better understand both sexual risk behaviors, and the contextual factors underlying these risk behaviors. Once understood, these factors can be used to inform the development of new interventions or the adaptation of existing evidence-based interventions to meet the unique HIV prevention needs of transgender populations.^{10,11}

Background

The prevalence of HIV and other sexually transmitted infections is disproportionately higher among TW, including young transgender women (YTW). Several population-based studies (primarily convenience samples) have provided evidence of high prevalence of HIV infection among TW. Risky sexual behaviors represent TW's primary risk for HIV acquisition or transmission. Among TW, including YTW, epidemiologic evidence indicates high prevalence of sexual risk behaviors. Evidence indicates that rates of sexual risk behavior among YTW may be moderated by age, race/ethnicity, and psychosocial factors. Furthermore, all three studies, indicate that YTW engage in more sexual risk behaviors than their older counterparts.^{17, 35, 37}

Despite research documenting high rates of sexual risk behaviors and HIV infection among TW, only three intervention studies could be identified that have attempted to reduce HIV-related risk behaviors in TW, none of which focused specifically on YTW.^{4, 12, 36} Two of these studies documented modest reductions in risky sexual behavior and HIV risk among TW, but effects diminished over time.^{4, 36}

Data & Methods

This research was reviewed by Emory University Institutional Review Board (IRB) and was ruled exempt. The data for this study were collected as part of a larger study to test the efficacy of a uniquely targeted HIV risk reduction intervention for sexually experienced young transgender women, ages 16 to 29. Data were collected via in-person Life Skills surveys developed by researchers at Lurie Children's Hospital in Chicago. The three-arm, randomized controlled efficacy study compares a 6-session group-based Life Skills intervention with a standard-of-care (SOC) control condition and a time-

matched attention control condition. Life Skills surveys were conducted at Community-Based Organizations (CBOs) serving YTWs in Chicago and Boston, and at Lurie Children's Centers in Chicago.

Because YTW are a unique and hidden population, with no sampling frame, participants were recruited through multiple convenience and referral-based sampling techniques including both active and passive approaches. Research assistants, who were also members of the YTW community, actively recruited participants at local gathering spots for YTW, such as nightclubs, pageants/balls and other public places. Participants were also asked to refer eligible friends, co-workers, or acquaintances. A total of 300 YTW ages 16-29 were enrolled in this study over a period of 36 months.

Eligibility for inclusion in the study was based on the following criteria: (1) age 16-29; (2) self-identified as transgender, transsexual, and/or female with a male biological or birth sex; (3) self-reported history of unprotected anal or vaginal intercourse, anal or vaginal intercourse with more than one sexual partner, anal or vaginal sex in exchange of money, food, shelter or diagnosis with HIV or another sexually transmitted infection in the previous 4 months; (4) able to speak and understand English; (5) willing and able to provide informed consent/assent; (6) intention to reside in the local area throughout the 12 month follow-up period. Exclusion criteria included: (1) if YTW were unable to provide informed consent due to severe mental or physical illness, or substance intoxication at the time of interview; or (2) if researchers discovered active suicidal ideation at the time of baseline interview (these patients were referred immediately for treatment, but had the option to join the study after receiving and completing their treatment).

The study enrolled 300 YTW at risk for HIV acquisition or transmission (with a self-reported history of unprotected anal sex or other sexual risk behavior in the 4 months prior to their baseline enrollment visit), ages 16-29; two-fifths of the sample (N=120) randomized to the intervention participated in the 6-session group-based Life Skills intervention; two-fifths (N=120) were randomized to the standard-of-care (SOC) control; and one-fifth were randomized to the time-matched attention control (N=60) and received standard health promotion information in a group-based multi-session format. All three arms received HIV and STI (chlamydia and gonorrhea) testing and pre-posttest risk reduction counseling; sexual risk was assessed in these baseline data at, 4, 8, and 12 months. Researchers considered the degree to which the experimental intervention impacted the number of sexual partners engaged with, and whether this increased transgender adaptation and integration, collective self-esteem/empowerment, and HIV related information, motivation, and behavioral risk reduction skills. Of the 300 young transgender women who completed the Life Skills survey, 3 responses contained incomplete information, resulting in a sample size for this analysis of $n = 297$.

