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Sexual Identity and Risk Behaviors Among Adolescents in Rural Appalachia

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Previous research suggests that rural youth and youth who are lesbian, gay, bisexual, and questioning (LGBQ) have higher risk of multiple psychological and behavioral risk factors compared with their heterosexual counterparts. This study compared risk for bullying victimization, suicide risk, school violence, drug use, and sexual risk behavior between rural LGBQ youth and heterosexual youth. The Youth Risk Behavior Survey (YRBS), developed by the Centers for Disease Control and Prevention (CDC), was administered by the local health department in 2 high schools in rural Appalachia. Findings indicate that rural LGBQ youth are at much higher risk than rural heterosexual youth for suicide risk, bullying victimization, school violence, drug use, and sexual risk behavior. Risk was particularly high for LGBQ youth in regard to bullying victimization and for suicide risks. Further, bullying victimization resulting from the perception of LGBQ status partially mediated drug use, but not suicide risk or school violence. Our results have particular implications for possible interventions targeting LGBQ youth by high school system personnel in rural Appalachia.

Keywords: rural youth, bullying, victimization, risk, LGBTQ

Both rural youth and lesbian, gay, bisexual, transgender, and questioning (LGBQ) youth are at heightened risk for a variety of negative outcomes, including suicide (Fontanella et al., 2015), depression (Kosciw, Greytak, Bartkiewicz, Boesen, & Palmer, 2012), and drug use (Kelly, Davis, & Schlesinger, 2015). Rural LGBQ youth might be at particularly high risk due to lower levels of support and fewer resources in rural schools and communities (Kosciw, Palmer, & Kull, 2015). The present study uses the Centers for Disease Control and Prevention's (CDC; 2013) Youth Risk Behavior Survey (YRBS) to examine the prevalence of a variety of risk behaviors in a sample of rural adolescents, comparing heterosexual to LGBQ youth.

Interpersonal violence, which is defined by the World Health Organization (Dahlberg & Krug, 2002) as "the intentional use of physical force or power, threatened or actual, against another person or against a group or community that results in or has a high likelihood of resulting in injury, death, psychological harm, maldevelopment, or deprivation" (p. 5) is more common among adolescents in the rural Southern region of the U.S. than adolescents in urban/suburban areas (Marquart, Nannini, Edwards, Stanley, & Wayman, 2007; Spencer & Bryant, 2000), particularly in areas with high levels of poverty (Edwards, Mattingly, Dixon, & Banyard, 2014). The impact of these experiences could be more detrimental to rural youth, as access to social support and intervention may be more limited in rural areas (Edwards, 2015; Lanier & Maume, 2009).

Sexual minority youth are at particular risk. Sexual identity formation is a complex and multifaceted process and there is substantial variation and fluidity in how individuals navigate this process (Guittar, 2014; Manning, 2015). For example, sometimes youth arrive at an affectional affinity ("I like boys" or "I like girls") before forming a more concrete sexual identity (Guittar, 2014). The formation of sexual identity also involves components of self-labeling, revealing one's sexual identity to others, and

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labeling by others. There may or may not be congruence in these labels (Manning, 2015). The youth in our samples and the samples described below self-identified as sexual minority youth.

Risks Among LGBQ Youth

Substantial research documents multiple risk factors for LGBQ youth including bullying victimization, risk for poor mental health outcomes and substance abuse problems, and lower academic achievement (Kosciw, Greytak, Palmer, & Boesen, 2014; Kosciw et al., 2015); each of these areas of risk is addressed below. Risk for negative outcomes (i.e., suicide, drug abuse) might be greater among LGBQ youth in rural areas (Kosciw et al., 2014, 2015), yet few studies have examined this population. Hence, most extant literature has focused on outcomes among urban youth and this information may not necessarily generalize to LGBQ adolescents who live in rural areas.

