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PREVALENCE AND ODDS OF SERIOUS MENTAL ILLNESS AMONG HOMELESS LGBT YOUTH AND
YOUNG ADULTS IN ATLANTA

By

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A Thesis Submitted to the Graduate Faculty
of Georgia State University in Partial Fulfillment
of the
Requirements for the Degree

MASTER OF PUBLIC HEALTH

ATLANTA, GEORGIA
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ABSTRACT

PREVALENCE AND ODDS OF SERIOUS MENTAL ILLNESS AMONG HOMELESS LGBT YOUTH AND YOUNG ADULTS IN ATLANTA

By

Rachel R. Hopper

December 2, 2016

INTRODUCTION: National estimates of young people who experience homelessness vary, but the numbers are large. Among those numbers, a significantly high percentage of homeless youths identify as LGBT. Additionally, LGBT youth are at higher risk of increased mental health risks than heterosexual youth. Further understanding of this occurrence among the homeless youth population is important in policy and program planning and implementation.

AIM: To examine the relationship between serious mental illness (SMI) and sex at birth, race/ethnicity, and sexual minority status in homeless youth.

METHODS:

Homeless youths, both heterosexual and self-identified lesbian, gay, bisexual, transgender and queer (LGBT), aged 14-25, were recruited via convenience sampling to be part of the Atlanta Youth Count and Needs Assessment in summer of 2015.

RESULTS:

Multiple logistic regression analyses revealed that SMI occurs in females 1.445 times its occurrence in males, adjusted for race/ethnicity and being lesbian/gay, bisexual or transgender ($P=0.0478$, 95% CI=1.004, 2.081). Serious mental illness is also 2.196 times more likely in transgender groups than in lesbian/gay and bisexual groups, adjusted for sex at birth and race/ethnicity ($P=0.0284$, 95% CI=1.085, 4.334).

DISCUSSION:

With regards to research questions, there were no differences between homeless LGBT and homeless non-LGBT youth in regards to SMI, unlike previous literature. Consistent with previous literature, there was a difference between the transgender group and the LGB groups in regards to SMI. Also hypothesized, being born female and being transgender was associated with higher likelihood of SMI, as with previous literature. However, being bisexual was not associated with higher likelihood of SMI, unlike previous literature.

APPROVAL PAGE
PREVALENCE AND ODDS OF SERIOUS MENTAL ILLNESS AMONG HOMELESS LGBT YOUTH AND
YOUNG ADULTS IN ATLANTA

by

Rachel R. Hopper

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December 2, 2016
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Author's Statement Page

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Rachel R. Hopper
Signature of Author

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CHAPTER I

INTRODUCTION

1.1 Background

High rates of homelessness among youth

Homeless youth are young people, aged 12 to 24, who do not have a stable home or residence and sometimes have no familial support. Runaway adolescents and “throwaways”, who are young people evicted from home by their parents, are included as well. These youth stay on the streets, in shelters, in cars or abandoned buildings or unstable housing conditions, such as with strangers or acquaintances for short periods of time (Quintana, Rosenthal, & Monday, 2010; Rosario, Schrimshaw, & Hunter, 2012b). National estimates of young people who experience homelessness vary, but the numbers are substantive. For example, one national estimate is that over a million youth (5%) are homeless per year (Ringwalt, Greene, Robertson, & McPheeters, 1998). Similarly, a Massachusetts study revealed 4.2% of public high schools students are homeless (Fournier et al., 2009).

LGBT within homeless population

A large percentage of homeless youth identifies as LGBT. For example, a significantly high percentage of homeless youths were “gay identified” (10.8%) in a 1994 San Francisco, California study (Forst, 1994). In a survey of 670 homeless youth ages 14–24 across 6 states, 22.4% of the homeless adolescents self-identified as LGB, which is much higher than the proportion of LGB youth in non-homeless populations (Van Leeuwen et al., 2006). A study in Massachusetts found that among public high school students, sexual minority students were significantly more likely to be homeless (15.7%) than were heterosexual students (3.3%) (Fournier et al., 2009). These numbers are in comparison to the prevalence of LGBT youth in the general population, which varies from 1.3% to 3.4% (Bontempo & D’Augelli, 2002; Remafedi, Resnick, Blum, & Harris, 1992; Savin-Williams & Ream, 2007). An LGBT Homeless Youth Survey reported that 45% of clients to drop-in centers were LGBT, and 30% of street outreach and housing program clients were LGBT (“Serving Our Youth,” 2012). A Massachusetts study on high school students found that proportionally more heterosexual with same-sex partners, bisexual, gay, lesbian and unsure (about sexuality) youth were currently homeless than exclusively

heterosexual youth; the risk of being homeless and living separate from parents and guardians was significantly higher among sexual minority youths than among exclusively heterosexual youths. Of these, 25% lesbian and gay youths and 15% bisexual youths experienced homelessness compared to 3% of exclusively heterosexual youths, and nearly 20% of currently homeless youths identified themselves as LGB, while they made up less than 5% of the high school student sample. (Corliss, Goodenow, Nichols, & Austin, 2011) Additionally, a New York survey of LGB adolescents, aged 14-21, found that 48% of the youths had experienced homelessness; 27% experienced both running away from home and being forced to leave home by their parents (Rosario, Schrimshaw, & Hunter, 2012a).

Increased mental health risks within LGBT population versus LGBT homeless population

As seen above, LGBT youth are disproportionately represented among homeless youth, and LGBT youth have been found to experience increased mental health risks than heterosexual youth. A birth cohort longitudinal study in New Zealand found significant associations between LGB sexual orientation and suicidal ideation, suicidal attempt, major depression, generalized anxiety disorder, conduct disorder, nicotine dependence and having more than one of the above disorders (Fergusson, Horwood, & Beautrais, 1999). Sexual minority groups had a higher prevalence of PTSD than the reference group (“heterosexuals without lifetime same-sex sexual contact”) from the Growing Up Today Study, and the larger amount of exposure to child abuse explained the higher rates of PTSD (Roberts, Rosario, Corliss, Koenen, & Austin, 2012). In a study comparing sexual minorities with their heterosexual siblings, sexual minority status was predictive of both suicidal ideation and attempts as well as self injurious behavior, histories of psychotherapy and psychiatric medications (Balsam, Beauchaine, Mickey, & Rothblum, 2005).