Measurements

Social Support

This study used a 6-item measure for Social Support pulled from the California Health Interview Survey (CHIS).³⁸ The six social support questions used in the CHIS were extracted from the Medical Outcomes Study Modified Social Support Survey (MOS-SSS), an 18-item multidimensional measure of perceived social support that has established internal-consistency reliability (Cronbach's $\alpha = 0.91$) and that is fairly stable

over time.^{39, 40} Participants were asked to consider their experiences with a variety of types of support over the past 4 months. Questions address financial and romantic types of support, as well as support related to illness, leisure-time, work and personal challenges. Participants were asked how often they had support for specific scenarios over the past 4 months, where 1 = none of the time and 5 = all of the time. Higher numbers along this continuum are therefore associated with greater amounts of social support.

Sexual Risk Taking

Participants were asked to indicate their number of sexual partners, types of sexual partners (e.g., main partners, casual partners, sex work partners, trade partners), and types of sexual behaviors (e.g., oral sex, anal sex, protected, unprotected) in which they engaged in the last 3 months. To create a variable that represented the highest risk of potential HIV transmission or infection, I created a composite variable that represented the total number of unprotected anal sex act with non-main partners (including casual partners and/or partners with whom money, drugs, or other goods were exchanged for sex) in the past 3 months. Participants reported an average of 4.3 unprotected anal acts with non-main partners in the past 3 months ($SD = 22.4$), but this variable was significantly skewed (range: 0–178, median = 0, IQR: 0–2). As a result, I conducted subsequent analyses using a dichotomous variable indicating any unprotected anal sex with a non-main partner in the past 3 months (1 = Yes; 0 = No).

The data were analyzed using STATA 11 (StataCorp. 2009. *Stata Statistical Software: Release 11*. College Station, TX: StataCorp LP.).

Results

Sample Characteristics

The average age was 19.4 years (standard deviation, 2.1). The sample was multiethnic, with 64% African American, 26% Hispanic, 6% Asian Pacific Islander, 3% White, and 1% Mixed or Other Ethnicity. Most (95%) were born in the United States. About three-quarters (78%) of participants had not completed high school, 80% were currently unemployed, 62% earned less than \$500 in employment income during the past 30 days, 30% had unstable housing (e.g., living in a shelter, substance use treatment center, at a friend's place, or on the streets), and 28% had a history of incarceration. Ten percent had completed sex reassignment surgery.

For those in relationships, the average length of the relationship with a male primary partner was 2.9 years (standard deviation, 3.9). Fifty-nine percent of participants had been in their primary relationship for over 1 year. Over half (51%) currently lived with their male primary partner, and 62% described their relationship as monogamous. Since the beginning of the relationship with their male primary partner, 41% had ever had sex with an outside partner; 16% had sex with an outside partner during the past 3 months.

Forty-one percent reported being HIV positive, and 13% had been diagnosed or showed symptoms for another sexually transmitted infection during the past 12 months. During the past 3 months, 58% used any alcohol, 32% had ever been intoxicated, 63% had used any illicit drugs, and 5% injected drugs. Drugs used most frequently during the past 3 months in this sample were marijuana (55%), ecstasy (15%), amphetamines (13%), and cocaine (10%). Fifty-nine percent met criteria for clinical depression.