Bullying

Bullying perpetration—via physical, verbal, visual, and relational aggression—is common among adolescents across in person and electronic contexts (Ballard & Welch, 2015; Olweus, 1994, 2010). Bullying has a myriad of negative effects on victims, including anger, depression, fear, lower life satisfaction, drug abuse, and suicide (Bauman, Toomey, & Walker, 2013; Mishna, Khoury-Kassabri, Gadalla, & Daciuk, 2012). Bullying perpetration is often motivated by a desire to increase status (Mishna, Cook, Gadalla, Daciuk, & Solomon, 2010). Consequently, those lower in status—such as LGBQ students—are more often the victims of bullying (Caravita, Gini, & Pozzoli, 2012; Toomey, Ryan, Diaz, Card, & Russell, 2010). Peer norms can create an atmosphere supportive of perpetration of bullying (Salmivalli & Voeten, 2004), particularly when popular students victimize others (Farmer, Hamm, Leung, Lambert, & Gravelle, 2011). Some perpetration, including homophobic bullying, is supported by peer culture and masculine norms (Formby, 2013; Seaton, 2007; Steinfeldt, Vaughan, LaFollette, & Steinfeldt, 2012).

Kosciw and colleagues (Kosciw et al., 2012, 2014; Palmer, Kosciw, & Bartkiewicz, 2012) published data on a large, representative sample of LGBQ and transgender youth from studies on school climate conducted by the Gay, Lesbian, and Straight Education Network (GLSEN). The vast majority of the youth reported that they had heard "gay" used in a negative way; more than half reported hearing such remarks from teachers and staff. Most (56–64%) reported that they felt unsafe at school and almost one in three LGBQ and transgender students missed a day of class in the last 30 days because they felt unsafe or uncomfortable at school. Most were verbally harassed and nearly one third were physically harassed because of sexuality or gender expression. Many were physically assaulted because of sexual orientation (17–18%) or gender expression (11–12%). About half of LGBQ and transgender students were victims of cyberbullying, defined as intimidating and threatening messages sent electronically, and often anonymously, through a social media site. Students in rural areas and small towns reported the highest levels of anti-LGBQ language and victimization at school (Kosciw et al., 2014; Palmer et al., 2012). These data are compelling, but the study did not compare LGBQ youth to heterosexual youth.

Mental Health/Suicide

Numerous studies indicate that LGBQ and transgender teens are at much higher risk for depression, suicidal ideation, and suicide attempts (Hatzenbuehler, Birkett, Van Wagenen, & Meyer, 2014; Heck, Flentje, & Cochran, 2011; Liu & Mustanski, 2012; Robinson & Espelage, 2012). Birkett, Newcomb, and Mustanski (2015) reported that students who are "questioning" are at greatest risk of depression and suicidal ideation, followed by students who identify as a sexual minority. Further, risk for depression and suicide among LGBQ youth are moderated by bullying and other forms of victimization. Kosciw and colleagues (2012; Kosciw et al., 2014) found those LGBQ and transgender youth reporting higher levels of victimization had higher rates of depression and missed days of school and lower self-esteem and GPA. Similarly, Robinson and Espelage (2012) found that, among 7–12th grade LGBQ students, heightened risk for suicidal ideation and suicide attempts were partially explained by

differences in victimization, particularly bullying.

Not all studies have found negative outcomes for sexual minority students. Mustanski, Garofalo, and Emerson (2010) found that LGBQ and transgender youth did not differ from heterosexual youth in terms of psychological distress or suicide. In a 3.5-year longitudinal study of LGBQ youth ages 16–20, Birkett, Espelage, and Koenig (2009), found that both victimization and psychological distress decreased in the sample across the course of the study. They hypothesized that this positive change was related to improvements in the school climate for LGBQ and transgender students across that period of time. "Coming out," or disclosing one's identity as a sexual minority to others (Manning, 2015), may moderate these outcomes; although being out was related to higher victimization, it also was related to higher self-esteem and lower depression (Heck et al., 2011; Kosciw et al., 2015).

Drug and Alcohol Use

Several studies have found that LGBQ and transgender youth are at higher risk than heterosexual youth for drug use, including smoking, alcohol, prescription drugs, and illicit drugs (Birkett et al., 2009; Huebner, Thoma, & Neilands, 2015; Kecojevic et al., 2012; Kelly et al., 2015). Further, research indicates that higher levels of stress, victimization, and depression mediate substance use (Birkett et al., 2009; Huebner et al., 2015; Kelly et al., 2015; Mereish, O'Cleirigh, & Bradford, 2014; Newcomb, Heinz, Birkett, & Mustanski, 2014). In two studies of ethnically diverse LGBQ and transgender adolescents, victimization because of minority status was associated with substance use and abuse (Huebner et al., 2015; Newcomb et al., 2014). Respondents in Kelly et al.'s (2015) study reported that coping with others' homophobia was related to drug and alcohol use among LGBQ youth, but the researchers did not examine the pathway between the two factors.