Homeless gay, lesbian and bisexual youth were additionally more likely to have a major depressive episode (41.3%), post-traumatic stress disorder (47.6%) and suicidal ideation (73.0%) than their heterosexual counterparts (28.5%, 33.4% and 53.2%) (Whitbeck, Chen, Hoyt, Tyler, & Johnson, 2004). Homeless sexual minority youth were more likely to report higher levels of depressive symptoms than homeless heterosexual youth (Cochran, Stewart, Ginzler, & Cauce, 2002). LGB homeless youth also had a greater chance of seeking inpatient treatment for

emotional disturbances, attempting suicide ever in their lifetime and having depression than heterosexual homeless youth (Gangamma, Slesnick, Toviessi, & Serovich, 2008). Similarly, homeless LGB were shown to be more likely to have spent time in a mental health treatment facility, lifetime history of suicide attempts, recent depression and recent suicidal ideation than their heterosexual peers (Noell & Ochs, 2001). While these previous studies used general measures of psychological distress, the survey used for the current study used a scale to estimate the presence of serious mental illness. The use of the Kessler 6 scale is a unique contribution to the study of serious mental illness in the homeless LGBT population.

Different risks among subpopulations of homeless LGBT population

There are unique differences among subpopulations of the LGBT community, and they each experience homelessness and mental illness differently. For example, bisexuals have been shown to experience more mental health risks than lesbian and gay youths. For instance, among women, bisexual women had the highest prevalence of post-traumatic stress disorder compared to lesbians and heterosexual women (Roberts et al., 2012). An analysis that was performed on several school-based surveys throughout the US and Canada showed that bisexual youth sometimes reported a higher prevalence of suicide attempts than in gay, lesbian or heterosexual youths; this number was much higher for bisexual girls than bisexual boys (Saewyc et al., 2008). A study among Vermont and Massachusetts youth reported 46.9%-60.7% of bisexual youths being forced to have sexual intercourse during their lifetime compared to 16.7%-17.4% of heterosexual youths and 18.4-27.1% of gay/lesbian youths. Additionally, the authors reported that forced sexual intercourse independently predicted suicidal behaviors as well as most other health risk behaviors; they also reported that bisexual youths had significantly higher odds of engaging in suicidal behaviors than their heterosexual peers. (Robin et al., 2002) In a study comparing sexual minorities with their heterosexual siblings, the authors compared lesbian and gay youths to bisexual youths and found bisexual youth were more likely to report self-injury than gay and lesbian youths (Balsam et al., 2005). Another study exemplified bisexual status was associated with higher levels of internalized homophobia, lower levels of disclosure and higher levels of family rejection; it also suggested that bisexual status had a negative association with well-being with certain stressors and coping resources as

mediators (family acceptance, family support, LGB social contact and internalized homophobia) compared to lesbian and gay status (Shilo & Savaya, 2012).

Transgender youth face their own unique challenges. One study found that 45% of a sample of transgender youth had seriously thought about taking their own life; while 20% reported sometimes or often having seriously thought about taking their own life. Of the 45% who seriously considered taking their own life, 14.5% seriously considered doing it within the past year. The authors also state 26% of the sample reported a history of attempting suicide. Nine percent reported they had been hospitalized due to emotional issues, some due to suicide attempts. (Grossman & D'Augelli, 2007) Another sample of transgender youth experienced bullying (62.5%), involvement in physical fights (19.3%), gang involvement (10.4%), history of school suspension or expulsion (23.1%), grade repetition (17.1%), feeling unsafe at home (10.3%), feeling mostly sad all of the time (12.8%) attempting suicide (30.3%) and self-injurious behaviors (41.8%). They also had at least one comorbid psychiatric diagnosis in addition to gender dysphoria (58%); comorbidities include depressive disorder (37%) and a type of anxiety disorder (28%). (Peterson, Matthews, Copps-Smith, & Conard, 2016) A homeless LGBT youth survey reported that transgender homeless youth have the worst physical and mental overall health over other LGB and non-LGB youth ("Serving Our Youth," 2012).

Men who have sex with men (MSM), regardless of if they identify as gay/bisexual or heterosexual, is another subpopulation with its own unique health risks and needs. Currently homeless MSM (43%) in New York, aged 17-28, report having attempted suicide, and 42% of previously homeless MSM report having done so, while only about one quarter of never homeless MSM report having attempted suicide at least once. Additionally, currently homeless MSM are more likely to have clinically significant depression than previously homeless and never homeless MSM. Also, currently homeless MSM are more likely than those previously homeless MSM to be currently using crack-cocaine, powder cocaine, heroin and use of injection as a mode of administering drugs (IDU), and previously homeless MSM are more likely than never homeless MSM to be currently using marijuana, crack-cocaine, powder cocaine, heroin and IDU. The authors suggest that all of the above in past or current homeless MSM is more of a coping mechanism or adaptation to homelessness as opposed to a cause of homelessness.