[Insert Table 1.0]

HIV Knowledge

Participants were asked if they strongly agreed (1), agreed (2), neither agreed nor disagreed (3), disagreed (4), or strongly disagreed (5). Scores for each question were obtained by calculating the mean (average) score using this numerical scale, so that a higher score indicated higher HIV knowledge or perception of risk. For questions assessing perceptions of risk, the lowest means were on the avoidance of HIV information question. For questions assessing HIV/AIDS knowledge, the two questions regarding cleaning syringes used to inject drugs and hormones had the lowest means overall. Due to the higher viscosity of injectable hormone medications, it is unlikely that cleaning syringes is effective in completely eliminating the transmission risk of HIV, Hepatitis B, and Hepatitis C.

The knowledge scores ranged from 2 to 5 with a mean of 3.6. The results indicate that overall, 76.1% of the participants have good knowledge of HIV/AIDS compared to 23.9% with poor knowledge of the disease. Knowledge of HIV/AIDS among the group was independently associated with educational attainment ($P=0.005$), number of sexual partners ($P=0.050$) and knowing someone with the HIV/AIDS disease ($P=0.001$). Of the participants with good knowledge of HIV/AIDS, 34.9% of them compared to 13.8% with poor knowledge of HIV/AIDS agreed that they knew people infected with the disease. However, multivariate logistic regression analysis showed that HIV/AIDS knowledge among YTW was significantly predicted ($R^2=0.06$; $P<0.01$) by level of education ($P=0.050$) and knowing someone with the HIV/AIDS disease ($P=0.003$). Those with high school diploma and above were twice more likely than those below high school, to have good knowledge of HIV/AIDS (95% CI: 0.97-4.46).

[Insert Table 2.0]

Sexual Risk Taking

All respondents in the analytic sample reported being sexually active in the last 12 months. Sixty-six percent reported using a condom at the time of their last sexual encounter. The majority of respondents (77%) reported sex with multiple partners in the past year. The mean number of partners reported in the last six months was 4.9 (range 1-20). Overall, 15% of respondents had ever been treated for a sexually transmitted infection (STI), 1% had used intravenous (IV) drugs, and 3% reported having given or received money in exchange for drugs or sex in the last year.

[Insert Table 3]

Discussion

The results of this analysis suggest a need for further research around the specific contextual factors relating to YTW health outcomes. But these results also clearly illustrate a connection between family support and health for YTW, and that the significance of this connection highlights a need for increased support for transgender youth, in particular. Intuitively, we might expect to find an association between experience of familial rejection and social support, because the immediate family is one component of an individual's social support network. It could be that, with a larger sample, were we to put social support in a model with familial rejection, social support might change the relationship between the familial rejection and psychological distress due to a temporal factor that this analysis did not capture. If a young transgender woman already had a robust social support network at the time of the initial rejection, it is

possible that the occurrence of familial rejection may detract from her capacity for social support. However, if she did not have support at the time of rejection, i.e. if she was already experiencing tacit disapproval and lack of support from family, and had also not yet formed a community among other YTW, it could be that the rejection forces her to reach out for support and thus increases her capacity for social support over time. A hypothesis could be tested to determine whether social support moderates familial rejection's impact on psychological distress depending on the time at which rejection occurs, and the specific ways in which that rejection occurs. If this hypothesis were found to be valid, then we could not only address mental health disparities among YTW due to familial rejection, but we might also be able to prevent these disparities from occurring by bolstering community for YTW, especially the youngest of these, outside the home.

Limitations to the data analyses must be acknowledged. First, selection bias has influenced the sample, as it included only TW who were comfortable about disclosing their gender history, and so we cannot draw inferences about TW who are less open. Furthermore, social desirability bias may have been introduced by those willing to participate. Second, the sample had a predominantly low socioeconomic background, thereby minimizing generalizability to more affluent TW. Third, use of cross-sectional surveys does not permit inferences about temporal associations and causal pathways between measured factors. Fourth, use of self-report surveys might have introduced social desirability biases. Fifth, HIV status might be underreported due to our inability to provide HIV testing. Sixth, analyses do not permit inference about the directionality of risk for HIV transmission—that is, whether TW are at greater risk of HIV infection by their male primary partners or vice versa. In light of the high prevalence of concurrency, it might be

useful to conceptualize risk for transmission as bidirectional and influenced by broader sexual networks. In addition to addressing the risk for HIV transmission in TW, interventions for other co-occurring public health and psychological issues observed in this population warrant equally urgent response.