Sexual Risk Behavior

There is little research on sexual risk behavior in LGBQ teens. The available research indicates that male and female LGBQ youth in both the US and Wales have higher rates of risky sexual behavior than heterosexual youth, including more unprotected sex and multiple sexual partners (Rice et al., 2013; Robinson & Espelage, 2013; Scourfield, Roen, & McDermott, 2008; Torres et al., 2013). Rice and colleagues (2013) found that those LGBQ adolescents who engaged in sexual risk taking were more likely to have experiences of homelessness, although the direction of effect was unclear. Further, a study using a large sample of mainly heterosexual high school students found that males in rural areas were more likely to report risky sexual behavior than males in nonrural areas (Crosby, Yarber, Ding, DiClemente, & Dodge, 2000). No differences in sexual behavior were found between females in rural and nonrural areas.

Academic Outcomes and School Environment

LGBQ and transgender students may be at risk for poorer academic outcomes. In a comparison of educational outcomes for LGBQ and non-LGBQ high school students, Aragon, Poteat, Espelage, and Koenig (2014) found that LGBQ youth reported more truancy, lower grades, and lower educational goals and expectations. Higher levels of victimization among LGBQ and transgender youth were tied to higher levels of school truancy (Birkett et al., 2009; Kosciw et al., 2012, 2014). Robinson and Espelage (2012) found that unexcused school absences among LGBQ and transgender students were partially explained by differences in victimization, but that the risks remained higher after differences in bullying victimization were taken into account.

There is evidence that supportive school personnel and institutional support lowers risk for LGBQ and transgender youth. In schools with programs aimed at prevention of bullying and schools that included supportive students and staff, LGBQ students reported less homophobic bullying, were less likely to miss school as a result of feeling unsafe, and had higher academic outcomes and expectations (Kosciw et al., 2014; Rinehart & Espelage, 2016). Cohn and Leake (2012) examined data on rural adolescents from the National Longitudinal Survey of Adolescent Health and found that LGBQ youth reported more affective distress than heterosexual adolescents, but the level of distress

was higher for LGBQ youth who did not report feeling a sense of belonging from school or their families. Increased support also has been linked to lower risk for suicidal ideation and attempts among LGBQ youth who are experiencing victimization (Hatzenbuehler et al., 2014; Liu & Mustanski, 2012). However, rural-area school nurses, versus urban nurses, are less likely to receive education on suicide risk and prevention for LGBQ students (Ramos, Fullerton, Sapien, Greenberg, & Bauer-Creegan, 2014).

Gay Straight Alliances (GSAs) are the most common support system for LGBQ youth. LGBQ students from high schools with a GSA had better academic outcomes and less substance abuse, psychological distress, suicidal ideation, and victimization than those from schools without GSAs (Heck et al., 2011, 2014; Kosciw et al., 2012, 2014). About half of urban and suburban students have a GSA available to them (Palmer et al., 2012). But, GSAs are less available in rural areas and small towns (Kosciw et al., 2015). Most LGBQ students surveyed had participated in their GSAs; students from rural areas where a GSA was available attended more frequently than suburban/urban youth (Palmer et al., 2012).

Statement of Problem and Hypotheses

It is well documented that LGBQ students are at risk for a variety of negative outcomes; however, few studies have compared their level of risk with that of heterosexual students. In addition, rural LGBQ youth are understudied. The current study used data collected from the YRBS (CDC, 2011) to examine a broad array of variables among rural LGBQ youth and compared them to their heterosexual counterparts. We expected LGBQ students to have more psychological and behavioral risks than their heterosexual counterparts. In particular, we expected that LGBQ students would demonstrate more threat for suicide risk, bullying victimization, school violence, drug use, and risky sexual behavior. Additionally, given the extant research on urban LGBQ adolescents, we predicted that LGBQ students' increased risk for suicide, drug use, and risky sexual behavior would be mediated by bullying victimization. Finally, because LGBQ students report that they would have valued more dedicated services and support from their high schools (Munoz-Plaza, Quinn, & Rounds, 2002), we also expected that LGBQ students would perceive a lower level of school and community support than heterosexual students.