(Clatts, Goldsamt, Yi, & Viorst Gwadz, 2005) Miami MSM runaway youth had oral and anal sex a year earlier than MSM who were not runaways; runaways also were more likely to have a history of forced sexual contact, having an STD, having ever used drugs, injecting drugs or using needles for self-tattooing or body piercing compared to nonrunaways (LaLota, Kwan, Waters, Hernandez, & Liberti, 2005). Furthermore, MSM populations are at higher risk for sexual infections and diseases, such as HIV. Studies show that HIV transmission is more likely to occur between primary sexual partners (Mustanski, Newcomb, & Clerkin, 2011; Sullivan, Salazar, Buchbinder, & Sanchez, 2009). Miami MSM runaways were 3.3 times more likely to have HIV than MSM youth who weren't runaways; among runaways infected, 65% did not believe themselves to be at risk of infection compared to 45% of nonrunaways (LaLota et al., 2005).

1.2 Purpose of Study

The purpose of this study is to examine the rates of serious mental illness by sex at birth, race/ethnicity, and sexual minority status.

1. Are the rates of serious mental illness between homeless LGBT youth and homeless non-LGBT youth different?
2. Do the rates of serious mental illness vary among and within the major subgroups of homeless sexual and gender minority youth?

The current study explores these research questions by investigating demographic factors and the occurrence of serious mental illness in homeless LGBT youth in Atlanta, Georgia from the Atlanta Youth Count ("ATLANTA YOUTH COUNT!," 2016)

CHAPTER II

REVIEW OF THE LITERATURE

There exists many health risks to homeless adolescents, especially sexual and gender minority homeless youth, and several factors listed below threaten the mental health of this particular population. It is important to have a full grasp on these risks in order to promote better overall health and create intervention strategies targeting this population.

2.1 Demographics

A 1991 study showed 79% of their LGB homeless youth sample being male while 21% were female (Kruks, 1991). Similarly, more homeless homosexual youth report being male (69.8%) than female (30.2%), while more homeless bisexual youth report being female (61.0%) than male (39.0%) (Rew L, Whittaker TA, Taylor-Seehafer MA, & Smith LR, 2005).

2.2 Substance Use and Abuse

Homeless lesbian adolescents were more likely to engage in alcohol (61.4%) and drug (47.7%) abuse than homeless heterosexual female adolescents (35.5%, 32.5%) (Whitbeck et al., 2004). A Seattle study on homeless LGBT youth found that sexual minority adolescents had used substances other than marijuana more frequently in the previous six months than heterosexual youths, and sexual minority youths used more types of substances than heterosexuals (Cochran et al., 2002). In a study of LGB adolescents, homeless youths were more likely to use cigarettes, alcohol and illegal drugs than non-homeless youth, and homeless youth began using them a year before non-homeless youth. Substance use occurred simultaneously or after their first bout of homelessness; therefore, it is likely that substance use is a coping mechanism due to becoming homeless. (Rosario et al., 2012b). LGB homeless youth were more likely to drink more than 5 drinks during a sitting in the last 2 weeks (42%), to ever be in a drug or alcohol treatment program (38%), engage in injection drug use (23%) and use drugs and/or alcohol with a parent or guardian at least once (48%) compared to non-LGB homeless youth (27%, 27%, 13% and 38% respectively) (Van Leeuwen et al., 2006).

A 2001 homeless youth population study found that several drug use over their lifetime variables were significantly associated with LGB status for females, but not males. For instance, lesbian and bisexual homeless females were significantly more likely to engage in injection drug use, use amphetamines, marijuana and LSD over their lifetime than heterosexual homeless females. LGB homeless youth were more likely to have engaged in injection drug use and to have used amphetamines recently. For recent drug use, being a homeless LGB youth was associated with amphetamine and injection drug use; however, the odds were higher for gay and bisexual males than lesbian and bisexual females. Gay and bisexual males were less likely to use marijuana. (Noell & Ochs, 2001)

2.3 Victimization

Sexual Abuse

Sexual abuse in childhood has been shown to be 3.8 times more prevalent in sexual minority adolescents than in sexual nonminority adolescents (Friedman et al., 2011). Gay/lesbian (77.6%) and bisexual (62.5%) participants were more likely to have experienced sexual abuse than their heterosexual (37.1%) peers; similarly, more gay/lesbian (38.1%) and bisexual (31.7%) participants indicated they were sexually abused before the age of 12 than their heterosexual peers (15.9%) (Rew L et al., 2005). Homeless gay, lesbian and bisexual adolescents (44.3%) were reported to be more likely to experience sexual abuse from an adult caretaker than were heterosexual adolescents (22.3%) (Whitbeck et al., 2004). A study on homeless in Seattle found that LGBT youths went through an average of 7.4 times the amount of sexual victimization than heterosexual youths (Cochran et al., 2002). Sexual minority groups had a higher prevalence of childhood abuse than the reference group (“heterosexuals without lifetime same-sex sexual contact”) from the Growing Up Today Study (Roberts et al., 2012). In a study of LGB adolescents, homeless youths (61%) were more likely to report sexual abuse during childhood than non-homeless youths (47%) (Rosario et al., 2012b). Sexual minority homeless youth who had ever traded sex were shown to experience higher levels of sexual victimization than heterosexual homeless youth who had ever traded sex, even after controlling risk factors such as depressive symptoms and neglect, in three Midwestern cities (Tyler, 2008).

Physical Abuse

Physical abuse has been shown to be 1.2 times more likely in sexual minority adolescents than in sexual nonminority adolescents (Friedman et al., 2011). Homeless lesbian adolescents (mean=1.51) (1.61) were more likely to experience physical abuse and neglect by an adult caretaker than were homeless heterosexual adolescents (1.37) (Whitbeck et al., 2004).

Peer Victimization

Peer victimization (threatened or injured with a weapon or other assault by a peer) has been shown to be 1.7 times more likely in sexual minority adolescents than in sexual nonminority adolescents. Compared with sexual nonminority adolescents, sexual minority adolescents were 2.8 times more likely to miss school because of fear (Friedman et al., 2011). Also, homeless gay, lesbian and bisexual adolescents (58.7%) were reported to be more likely to experience sexual victimization on the streets than were homeless heterosexual adolescents (33.4%), and homeless lesbian adolescents (mean=0.80) were more likely encounter physical victimization when on their own than homeless heterosexual females (mean=0.47) (Whitbeck et al., 2004). A Seattle study on homeless LGBT youth found that LGBT adolescents endure higher levels of victimization than heterosexual youths; this was especially significant for male youths in the past 3 months before the interview and for female youths for the duration of being homeless (Cochran et al., 2002).