Despite its limitations, this analysis points out several important implications for future research. Additional research is needed to disentangle the complex relationship between elevated HIV risk behaviors and individual-level factors, such as psychological and substance use problems, variations in gender identity, need for acceptance and affiliation, and coping with stigma, violence and abuse. Exploration of the extent to which these experiences correlate with HIV risk behaviors can help inform the development of salient intervention programs. Findings from this area of research can be used to tailor psychological counseling and substance abuse treatment for at-risk transgender persons.^{21, 41} In addition, the effects of hormone treatment on sexual behavior patterns need to be investigated because hormones may override, ameliorate, exacerbate, or have no effect on the biological and socialized sexual behaviors of transgender persons.³⁶

Research suggests that persons are more prepared to engage and succeed in behavior change when they have established social support and stability, such as affiliation with families of origin, chosen families, support groups, social organizations, and social networks.⁴² Therefore, studies are needed to identify the types of social supports and the characteristics of those relationships that are most likely to produce an environment fostering reduced risk behaviors. Research also needs to explore the risk behaviors and social networks of the sex partners of transgender persons.^{43, 44} This research will not only identify potential new opportunities for prevention, but can help identify the degree

to which transgender populations serve as a "bridge group" to other populations impacted by the HIV epidemic.²¹ Additional research needs to address factors in the lives of transgender persons that can influence their risky behaviors and adoption of safer behaviors. For example, knowing the age at which a transgender person may have lost familial support can help explain employment history, acquired job skills, financial instability, and experience with homelessness or survival sex. Thus, an understanding of life trajectories can help identify the types of social and behavioral interventions needed by transgender persons at different stages during their lives.⁴⁵

Mainstream society currently embraces binary gender assignment according to birth anatomy rather than viewing gender on a continuum.⁴⁶ Consequently, public accommodations (e.g., restrooms) and other services may not be equipped to deal with transgender persons. Additional research is needed to identify structural and organizational policy barriers experienced by transgender persons that force a binary gender selection, and how these are related to employment, social services, housing, health and mental health care, and legal assistance. Correlations between these barriers and HIV risk behavior should be investigated. Studies also need to explore ways to decrease discrimination against marginalized transgender groups, increase the social competency of service providers who work with transgender clients, and improve the interaction between transgender persons and social service providers.⁴⁷⁻⁵⁰

Finally, future research should consider the prevalence of multiple risk behaviors of transgender persons within the individual, interpersonal, and structural contexts identified in this review. Determining whether combinations of risky behaviors and contextual factors are more prevalent within certain subgroups can further enhance the development

and implementation of interventions for transgender persons.⁵¹ This area of research can also help delineate the benefits of separate interventions to address the risk behaviors of subgroups of transgender persons, sets of related interventions for various subgroups, and robust interventions containing a menu of options that can be selected according to the risks and skills of participants.

It is encouraging to note that this review identified three intervention programs developed and tested for transgender populations.^{4, 52, 53} Likewise, several additional transgender-specific programs have been developed by community-based agencies.⁵⁴⁻⁶¹ However, none of these programs has been formally evaluated in a rigorous controlled trial.⁹ Rigorous evaluations of these programs are greatly needed to increase the number of efficacious prevention interventions for this vulnerable and marginalized population. Additional approaches to increase the number of interventions for transgender persons involve the development and evaluation of new interventions or the adaptation of existing evidence-based interventions shown to be effective with other populations.^{10, 62}

Considering the high rates of HIV infection and risk behaviors among transgender populations identified in this review, prevention programs should promote routine HIV testing of this population. It is also important to develop transgender-specific prevention interventions that address the risk behaviors and contextual factors of HIV risk. It is our hope that the findings of this review and meta-analysis will not only inform the development and adaptation of transgender-specific HIV behavioral intervention programs but will also stimulate additional research addressing the salient HIV prevention needs of high-risk transgender persons.