Method

Participants and Procedure

The YRBS was administered by the local health department at the centralized high school in each of two adjacent rural county school districts (total enrollment = approximately 2,230) in western North Carolina in spring 2014. The authors received approval from the university's institutional review board to analyze the data. County District #1 was classified with a rural–urban continuum code (RUC) of 7, indicating a nonmetro urban population of 2,500 to 19,999, not adjacent to a metro area (U.S. Department of Agriculture Economic Research Service, 2013). The total population of the county in 2013 was approximately 25,000, and over 20% of the population had household incomes below the poverty level (U.S. Census Bureau, 2015). The percentage of students receiving free or reduced lunches in this school was nearly 60% (North Carolina Department of Public Instruction, 2012). County District #2 was classified with an RUC of 5 (nonmetropolitan with an urban population greater than 20,000, not adjacent to a metropolitan area). The total population of the county was approximately 50,000, and slightly more than 30% of the population lived in households with incomes below the poverty line (U.S. Census Bureau, 2015). Approximately 40% of students in the district received free or reduced lunch (North Carolina Department of Public Instruction, 2012).

The YRBS was distributed to students in their homeroom classroom. A passive consent process was used whereby parents were given the choice of opting their child out of participation after having two weeks to review the survey and consent form. Students were asked to complete the survey, but were told that participation was voluntary and that they could skip questions that they were not comfortable answering. Across the two schools, over two thirds (N = 1,550) of enrolled students completed the YRBS. The remaining students did not complete the study because their parents' opted out, they were not in school on the day of

data collection, they returned the survey with less than 90% of the items completed, or returned surveys with inconsistent answering patterns (e.g., answering all questions with Response A).

In terms of biological sex, 51% of respondents were females and 49% were males; students were not given other response options, so it was not possible to identify students who might identify as transgender. Most (90%) identified as "heterosexual (straight)," 2% identified as "gay or lesbian," 4% identified as "bisexual" and 4% identified as "not sure." For the analyses—because of the low base rates—those who identified as gay, lesbian, bisexual, and questioning ("not sure") were compiled into one LGBQ group. In terms of grade in school, 28% were in 9th, 27% in 10th, 26% in 11th, and 19% were in 12th grade. The ethnicity of these students (approximately 90% White) is comparable to a recent census of this region (Pollard & Jacobsen, 2014). We collapsed across Non-White students to prevent possible identification of these students in this rural environment.

Measures

The YRBS was designed by the U.S. CDC and has 117 items that are described on the CDC (2013) website. Items focus on (a) demographic factors; (b) alcohol, tobacco, and other drug use; (c) risky sexual behavior; (d) aggression and bullying; (e) suicidal ideation and behavior; (f) nutrition; and (g) physical activity. The present study focused on the items related to (a) alcohol, tobacco, and drug use; (b) aggression and bullying; and (c) suicidal ideation and behavior. The YRBS is considered a valid source of data on risk behaviors for U.S. adolescents (see Brener et al., 2013 for a review). Questions were categorical; those with multiple risk categories were transformed to binary yes/no for the purpose of the analyses. For example, for the question "During the past 12 months, how many times did you actually attempt suicide?" all categories (0 times, 1 time, 2 or 3 times, 4 or 5 times, 6 or more times) were recoded into "no attempt" or "one or more attempt."

Analytic Strategy

Five composite variables (suicide risk, bullying victimization, school violence, drug use, and risky sex) were operationalized to control for family wise error and to develop sensitive composite variables for each content area of risk behavior. Suicide risk included (a) suicidal ideation, (b) suicide attempts, and (c) injury/treatment following a suicide attempt. If students indicated any of these they were considered at risk and were coded as 1 for the analysis; if they did not endorse any of these they were considered not at risk and were coded as a 0 for the analysis. Of the 320 students (20.6%) who endorsed at least one suicide risk item, 50.9% endorsed only one item, 41.6% endorsed two items, and 7.5% endorsed all three items.

Similarly, bullying victimization included endorsement of any of the following: (a) bullied at school, (b) electronic bullying, (c) being bullied because of perceived LGBQ status, and (d) seeing other students bullied because of perceived LGBQ status. Of the 966 (62.3%) of students endorsing a bullying item, 77.8% endorsed only one item, 14.8% endorsed two items, 5.5% endorsed three items, and 1.9% endorsed all four items.

School violence included (a) endorsement of feeling unsafe at school, (b) being threatened or injured with a weapon at school, and (c) fighting at school. Of the 362 students (23.4%) who endorsed a school violence item, 76.8% endorsed only one item, 16.9% endorsed two items, and 6.4% endorsed three items.