2.4 Risky Behavior

Homeless LGBT youth are at higher risk for risky sexual practices, such as sex trafficking, survival sex and sexual victimization. For instance, homeless gay males (27.8%) were more likely to engage in survival sex than homeless heterosexual males (9.0%) (Whitbeck et al., 2004). Additionally, homeless LGB youth were found to be 1.7 times as likely as homeless heterosexual homeless youth to have engaged in survival sex (Walls & Bell, 2011). Homeless LGBT youths reported having more sexual partners and higher rates of unprotected intercourse than homeless heterosexual youths in Seattle (Cochran et al., 2002). Homeless LGBT young people are more likely than their heterosexual counterparts to trade sex with a stranger, have more than 10 sexual partners who are strangers, have sex with a stranger who uses IV drugs, have

anal sex with a stranger, have unprotected sex with a stranger, and have sex with a stranger while high (Tyler, 2013). LGB homeless youth reported engaging in survival sex more often than heterosexual homeless youth, and the LGB group had a greater chance of contracting HIV, both at 3 months and lifetime, than the heterosexual group with survival sex being the strongest predictor of HIV risk (Gangamma et al., 2008). LGB homeless youth (44%) reported ever being asked by someone on the streets to exchange sex for money, food, drugs, shelter, clothing, and more (survival sex) more often than non-LGB homeless youth (26%) (Van Leeuwen et al., 2006).

2.5 Social Support

LGBT foster/out-of-home-care youth within homeless population

It is estimated that LGBT youth make up between 5% and 10% of children and youth that are in the custody of foster care or juvenile justice systems; and many of those youth are there due to their LGBT identity, whether by being mistreated by family and running away, by being forced out and performing illegal acts as a way to survive the streets, or those labeled “sex offenders” due to others’ perception of their identity as being perverse (Wilber, Reyes, & Marksamer, 2006; “Youth in the Margins,” n.d.). These youth who turn 18 may have nowhere else to go after out-of-home care, thus becoming homeless or relying on a shelter to rest their head. Homeless LGBT respondents (17%) reported aging out of the foster care system as being the fourth topmost reason for their homelessness, and one third of homeless LGBT respondents report having been in foster care ever (“Serving Our Youth,” 2012). However, being LGB, in a homeless youth population, has been shown to be significantly less likely to have ever been in foster care in some studies as well (Noell & Ochs, 2001).

Family Support

The LGBT Homeless Youth Provider Survey’s cited that LGBT youth experienced family rejection on the basis of sexual orientation and gender identity (46.0%), and more than half having experienced abuse in the family (54.0%) (“Serving Our Youth,” 2012). Racial and ethnic minorities appear to be reluctant to come out to their families and report their sexual orientation (Groves, Bimbi, Nanin, & Parsons, 2006; Mustanski, Newcomb, & Garofalo, 2011; Rosario, Schrimshaw, & Hunter, 2004).

2.6 Cause of Homelessness

Current homelessness had a mean time of 1 year for females and 2 years for males in Portland, Oregon (Noell & Ochs, 2001). More gay/lesbian (20.6%) participants expressed being homeless due to parental sexual abuse than did heterosexual (10.1%) or bisexual (9.8%) participants; however, more bisexual (25.6%) participants indicated their homelessness was due to parental physical abuse than their heterosexual (14.7%) and gay/lesbian (12.7%) counterparts. Fewer bisexual (26.8%) and gay/lesbian (6.3%) participants reported being homeless due to their parents' disapproval of their drug/alcohol use than did heterosexual (31.4%) participants, but more gay/lesbian (73.0%) participants stated they were homeless due to their parents' disapproval of their sexual orientation than did bisexual (25.6%) participants (Rew L et al., 2005). Similarly, the LGBT Homeless Youth Provider Survey's most cited reason for LGBT youth (46.0%) homelessness was family rejection on the basis of sexual orientation and gender identity, with being forced out by their parents due to their sexual orientation or gender identity being cited as the second most cited cause (43.0%) ("Serving Our Youth," 2012). Also, homeless gay, lesbian and bisexual adolescents were more likely than heterosexual adolescents to report that they had been kicked out of their home or left home because of conflicts surrounding their sexuality or sexual behaviors (Whitbeck et al., 2004). A Seattle study on homeless LGBT youth found that LGBT youths' most common reasons for leaving home were due to family conflict (59.9%), desire for freedom (51.5%) and difficulties with a family member (48.5%), and 14.3% left due to parental conflict over their sexual orientation (Cochran et al., 2002). Additionally, homeless LGB youth report arguments with parents (50%) as the most common reason for leaving home, as well as, verbal abuse (34%), parental substance use (21%) and their own substance abuse (17%) (Gangamma et al., 2008).

2.7 Summary

Chapter 1 stated some examples of research on mental health problems among both the sexual and gender minority population and the homeless sexual and gender minority population. This chapter has mentioned many mental health risks for homeless sexual and

gender minorities. According to research, this population has been shown to have experienced many overall health risks such as trading or selling sex and substance use while homeless. These adolescents have also been shown to have experienced higher rates of sexual and physical abuse, lack of family support and peer victimization than their heterosexual peers. Family problems, fights over their gender and sexual identities, and abuse at home are also identified as reasons for their homelessness. Previous literature has primarily focused on specific dimensions of mental health issues such as depression, suicidality, anxiety and post-traumatic stress disorder, as can be seen in chapter 1. In contrast, the current study focused on serious mental illness rather than psychological distress or specific types of symptoms, using the Kessler 6 scale (K6). The Kessler 6 scale was designed to pinpoint non-specific psychological distress in six questions, specifically to find the small percentage of US population adults that meet the criteria for a serious mental illness in a given year (Kessler et al., 2002). Other studies have confirmed that the K6 is consistent across gender in different age groups, and it was found to be consistent with other scales in its findings in a group of adolescents (Drapeau et al., 2010; Peiper, Clayton, Wilson, & Illback, 2015). Because previous studies have not used a scale such as the K6 to look at non-specific psychological distress, this study aims to fill a gap in the literature by using the K6 to analyze the prevalence of SMI in homeless adolescents, specifically sexual and gender minorities.