This study addresses several key gaps in the literature, despite the limitations discussed above, and examines relationships between HIV knowledge and sexual risk taking. Remembering that the larger purpose of this study is to test the efficacy of an HIV risk reduction intervention for sexually experienced young transgender women, ages 16 to 29, it is important to consider how sexual risk taking and experiences of social support might impact the way in which risk reduction interventions operate for YTW. Despite research documenting high rates of sexual risk behaviors and HIV infection among transgender women, only three intervention studies have been identified that have attempted to reduce HIV-related risk behaviors in transgender women, none of which focused specifically on YTW. Two of these studies documented modest reductions in risky sexual behavior and HIV risk among transgender women, but effects diminished over time. None of these studies were evaluated using an RCT research design, and to date, there are no HIV prevention interventions rigorously evaluated or proven efficacious for YTW, and very few theoretically grounded interventions exist targeting determinants of risk specific to the lives of transgender women of any age. While this analysis does not explore HIV risk specifically, it does explore determinants of risk specific to the lives of young transgender women.

APPENDICES

Figure 1.0 Gender affirmation framework for conceptualizing risk behavior among transwomen of color¹⁷

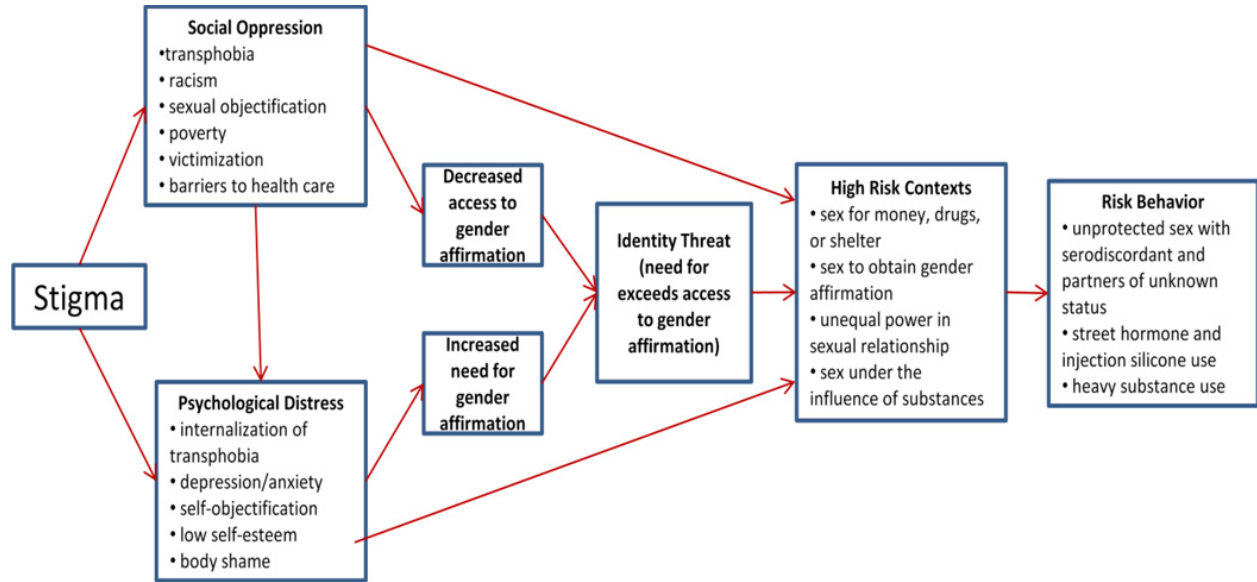


Table 1. Descriptive statistics for social stress variable

Life Skills Baseline Data, 2015 (n=297)		
Variables	Mean (SE) or %	Number or Range
Age (mean years)	23.3 (3.5)	(16.0, 29.9)
Race		
White	25.6	76
Non-White	74.4	221
Education		
Below high school	28.9	86
*High school diploma+	32.7	97
College or above	38.4	114
Relationship Quality		