Drug use included the endorsement of the use of (a) alcohol, (b) marijuana, (c) cocaine, (d) inhalants, (e) methamphetamine, (f) steroids, and (g) misuse of prescription drugs. Of the 674 (43.5%) of students endorsing at least one of the eight substance use items, 40.7% endorsed only one item, 20.3% endorsed two items, 15.0% endorsed three items, 8.0% endorsed four items, 6.2% endorsed five items, and 7.4% endorsed six or more items.

Risky sexual behavior included (a) endorsement of sexual activity, (b) use of alcohol/drugs before sex, and (c) failure to use a condom during sex. Of the 547 (35.3%) of students endorsing a risky sex item, 53% endorsed only one item, 38% endorsed two items, and 9% endorsed three items.

When differences between groups on these composite variables emerged, post hoc comparisons were performed on constituent variables.

We also examined one noncomposite variable, level of perceived support for LGBQ students.

Results

LGBQ students had a significantly higher likelihood of reporting suicide risk, bullying victimization, school violence, drug use, and risky sex. Further, LGBQ students were more likely to report inadequate support than were heterosexual students. See Table 1 for chi square, relative risk ratios, *p* values, and confidence intervals for these five composite risk variables.

Given these significant findings on the composite variables and the low, yet expected, base rate of LGBQ students, we used simple chi-square analyses as post hoc comparisons to examine the difference between the percent of LGBQ versus the percent of heterosexual students who endorsed each YRBS item included within the operationalized composite variables as described above in the analytic strategy. All of these comparisons save one (drug/alcohol use before sex) were significant. See Table 2 for chi square, percentages (LGBQ, heterosexual, and total), relative risk ratios, *p* values, and confidence intervals for all comparisons.

Mediational Analyses

We were interested in whether bullying victimization would mediate the associations between LGBQ status and risk behaviors (suicide risk, drug use, and sexual risk behavior; Baron & Kenny, 1986). Because the largest risk ratio (4.41) was tied to bullying victimization resulting from perceived LGBQ status, we examined if that variable served to mediate risk. We found that LGBQ status was a significant predictor of suicide risk (see Figure 1) and drug use (see Figure 2), but not sexual risk (see Figure 3). Additionally, perceptions of bullying based on LGBQ status directly predicted suicide risk, drug use, and sexual risk. However, perception of bullying based on LGBQ status did not mediate the relationship between LGBQ status and suicide risk. The relationship between LGBQ status and drug use was partially mediated by participants' perception of experiencing bullying that resulted from their perceived LGBQ status.

Table 1
Chi Square, Relative Risk Ratios (RR), and Confidence Intervals (CI) for Lesbian, Gay, Bisexual, and Questioning (LGBQ) Students Relative to Heterosexual Students for Composite Risk Behaviors Calculated From Responses on the Youth Risk Behavior Survey

Variable	$\chi^2(3)$	RR	95% CI
Suicide risk	122.95	5.00***	[3.7, 6.8]
Bullying	11.63	1.25***	[1.1, 1.4]
School violence	17.03	1.97***	[1.5, 2.7]
Drug use	20.25	1.49***	[1.3, 1.7]
Risky sexual behavior	4.92	1.26*	[1.0, 1.5]
Perceived LGBQ support	18.24	1.43***	[1.2, 1.6]

Note. The sample size for the chi-square is 1,483–1,536. RR is the ratio of the probability of an adverse outcome occurring in a group of interest (i.e., LGBQ students) to the probability of an adverse outcome occurring in a comparison group (i.e., sexual majority students).
* $p < .05$. *** $p < .001$.

Discussion

This study is one of the first to directly compare LGBQ versus heterosexual adolescents from a rural area on a variety of risk behaviors. The findings strongly supported the hypotheses that rural LGBQ students would report more risk behaviors across a variety of domains than heterosexual youth. Specifically, we found that LGBQ students were at five times the risk for reporting suicide risk factors, 1.25 times the risk of reporting bullying victimization, almost twice the risk for reporting school violence, almost 1.5 times the risk for reporting drug use, and 1.26 times more likely to report risky sexual behavior. Similarly, all of the post hoc comparisons on the individual YRBS risk factors within these themes—with the exception of use of alcohol/drugs before sex—indicated that rural LGBQ youth were at greater risk than rural heterosexual youth. Moreover, we found that LGBQ students perceived a lower level of school and community support than heterosexual students, which is consistent with findings among urban and suburban LGBQ youth (e.g., Birkett et al., 2009; Fontanella et al., 2015; Lambert, Gale, & Hartley, 2008). Finally, we found that drug use in these students was a function of reported bullying victimization based on one's perceived LGBQ status. This is important because bullying victimization is preventable and a possible target for intervention.