CHAPTER III

METHODS AND PROCEDURES

3.1 Data Source

Data were obtained from the Atlanta Youth Count and Needs Assessment (AYCNA), collected between May 15, 2015 and July 31, 2015 (“ATLANTA YOUTH COUNT!,” 2016). There were two phases to the systemic capture-recapture field sampling method. Phase 1 (approximately May 15 – June 18) involved the principal investigators and 17 graduate student field researchers accompanying nine community-based organizations on their regular outreach runs to homeless youth in Atlanta. Outreach workers, accompanied by the field research team, distributed “tokens” to youth with the typical resources they already provided between June 2 and June 18. Tokens were keychains used to identify which youth had seen the research team previously by a research team member asking the youth if they had previously seen the token. Survey data collection occurred in Phase II (June 18 – July 23) in two-week sweeps (Sweep 1 was June 18 – July 2 and Sweep 2 was July 8 – July 23). The cross-sectional study was designed to give a one month prevalence estimate for summer.

3.2 Sample

Youth who were homeless or runaways without a permanent stable residence aged 14-25 were eligible to participate in the study. Trained teams conducted sweeps of the Atlanta area shelters and other street and community places where homeless youth reside and spend their time. Extended stay motels were included in the sweeps to cover the temporarily housed youth. The sweeps extended to approximately 5-7 miles outside the Interstate-285 perimeter and included Fulton, Cobb, Clayton, Dekalb and Gwinnett counties.

3.3 Procedure

Teams visited each location in daytime and nighttime several times. Youth were asked to complete a 10-15 minute survey about their history of being homeless and common factors that could lead to homelessness. The survey was anonymous, with no information that could be used to identify participants, in order to protect them and encourage honest answers. A \$10

Visa card and a list of resources for them in the community were given to them upon completion of the survey. For those who didn't want to do so in person, there was an online version of the survey available. Field teams also recorded observational data on youth who appeared to fit the study eligibility criteria but who were not approached. There were a total of 1102 contacts with homeless youth, 855 contacted and 247 observed to meet eligibility criteria.

In order to remove duplicates, an anonymous identifier was created. A participant's age, last name initial, day of birth, birth city and state, self-reported gender identity, sexual orientation and race/ethnicity variables were all combined to eliminate duplicates. In total, 52 surveys were removed due to ineligibility or incomplete surveys and 110 duplicates were removed. The final dataset included 694 homeless youth. SurveyGizmo was used to enter the data, and it was cleaned and analyzed using IBM SPSS 23. The study was reviewed and overseen by the Institutional Review Board at Georgia State University (Study Number H15427).

3.4 Variables

Dependent Variable

Serious Mental Illness (SMI)

Serious mental illness was identified using the Kessler 6 scale. Participants were asked "During the past 30 days, about how often did you feel:" and answers included the following: "nervous, hopeless, restless or fidgety, so depressed that nothing could cheer you up, that everything was an effort, and worthless" and they were given the following occurrence options, "all of the time, most of the time, some of the time, a little of the time, and none of the time". Each answer about feelings above was given a variable and coded according to the occurrence. For instance, "none of the time" would be coded as "0" and "all of the time" would be coded as "4". The scale for the sum of feelings would range from 0 to 24. All of the variables (feelings) were then recoded and summed to create the dichotomous variable for SMI. The K6 scale deemed that anyone with a sum larger than 14 when the measures were added indicated SMI, coded as "1", while anyone below 14 when the measures were added did not indicate SMI, coded as "0" (Khan, Chien, & Burton, 2014). A recent study showed that a cut point of 13+ was

most optimal for assessing the prevalence of SMI in the national population, which means balancing the false positives and false negatives (“National Comorbidity Survey,” n.d.).

Independent Variables

Sex

Participants were asked “What sex were you assigned at birth?” The variable was coded for two answers, “male”, coded as “1”, and “female”, coded as “2”, for the purpose of this paper, while the original questionnaire allowed for “something else”.

Race/Ethnicity

Participants answered “Do you consider yourself to be Hispanic or Latino?” and “What race do you consider yourself?” The first had a “yes” or “no” answer, while the race question gave options of “white”, “black or African American”, “Asian”, “Native American/Alaska Native”, “Pacific Islander”, “Multiracial” and “Other”. Race/ethnicity was broken down into a new variable of nine individual groups from the two above questions in the questionnaire, but for the purpose of this analysis, many of the smaller groups were combined into the “Other” group. The “White” and “Other” groups, coded as “1” and “3” respectively, were analyzed against the “African American” group, coded as “2”, for reference due to the larger number of African American participants in this survey.

LGBT Identity

Participants were asked “Which of the following labels best describes your sexual orientation?” in the questionnaire. Options included the following “Straight or Heterosexual”, “Gay or Lesbian”, “Bisexual”, “Something Else”, and “Still Undecided/Questioning”. Participants were asked about gender in order to determine transgender identity. “Do you consider yourself OPTIONS?” was the question for gender. The options included “male”, “female”, “part time in both”, “genderqueer”, “transgender”, “intersex”, “gender non-conforming” and “something else”. The data were cleaned up to give us a variable for LGBT, coded as “1”, and non-LGBT, coded as “0”, and to give us separate variables for Lesbian/Gay, Bisexual and Transgendered, each coded bivariately with no coded as “0” and yes coded as “1”.

