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# Mental Health of Gay, Lesbian, Bisexual, Heterosexual, and Questioning Youth in Rural, Micropolitan, and Metropolitan Regions in Minnesota: Assessing Internalizing and Externalizing Self-report Behaviors

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Running head: INTERNALIZING AND EXTERNALIZING BEHAVIORS IN MN YOUTH

Mental Health of Gay, Lesbian, Bisexual, Heterosexual, and Questioning Youth in Rural,  
Micropolitan, and Metropolitan Regions in Minnesota:  
Assessing Internalizing and Externalizing Self-report Behaviors.

By  
Jessica Jorgenson

A Thesis Submitted in Partial Fulfillment of the  
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Mental Health of Gay, Lesbian, Bisexual, Heterosexual, and Questioning Youth  
in Rural, Micropolitan, and Metropolitan Regions in Minnesota:  
Assessing Internalizing and Externalizing Self-report Behaviors.

Jessica Jorgenson

This thesis has been examined and approved by the following members of the  
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## Table of Contents

Abstract.....	4
Introduction .....	5
Literature Review.....	6-10
Internalizing and Externalizing Behaviors.....	5-6
County and School Climate.....	6-8
With-in Group Comparisons.....	9
Current Study.....	9
Hypotheses.....	9-10
Method.....	10-13
Participants.....	11-12
Measures.....	12
Procedure.....	13
Results.....	13-19
Hypothesis 1.....	13-14
Hypothesis 2.....	15
Hypothesis 3.....	16-18
Hypothesis 4.....	18-19
Discussion.....	20-27
References.....	27-31
Appendix A- GAIN-SS Internalizing Items .....	32
Appendix B- GAIN-SS Externalizing Items.....	33

Appendix C- Institutional Review Board Approval Letter.....34

### Abstract

Individuals identifying as gay, lesbian, bisexual, and questioning or unsure are often at greater risk of developing psychopathology. Minnesota youth, grades 9 and 11, completed the Minnesota Student Survey in 2013. Data were analyzed to ascertain differences within the aforementioned sexual minority groups as well as comparisons to heterosexual youth on questions adapted from the Global Appraisal of Individual Needs Short Screener (GAIN-SS). The GAIN-SS consists of self-reported items regarding internalizing and externalizing behaviors. In the present study, bisexual youth reported the most externalizing behaviors and the fewest internalizing behaviors. Heterosexual youth reported the fewest externalizing behaviors, but the most internalizing. County type of residence (rural, micropolitan, and metropolitan) was also addressed, but main effects were mostly insignificant. Archival nature of data, small effect sizes, and response bias limit implications from the present study. Future research should clarify the relationship between individuals identifying as bisexual and the high response for externalizing behaviors compared to low response for internalizing behaviors. An emphasis can then be placed on policy and program aims of sexual minority youth.

Mental Health of Gay, Lesbian, Bisexual, Heterosexual, and Questioning Youth in Rural,  
Micropolitan, and Metropolitan Regions in Minnesota

It is suggested sexual minority individuals (defined in the present study as including lesbian, gay, bisexual, and questioning/unsure individuals) experience stress associated with stigma and discrimination (Hatzenbuehler, 2009). Hatzenbuehler (2009) further proposed this stress is theoretically associated with difficulties in emotional regulation, negative cognitions, and difficulties with interpersonal relationships. Subsequently, these individuals are at a greater risk for psychopathology (Hatzenbuehler, 2009) such as depression, posttraumatic stress disorder, and anxiety disorders (Hershberger & D'Augelli, 1995). In comparison to their heterosexual counterparts, adults who identify as gay or lesbian are approximately twice as likely to suffer from a mental health disorder (Meyer, 2003).