Table 2
Chi Square, Percentage, Relative Risk Ratios (RR), and Confidence Intervals (CI) for Lesbian, Gay, Bisexual, and Questioning (LGBQ) Students Relative to Heterosexual Students for Multiple Risk Behaviors Surveyed on the Youth Risk Behavior Survey

Variable	$\chi^2(3)$	% LGBQ; heterosexual; total	RR	95% CI
Suicidal ideation	134.84	49%; 12%; 15%	4.04***	[3.2, 5.0]
Suicide attempts	139.73	45%; 10%; 13%	4.52***	[3.6, 5.7]
Treatment for suicide attempt	27.31	14%; 4%; 5%	3.50***	[2.2, 5.7]
Bullied at school	38.90	40%; 18%; 20%	2.22***	[1.8, 2.8]
Victim of electronic bullying	50.11	35%; 13%; 15%	2.70***	[2.1, 3.5]
Being bullied due to LGBQ status	124.19	42%; 10%; 13%	4.41***	[3.4, 5.7]
Seeing LGBQ students bullied	18.52	59%; 41%; 43%	1.45***	[1.3, 1.7]
Feeling unsafe at school	39.05	16%; 4%, 5%	3.94***	[2.5, 6.2]
Threatened w/ weapon at school	15.69	13%; 5%; 6%	2.61***	[1.6, 4.2]
Fighting at school	7.40	15%; 8%; 9%	1.82***	[1.2, 2.8]
Smoking last 30 days	21.57	30%; 15%; 16%	1.96***	[1.5, 2.6]
Alcohol last 30 days	15.12	44%; 29%; 30%	1.53***	[1.3, 1.9]
Marijuana last 30 days	18.61	31%; 17%; 18%	1.86***	[1.4, 2.4]
Cocaine lifetime	16.43	15%; 6%; 7%	2.48***	[1.6, 3.9]
Inhalants lifetime	36.28	24%; 8%; 10%	2.88***	[2.0, 4.0]
Methamphetamine lifetime	10.07	10%; 4%; 5%	2.38***	[1.4, 4.1]
Steroids lifetime	15.72	11%; 4%; 4%	2.88***	[1.7, 4.9]
Prescription drugs lifetime	13.98	28%; 16%; 17%	1.77***	[1.3, 2.4]
Sexual intercourse	4.33	45%; 36%; 37%	1.24*	[1.0, 1.5]
Alcohol/drugs before sex	3.31	10%; 8%; 8%	0.95	[0.6, 1.6]
No condom use during sex	27.49	28%; 12%; 14%	1.7***	[1.4, 2.2]

Note. The sample size for the chi-square is 1,512–1,545. RR is the ratio of the probability of an adverse outcome occurring in a group of interest (i.e., LGBQ students) to the probability of an adverse outcome occurring in a comparison group (i.e., sexual majority students).
* $p < .05$. *** $p < .001$.

Our results are consistent with studies indicating LGBQ teens are at risk for depression, suicidal ideation, and suicide attempts (e.g., Hatzenbuehler et al., 2014; Liu & Mustanski, 2012), bullying victimization (e.g., Ballard & Welch, 2015; Kosciw et al., 2012, 2014), and drug/alcohol abuse. Others have found that the risk for depression and suicide among LGBQ youth are moderated by bullying and other types of victimization (Kosciw et al., 2012, 2014; Robinson & Espelage, 2012; Toomey et al., 2010) and substance use (Mereish et al., 2014). We did not find that bullying victimization mediated suicide risk, but found further support that bullying victimization mediates substance use among LGBQ youth (e.g., Huebner et al., 2015; Kelly et al., 2015; Newcomb, Heinz, Birkett, & Mustanski, 2014).