Good relationship	23.2	69
Not in a relationship	55.9	166
Bad relationship	20.9	62
Social Support	18.9 (7.9)	(6, 30)
Psychological Distress	16.8 (16.6)	(0, 72)

* + = Trade or associate school

Table 2. Bivariate regression analysis of all key variables regressed onto HIV knowledge

Life Skills Baseline Data, 2015 (n=297)

Variables	Coefficient (β)	95% Confidence interval	p
Age (mean years)	0.62	(0.08, 1.16)	0.024
Race			
White	<i>Ref</i>		
Non-White	-1.27	(-5.63, 3.09)	0.566
Education			
Below high school	<i>Ref</i>		
*High school diploma+	-1.41	(-6.27, 3.45)	0.568
College or above	0.59	(-4.10, 5.27)	0.805

* + = Trade or associate school

Table 3. Multivariate regression analysis modeling all variables regressed onto HIV knowledge and sexual risk taking

Life Skills Baseline Data, 2015 (n=297)						
Covariates	Model 1 - HIV knowledge (n=297)			Model 2 - Sexual Risk Taking (n=297)		
	<i>Coefficient (β)</i>	<i>95% Confidence Interval</i>	<i>p</i>	<i>Coefficient (β)</i>	<i>95% Confidence Interval</i>	<i>p</i>
	Age (mean years)	0.42	(-0.16, 1.01)	0.152	-0.21	(-0.49, 0.06)
Race						
White	<i>Ref</i>			<i>Ref</i>		
Non-White	0.50	(-4.07, 5.07)	0.831	0.67	(-1.50, 2.83)	0.544
Education						
Below high school	<i>Ref</i>			<i>Ref</i>		
High school diploma or trade school	-2.02	(-6.75, 2.71)	0.420	1.08	(-1.16, 3.32)	0.344
College or above	-1.73	(-6.73, 3.27)	0.496	0.76	(-1.60, 3.13)	0.526
Relationship Quality						
Not in a relationship	<i>Ref</i>			<i>Ref</i>		
Good relationship	2.36	(-2.15, 6.87)	0.304	-3.84	(-5.98, -1.70)	<0.001
Bad relationship	7.32	(1.79, 12.85)	0.010	-2.59	(-5.21, 0.03)	0.052

CHAPTER IV: RECOMMENDATIONS

The most critical finding of this analysis has widespread implications for young LGBTQ people in America, especially YTW. Young transgender women experience more rejection from their immediate families than their non-transgender counterparts, and among women who have a history of sex work, rejection is even more prevalent. In this analysis, these instances of rejection are directly connected to women's experiences of social stress. A multi-faceted approach to addressing the needs of YTW who have experienced social stress must include: increased understanding and awareness of familial rejection and its mental health consequences; the promotion of policies that legally require institutions working with YTW to support and protect these young people and to foster environments of safety and equity for all of their youth; and the creation of mentorship programs for YTW, both in and out of schools, through which rejected youth can engage with adult transgender women who have been through similar circumstances and survived. Furthermore, these programs and services should develop and incorporate mechanisms for referral that can be used to connect YTW with trans-specific services nation-wide. These interventions have the potential to comprehensively address the negative health consequences associated with social stress before it has occurred and to diminish the impact on each, individual YTW's long-term health outcomes. While working towards the implementation of each of these interventions, surveillance of suicide, homelessness, depression, and reported experiences of familial rejection among YTW should be financially and politically supported at the national level. Additionally, resources that support research in transgender health, and that use cohort designs to monitor effects related to stigma over time should be developed. This research will work

to create an urgently needed evidence-base for best practices in addressing the complex obstacles to good health faced by young transgender women growing up in America.

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