3.5 Statistical Analysis

The total sample was 693 youths, but 3 were removed due to missing variables for a total of 690 youths, including 494 non-LGBT youths and 196 LGBT youths. Frequency tests were used to determine demographics of LGBT and non-LGBT groups. Cross tabulations were performed to determine the prevalence of SMI among and within the different groups. Chi-Square tests were performed to determine associations between serious mental illness and sex at birth, serious mental illness and race/ethnicity, and serious mental illness and sexual minority status. A multiple logistic regression model was created based on previous literature in statistical software to determine if the outcome of interest (serious mental illness) was present, adjusting for covariates. Based on those statistical analyses, an interaction term between sex at birth and transgender was added to the multiple logistic regression model.

The hypotheses formed before performing the analysis are as follows:

1. Being female will be associated with higher likelihood of serious mental illness.
2. Being bisexual will be associated with higher likelihood of serious mental illness.
3. Being transgender will be associated with higher likelihood of serious mental illness.

Statistical analysis was performed using SAS 9.4.

CHAPTER IV
RESULTS

Table 4.1: Demographic Profile of Sample

| | |
|---------------------------------|-------------------------|
| Race / Ethnicity | (n=686) |
| African American | 488 (71.14%) |
| White | 37 (5.39%) |
| Other | 161 (23.47%) |
| Sex at Birth | (n=683) |
| Male | 454 (66.47%) |
| Female | 229 (33.53%) |
| Sexual Orientation | (n= 689, 689, 689, 692) |
| Heterosexual | 493 (71.55%) |
| Lesbian/Gay | 95 (13.79%) |
| Bisexual | 75 (10.89%) |
| Transgender | 45 (6.50%) |
| Sexual Orientation Total | (n=689) |
| Heterosexual | 493 (71.55%) |
| LGBT | 196 (28.45%) |
| Serious Mental Illness | (n=675) |
| No | 484 (71.70%) |
| Yes | 191 (28.30%) |

The sample size was 690, but due to missing data, not all variable counts equal 690. Demographic characteristics of the sample are displayed in Table 4.1. Of the 690 homeless youth in the homeless youth count, 28.4% (196) self-identified as LGBT. The majority of the sample were African American and between 20 and 25 years of age in both LGBT and non-LGBT groups. The majority of Non-LGBT respondents was male; while in the LGBT group, males and females matched each other in numbers. Lastly, the total percentage of SMI in this sample of participants was 28.3%.

The most common reasons LGBT youth found themselves homeless were financial problems (26.7%), job problems (26.2%), family violence/problems (20.5%), being kicked out of the home (28.7%), and housing problems (24.6%)(not shown in table).

4.1 Descriptive Statistics

Table 4.2 displays associations between SMI and sex at birth, race/ethnicity, and sexual minority status. There were no strong associations present. The race/ethnicity group with the largest number in the sample were African Americans, but the race/ethnicity group with the largest prevalence of SMI were white (37.84%). However, the prevalence of SMI among race/ethnicity groups yielded no significant results ($\chi^2=1.8651$ $P=0.3935$). The gender at birth with the largest number in the sample were male, but the gender at birth with the largest prevalence of SMI were female (32.59%). There were also no significant results in the prevalence of SMI among sex at birth ($\chi^2=2.9446$ $P=0.0862$). There were more heterosexual participants than LGBT participants in this study, but, as expected, there was a higher prevalence of SMI among LGBT participants (29.69%). The prevalence of SMI among sexual orientation groups was not significant ($\chi^2=0.2407$ $P=0.6237$). Transgendered participants had a higher prevalence of SMI within sexual orientation groups (39.53%), while being the smallest group of participants. These results were also not significant ($\chi^2=2.8590$ $P=0.0909$).

Table 4.2: Estimated Prevalence of Serious Mental Illness Among Homeless Youth by Sex at Birth, Race/Ethnicity, Sexual and Gender Minority Status, and Detailed Sexual and Gender Minority Status Groups

| | | |
|---|--------------|--------------------------|
| Race / Ethnicity (n=672) | | $\chi^2=1.8651$ P=0.3935 |
| African American | 131 (27.46%) | |
| White | 14 (37.84%) | |
| Other | 46 (29.11%) | |
| Sex at Birth (n=667) | | $\chi^2=2.9446$ P=0.0862 |
| Male | 116 (26.24%) | |
| Female | 73 (32.59%) | |
| Sexual Orientation Total (n=675) | | $\chi^2=0.2407$ P=0.6237 |
| Heterosexual | 134 (27.80%) | |
| LGBT | 57 (29.69%) | |
| Sexual Orientation (n= 690, 675, 675, 676) | | |
| Heterosexual | 134 (27.80%) | $\chi^2=0.2037$ P=0.6517 |
| Lesbian/Gay | 26 (27.96%) | $\chi^2=0.0077$ P=0.9300 |
| Bisexual | 21 (28.77%) | $\chi^2=0.0074$ P=0.9314 |
| Transgender | 17 (39.53%) | $\chi^2=2.8590$ P=0.0909 |

χ^2 test; * = $p < .05$; ** = $p < .005$; *** = $p < .001$

4.2 Multiple Logistic Regression

After the Chi-Square associations of SMI and sex at birth, SMI and race/ethnicity, and SMI and sexual minority status, multiple logistic regression was performed to determine odds ratios for the presence of SMI, adjusted for multiple covariates.

The following table, Table 4.3, contains the results of a multiple logistic regression model containing sex at birth, race/ethnicity and gender minority status to test whether the outcome of SMI is present. There are no statistically significant differences from zero, adjusting for all other covariates. The model fit barely changed from intercept only with three additional predictor covariates; therefore this model is not much of an improvement to the original model (intercept only) and does not give any significant information regarding SMI.