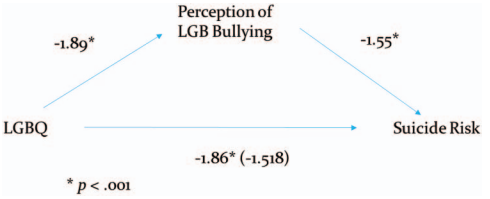

Figure 1. Mediation of suicide risk. LGB = lesbian, gay, and bisexual; LGBQ = lesbian, gay, bisexual, and questioning. See the online article for the color version of this figure.

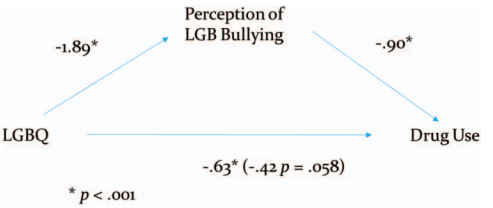

Figure 2. Mediation of drug use. LGB = lesbian, gay, and bisexual; LGBQ = lesbian, gay, bisexual, and questioning. See the online article for the color version of this figure.

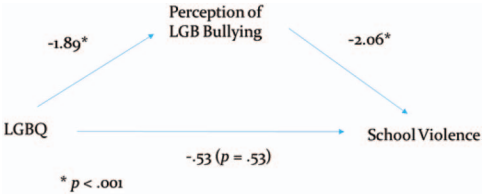

Figure 3. Mediation of school violence. LGB = lesbian, gay, and bisexual; LGBQ = lesbian, gay, bisexual, and questioning. See the online article for the color version of this figure.

Although bullying victimization did not mediate suicide risk in our sample, LGBQ youth reported much higher rates of bullying victimization. Ballard and Welch (2015) suggested that sexism, misogyny, homophobia, and the masculine culture of certain contexts (e.g., football teams) increase the likelihood of bullying victimization, particularly of those perceived as less masculine, including LGBQ individuals (Poteat, Kimmel, & Wilchins, 2011; Steinfeldt et al., 2012). These issues could potentially arise in a rural context, where perception of being LGBQ could be irrationally viewed as a threat to family, children, social roles, or values (e.g., Seaton, 2007).

Relatedly, we found that LGBQ students reported less support in the community and school. This is unfortunate, as higher levels of support might serve as a protective factor for LGBQ youth (Hatzenbuehler et al., 2014; Liu & Mustanski, 2012; Rinehart & Espelage, 2016). In general, rural LGBQ students tend to find faculty or staff less supportive and feel less connected to their schools than suburban and urban students (Palmer et al., 2012). We found little evidence of direct institutional support for LGBQ students in these schools. To our knowledge, neither of the districts in the study had an active GSA. Repeated calls and emails to school administrators at both schools regarding the issue were not returned.

Strengths and Limitations

The primary strength of this study is that we compared risks for rural LGBQ and heterosexual youth. Although previous studies have compared urban heterosexual to urban LGBQ youth or rural LGBQ youth to urban LGBQ youth, there has been limited research examining such comparisons for rural youth (Cohn & Leake, 2012). A second strength of the study is that the YRBS is a commonly used measure for adolescent health risks vetted by the CDC. Finally, we were able to examine if bullying victimization mediates these risks for LGBQ youth, which is important because schools and communities can use education, intervention, and the development of organizations such as GSAs to enable students to more formally support one another and to reduce risk for LGBQ students.

One weaknesses of the study is that the YRBS question on sex/gender only provided a dichotomous choice, so transgender students could not be identified for inclusion in the analysis. It is possible that they classified themselves as one of the LGBQ options, but there is no way to know this. Future versions of the YRBS should include both sexual orientation and gender identification. A second, related weakness is that we collapsed across all self-identified sexual minority students due to the low base rates. This is a common practice, but as these groups may be heterogeneous, this limits our ability to draw conclusions about subgroups within this population. A third limitation of the study is that we have no suburban/urban sample of youth for comparison. Finally, our sample was drawn from a relatively small area of western North Carolina. A sample including more geographic diversity could lead to greater generalizability to other rural areas of the country. The racial composition of our sample is comparable to a recent census of this region (Pollard & Jackson, 2014), suggesting these results are closely representative of Appalachia. However, given that our sample and the region has comparatively little ethnic diversity, caution is warranted in generalizing these results to more diverse rural areas, particularly because there is evidence that racism increases risk of depression and anxiety, but not suicide risk, among LGBQ and transgender people of color (Sutter & Perrin, 2016). However, given that rural youth, particularly rural LGBQ youth, are an understudied population, our findings add substantially to the research in this area.