### **Literature Review**

#### **Internalizing and Externalizing Behaviors**

Adolescent and emerging adult behavior can be classified in a variety of ways. A dichotomy of internal and external behaviors is useful. Internalizing problems occur when an individual directs problems or negativity, usually resulting from stress, inward resulting in emotional conditions such as anxiety or depression. Conversely, externalizing problems result when an individual directs problems or negativity outside of oneself resulting in behavior such as physical aggression, destruction of property, and/or underage drinking (Santrock, 2014, p. 434-435). In the literature, an “internalizing-externalizing liability model” is often used to conceptualizing psychiatric comorbidities

(Mimiaga, et al, 2015). Mimiaga et al. (2015) explains identifying latent dimensions that serve to unify comorbidities of multiple internal (mood and anxiety) or externalizing (substance use and anti social) symptoms and disorders may help researchers and practitioners better understand risk.

Links have been established between the type of behavior pattern and a variety of future problems. For example, Quinton, Rutter, and Gulliver (1990) reported externalizing problems at an earlier age are linked with increased alcohol consumption in adolescence. Additionally, elementary boys who tended to internalize had a similar pattern of behavior in young adulthood. Elementary boys who tended to externalize were at an increased risk for developing antisocial problems in early adulthood. However, females, in the same study, were at an increased risk for internalizing problems during early adulthood regardless if they had early externalizing or internalizing patterns.

Externalizing and internalizing patterns are not unique to sexual minority youth. However, little research has been conducted concerning sexual identity-related and unrelated risk factors. Elze (2002) explains little is known about what risk factors sexual minority youth experience that may be unique or shared with other vulnerable children and adolescents. Therefore, few studies have investigated risk factors that are both unique to the sexual minority and shared with non-sexual minority youth.

### **County and school climate**

Utilizing Urie Bronfenbrenner's ecological systems theory, a child's environment is vital when attempting to understand a child's development (Santrock, 2014). The environment is also crucial for promoting change within the child. Clearly, school is an influential environment for the child (Birkett, Espelage, & Koenig, 2009). A variety of

school factors have been linked to the development of a child's self-concept, the child's mental health, and the child's ability to develop social relationships (Baker et al., 2001; Birkett, Espelage, & Koenig, 2009; Ringeisen et al., 2003). There needs to be a goodness of fit between the child and the learning environment (Baker et al., 2001). A poor fit may result in difficulties either socially or academically (Eccles, 1993).

Lipkin (2002) asserts school environments are unsupportive or a poor fit for lesbian, gay, bisexual and questioning students. This assertion is strengthened by a multitude of surveys reporting high rates of homophobic bullying and harassment. For example, in one study, 84.6% of LGBT youth reported being harassed verbally. Within the year prior to the administration of the survey, about 40% of LGBT youth report physical assault due to their sexual orientation (Kosciw, Greytak, Diaz, & Bartkiewicz, 2010). Stress related to coming terms with the child's sexuality in early adolescence and concurrently negotiating the school's adverse environment may place many sexual minority youth at risk for a multitude of negative outcomes such as increased risk for depression, suicidality, and drug use (Brikett, Espelage, & Koenig, 2009).

Conversely, a positive school environment, one with school peer-support groups, counseling, and anti-bullying policies, was associated with decreased peer victimization and suicide attempts (Goodenow et. al, 2006). Further, many researchers suggest a positive school environment may assist in preventing negative outcomes of sexual minority youth (Brikett, Espelage, & Koenig, 2009; D'Augelli, 2002; Goodenow et al. 2006; Hershberger & D'Augelli, 1995). In the Brikett, Espelage, and Koenig (2009) study, regardless of sexual orientation and when in positive school environment—where individuals report not experiencing homophobic teasing—the lowest levels of



depression/suicidality, truancy, and alcohol and marijuana use were reported. This may suggest that schools with low homophobic teasing and a positive school climate could potentially reduce the prevalence of negative outcomes in sexual minority youth.