Table 4.3: Logistic Regression of Probable SMI Among Homeless Youth by Sex at Birth, Race/Ethnicity and Sexual and Gender Minority Status

| Outcome: SMI | Odds Ratio | <i>p</i> - value |
|--|-----------------------|------------------|
| Sex at Birth | | |
| Male (Ref) | 1 | |
| Female | 1.345 (0.943, 1.1918) | 0.1020 |
| Race/Ethnicity | | |
| African American (Ref) | 1 | |
| Caucasian | 1.547 (0.769, 3.111) | 0.2796 |
| Other | 1.109 (0.740, 1.661) | 0.6479 |
| Sexual and Gender Minority Status | | |
| Heterosexual (Ref) | 1 | |
| LGBT | 1.038 (0.712, 1.512) | 0.8468 |

95% Confidence; * = $p < .05$; ** = $p < .005$; *** = $p < .001$

-2 Log L Intercept = 792.519, With Covariates = 787.957; $P = 0.3353$ (overall model statistic)

Another multiple logistic model was formed containing many of the previous covariates as in Table 4.3, but sexual minority status was broken down by the following groups:

lesbian/gay, bisexual, and transgender (Table 4.4). There were two statistically significant differences in SMI. Serious mental illness occurs in females 1.445 times its occurrence in males, adjusted for race/ethnicity and being lesbian/gay, bisexual or transgender ($P=0.0478$, 95% CI=1.004, 2.081). Serious mental illness is also 2.196 times more likely in transgender groups than in lesbian/gay and bisexual groups, adjusted for sex at birth and race/ethnicity ($P=0.0284$, 95% CI=1.085, 4.334). The 95% confidence interval for the odds ratio comparing transgender to other sexual minorities is wide 1.085-4.334). This could be due to the small number of transgender participants in the study ($n=45$). Thus, this association should be interpreted with caution. Despite the presence of statistically significant results, the model fit barely changed from intercept only with three additional predictor covariates; therefore this model is not much of an improvement to the original model (intercept only) either and does not give any significant information regarding SMI.

Table 4.4: Logistic Regression of Probable Serious Mental Illness Among Homeless Youth by Sex at Birth, Race/Ethnicity, and Detailed Sexual and Gender Minority Status Groups

| Outcome: SMI | Odds Ratio | p - value |
|--|----------------------|------------------|
| Sex at Birth | | |
| Male (Ref) | 1 | |
| Female | 1.445 (1.004, 2.081) | 0.0478* |
| Race/Ethnicity | | |
| African American (Ref) | 1 | |
| Caucasian | 1.628 (0.807, 3.285) | 0.1966 |
| Other | 1.048 (0.696, 1.578) | 0.4422 |
| Sexual and Gender Minority Status | | |
| Heterosexual (Ref) | 1 | |
| LG | 0.800 (0.474, 1.349) | 0.4024 |
| Bisexual | 0.920 (0.526, 1.610) | 0.7703 |
| Transgender | 2.196 (1.085, 4.334) | 0.0284* |

95% Confidence; * = $p < .05$; ** = $p < .005$; *** = $p < .001$

-2 Log L Intercept = 792.519, With Covariates = 783.248; $P = 0.1589$ (overall model statistic)

Lastly, another multiple logistic regression with an interaction term between sex at birth and being transgender in addition to the covariates from Table 4.4 was tested (not in table). The interaction term was created due to the significance of the two variables in the previous test. The goal was to improve upon the model fit and determine significance of the interaction term. However, due to incredibly small numbers of participants that fit into both groups, the convergence of the model collapsed and validity of the model fit was deemed questionable by the software. Even so, it did run the test, and there were no statistically significant differences from zero, and the model fit in the results had still not improved compared to the previous two tests. To determine if the interaction term was the problem in convergence, a multiple logistic regression test was formed with only sex at birth, transgender status and the interaction term between the two. The convergence did collapse again and the statistical software confirmed

the validity of the model fit to be questionable. Furthermore, this test showed no significant results, and the model fit was even closer than the previous test. The interaction term was then removed from the model altogether.

CHAPTER V
DISCUSSION AND CONCLUSION

5.1 Discussion of Research Questions and Hypotheses

Research Questions

1. What are the differences in serious mental illness between homeless LGBT youth and homeless non-LGBT youth?

In cross tabulations, chi-square analysis and multiple logistic regression analyses, there were no differences between homeless LGBT youth and homeless non-LGBT youth in regards to serious mental illness. This does not represent previous literature, but much of the previous literature did not include transgendered participants due to small numbers. They also do not use an SMI scale; mental illness is typically measured through diagnosis. This is discussed further in section 5.3.

2. What are the differences in mental health risks among each sexual minority group?

There was a slight difference between the transgender group and other sexual minority groups which was consistent with the literature. This result had the strongest statistical effect, as expected. There was no difference between the lesbian and gay group and non-lesbian/non-gay group in regards to SMI. There was also no difference between the bisexual group and non-bisexual group in regards to SMI.

Hypotheses

1. There is a difference between homeless LGBT youth and homeless non-LGBT youth in regards to serious mental illness.

There was no difference between homeless LGBT youth and homeless non-LGBT youth in regards to SMI according to statistical analyses. This is not consistent with previous literature that used diagnoses as a measure of mental illness. This could be a result of the use of the K6 or a result of combining sexual and gender minority groups together to compare against the heterosexual group.

2. Being female will be associated with higher likelihood of serious mental illness.

There was a difference in SMI between females and males. This was supported by the multiple logistic regression analyses and is consistent with previous literature.

3. Being bisexual will be associated with higher likelihood of serious mental illness.

Unlike the literature, there was no difference in SMI between the bisexual group and other sexual minority groups. Because this is the only study known to the author to use the K6 scale to measure SMI in this group, it would be beneficial to further test the scale in this population. Previous literature does state that this group is at higher risk of specific diagnosed mental illness, and that should be taken into consideration by those working to create interventions.