Conclusions and Directions for Research

We found rural LGBQ youth to be at much higher risk than heterosexual youth across multiple domains, particularly in regard to bullying

victimization and risk for suicide. We also found that bullying victimization based on perceived LGBQ status mediated drug use among our sample. Although granularity of the data is limited by the YRBS's intended use as a broad-spectrum surveillance tool, the findings do suggest differential risk for rural LGBQ adolescents compared with their heterosexual peers and justifies additional research to identify specific risk and protective factors for rural LGBQ youth. Moreover, the findings provide a strong rationale for the development and investigation of preventative interventions that are tailored to rural environments.

Among the most important protective factors for LGBT adolescents is acceptance of sexual orientation by family members (Shilo, Antebi, & Mor, 2015; Zimmerman, Darnell, Rhew, Lee, & Kaysen, 2015). A sizable body of research has demonstrated that LGBQ youth with accepting parents are less likely to endorse mental health issues and low self-esteem, substance use, suicidality, and risky sexual behavior (LaSala, Siebert, Fedor, & Revere, 2016; Mustanski & Liu, 2013; Newcomb, Heinz, & Mustanski, 2012; Ryan, Russell, Huebner, Diaz, & Sanchez, 2010; Snapp, Watson, Russell, Diaz, & Ryan, 2015; Shilo & Savaya, 2011). However, less is known regarding these parent-adolescent relationships in rural environments. Research has suggested that sexual minorities living in rural areas perceive greater stigma and lower tangible support than their urban counterparts (Kosciw, Greytak, & Diaz, 2009; Lyons, Hosking, & Rozbroj, 2015). Therefore, one might suspect a lower frequency of acceptance from families in rural areas as a possible explanation. However, to our knowledge, this issue has not been examined specifically.

As mentioned above, there is evidence that supportive school environments reduce risk for LGBQ students. In general, bullying prevention programs that improve school climate reduce negative outcomes in those with a history of victimization (Juvonen, Schacter, Sainio, & Salmivalli, 2016). However, there are few programs aimed at improving support for LGBQ students and those that do exist have not been examined empirically. Heck (2015) attempted a small-scale, multiple session intervention through a GSA, but attendance was low and sporadic; thus, the study did not result in any reliable conclusions. Clearly, further research is needed in this area.

Smith and colleagues (2008) argued that schools should use primary prevention to promote positive school climate for all students, including that schools educate staff and particularly students about gender identity, sexual orientation, homophobia, and institutionalized discrimination and integrate age appropriate information about LGBQ issues into existing curriculum and antibullying programs. For example, Wernick, Kulick, and Inglehart (2013) found that seeing peers, as opposed to seeing teachers, intervene in an episode of anti-LGBQ bullying had a stronger impact on student bystanders' likelihood of intervening in a future episode. However, there are few programs aimed at improving support for LGBQ students and those that do exist have not been examined empirically (Smith et al., 2008). Rural areas may face additional challenges. Given extant evidence that LGBQ youth are more likely to experience bullying (Kosciw et al., 2014; Palmer et al., 2012), such behavior may be more culturally acceptable. Identifying and understanding these potential differences is an important future step toward developing school climate interventions that are effective for rural schools.

Secondary prevention (e.g., providing support groups, diversity rooms, Open Door programs, Red Flag programs) and tertiary prevention (e.g., addressing LGBQ students who are experiencing bullying) also are recommended (Smith et al., 2008). Further, LGBQ students should be educated with regard to local and regional support systems and given contact information for these support systems (e.g., *Trans Lifeline*; Allen, 2016). The Group Parents and Friends of Lesbians and Gays (PFLAG) is an organization aimed at parents, but we were unable to find any published studies on the impact of this program. Based on anecdotal evidence, PFLAG groups tend to be loosely organized, are uncommon in rural areas, and are most commonly populated by LGBQ individuals and those who are already accepting of LGBQ individuals.

Clearly research regarding rural LGBQ youth needs to be expanded. It would be useful for some of the questions on the YRBS to be redesigned to more clearly examine sexual and gender identity, bullying based on LGBQ status,

and level of support for LGBQ students across various contexts. More research also needs to focus on factors that serve to decrease risk or increase resilience among rural students in general and for rural LGBQ students in particular. Finally, programs that are designed to reduce risk and/or increase resilience need to be examined empirically to determine what programs are effective so that these can be expanded across contexts.

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