4. Being transgender will be associated with higher likelihood of serious mental illness.

There was a difference between the transgender group and other sexual minority groups in multiple logistic regression analyses in regards to SMI. This was expected due to previous literature and had the strongest statistical significance. Literature has already found this group at higher risk for diagnosed mental illnesses, as well as many other health risks, and this study can conclude that this group has also been shown to have a higher risk of SMI using a scale rather than specific DSM-IV classifications.

5.2 Study Strengths and Limitations

Strengths

The study used a sophisticated capture-recapture field sampling method in order to locate homeless youth. This allowed for accurately representing the current population of homeless youth in metro Atlanta. The survey team reached into many counties in the surrounding area due to participants telling them where else to find homeless youth; therefore, the results should be generalizable to many geographical areas. The researchers also did not collect information that would lead to identification or tracing of the participants, which would lead to less response bias as well as make the participants feel comfortable and keep them from any harm from their answers to the survey questions. The survey was also available online in case an individual preferred to participate without an in person interview. Additionally, the efficient cross-sectional design may lead to specific findings that would encourage further research on this population.

Limitations

The study was a cross-sectional design and provides only a snapshot of the sample; this may misrepresent sexuality stability (such as awareness of same-sex or opposite-sex attractions, self-identification of sexual orientation, experience with same-sex or opposite-sex partners) especially since sexual identity is fluid throughout one's life (Diamond, 2008; Rosario, Schrimshaw, Hunter, & Braun, 2006), and mental health outcomes (mental health status changes). The implications that would be examined in a longitudinal study would have influence over timing and implementation of interventions aimed at homeless youth and LGBT youth, especially those experiencing mental health disparities. There is also a possibility of response bias if a participant did not want to disclose their gender identity or sexual orientation. However, it is not likely that a participant would report a sexual minority status if they were heterosexual. Additionally, when testing for differences in SMI between the LGBT and non-LGBT groups as a whole, the transgender group was combined with sexual orientation groups. This may have caused some overlap in the findings due to transgender being considered a gender minority group rather than a sexual orientation group. However, this should not have been an issue when testing the LGBT groups separately. Lastly, the K6 scale does have numerous studies that attest to its ability to correctly identify SMI; yet, other studies have shown it may not be as effective in identifying serious emotional disturbance in adolescents as it is in identifying serious mental illness in adults due to the lack of indicators of behavioral disorders in the K6 (Green, Gruber, Sampson, Zaslavsky, & Kessler, 2010). However, in comparison to scales such as the NCS-A, K6 findings within groups of adolescents are similar in both performance and factor structure to findings of other scales (Peiper et al., 2015).

5.3 Implications of Findings

These findings reveal that homeless female youth and homeless transgender youth are at most risk for serious mental illness, which can be further supported by previous literature. However, expectations of higher rates of SMI in the LGBT group at large compared with the heterosexual group and higher rates of SMI in the bisexual group than in non-bisexual groups were not met. Previous literature did not list a scale, and especially not the Kessler 6 scale, as

the method of determining mental health risks and problems. The K6 scale was unique to this study, and it may explain some of the differences in findings from previous research. The literature also repeatedly showed that female bisexuals experienced higher rates of mental health risks. The sample used for this study included twice as many males as females at birth; therefore, the lack of statistical effect in groups such as the bisexual group may be due in part to the fewer numbers of females. The sample was made up of over 70% African American youths, and results from statistical analyses showed there was no association between race/ethnicity and SMI. Perhaps the large numbers of one racial group may also have affected the results. Furthermore, very few variables were introduced in the statistical model for this analysis in order to focus on sexual and gender minority status; however, many previous studies also examined effects of substance use, different forms of abuse and victimization, and risky behaviors while examining mental health risks, suicidality and other diagnoses for mental illness, while focusing very little on sexual and gender minority status. Lastly, many studies excluded the transgender group altogether when studying sexual minority groups due to such small numbers of transgender participants. When comparing this study to previous research, it is important to realize there are many differences in the way mental illness is defined and measured, as well as many differences in the demographics of samples studied. With this being the only study of serious mental illness the author knows of that used the K6 scale, was performed in the Atlanta area, as well as had enough transgender participants to include in the data, results shouldn't be expected to perfectly match up with previous literature but could begin to indicate higher risks that need further research. The overall pattern of findings indicate this group still shows need of attention and assistance in many forms.

5.4 Recommendations for Future Research

This study will contribute information regarding individual's risk of serious mental illness among a highly vulnerable and unseen population. Further research is needed to better understand the risks of SMI in homeless youth, especially in homeless sexual and gender minority group youths. This information can be used to develop and refine policies, programs and interventions to help homeless youth.

Further research should be performed on a larger sample of homeless transgender youth. This study had a small sample size of the gender minority group, and while the results were significant, the 95% confidence interval was wide. Exploration of the effect of combining sexual and gender minority groups against separating the minority groups in comparison to a heterosexual group could be helpful knowledge to add to this topic. Also, based on previous literature, it may be beneficial to stratify the bisexual group by sex at birth because serious mental illness is more common in bisexual females (Roberts et al., 2012; Saewyc et al., 2008). Furthermore, other variables should be tested, such as alcohol and substance use, how long an individual has been homeless, victimization/abuse, and age. It would also be interesting to study the K6 scale on more gender and sexual minority groups in order to determine if these results are repeatable in other regions or if there is a unique phenomenon to the metro-Atlanta area.

5.5 Conclusion

The results of this study indicate that serious mental illness is a risk to female and transgender homeless youths. Public health intervention programs and policies that address the needs of homeless youth should be advised to take special care with those at most risk for serious mental illness, providing extra support to those who have suffered trauma and may be looking to transition.

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