The type of county in which the youth resides may influence the type of school environment. In an adult sample, it has been suggested that rural, gay, males may be at greater risk than their urban, gay counterparts in regards to mental health and well-being. Rural areas are suspected to present more challenges to sexual minorities because these communities may not offer the same supports urban communities may offer such as organizations and communities to offer social support. Rural, gay men may benefit from prevention and treatment programs (Lyons, Hosking, & Rozbroj, 2014).

Despite the clear rationale for differences in well-being for gay men in rural areas compared to urban areas, the literature is largely mixed. Using national survey data, Wienke and Hill (2013) found rural, gay men were actually happier on average. Yet, another study found rural, gay youth were more likely to consider or attempt suicide than urban, gay youth (Poon & Saewyc, 2009). Still, other studies have found no differences between the two groups (Waldo, Hesson-McInnis, & D'Augelli, 1998). The mixed findings in the literature may have arisen for a variety of reasons. Most important to the present study revolves around the measurement and definition of mental health. The present study seeks to dichotomize mental health based on internalizing and externalizing behaviors, which is generally not done with this population. A standardized measure of mental health may help clarify the findings in the literature. Additionally, much of the research to date has been done with older sexual minorities. The applicability of these findings to sexual minority youth is unknown.

### **With-In Group Comparisons**

Sexual minority students are often treated as a homogeneous group. However, research indicates these groups should be treated more heterogeneously (Katz-Wise, Hyde, 2012; Robinson & Espelage, 2011; Russell & Seif, 2002). Some researchers have urged studies to separate bisexual from gay and lesbian youth. It is hypothesized these groups have different factors or factors that vary in importance and intensity (Russell & Seif, 2002). To illustrate this difference, bisexual youth have been found to be at greater risk for negative outcomes than individuals identifying as gay or lesbian (Russell & Seif, 2002; Russell, Seif, & Truong, 2001).

### **Current Study**

Three general questions were considered for the present study: (1) Is there a statistically significant difference between sexual orientation groups in self-reported internalizing behaviors? (2) Is there a similar statistically significant difference for externalizing behaviors? (3) Does this relationship differ based on population of the county in which the youth resides?

### **Hypotheses**

Based on a review of the literature and the general questions of this study, several hypotheses were generated:

1. Sexual minority youth in the 9<sup>th</sup> grade will report more internalizing behaviors than heterosexual youth. Further, there will be a relationship between county size and self-reported internalizing behaviors; such that, individuals from rural

- communities will be more likely to report internalizing behaviors than youth from micropolitan and metropolitan areas.
2. Sexual minority youth in the 11<sup>th</sup> grade will report more internalizing behaviors than heterosexual youth. Further, there will be a relationship between county size and self-reported internalizing behaviors; such that, individuals from rural communities will be more likely to report internalizing behaviors than youth from micropolitan and metropolitan areas.
  3. Sexual minority youth in the 9<sup>th</sup> grade will report more externalizing behaviors than heterosexual youth. Further, there will be a relationship between county size and self-reported externalizing behaviors; such that, individuals from rural communities will be more likely to report externalizing behaviors than youth from micropolitan and metropolitan areas.
  4. Sexual minority youth in the 11<sup>th</sup> grade will report more externalizing behaviors than heterosexual youth. Further, there will be a relationship between county size and self-reported externalizing behaviors; such that, individuals from rural communities will be more likely to report externalizing behaviors than youth from micropolitan and metropolitan areas.

### **Method**

Since 1992, the Minnesota Student Survey (MSS) has been administered to various middle and secondary grades in regular 3-year intervals. The survey assesses a variety of risk and protective factors of mental health psychopathologies. Students report on their activities, attitudes, experiences, and behaviors. More specifically, substance use, school connectedness, perceptions of safety, and family climate are a few of the variables

assessed. This survey seeks to provide educators, service providers, and policy-makers with information to be used for program planning and evaluation. In addition to meeting state and federal student survey requirements, the survey marks trends over time, addresses relevant issues confronting students, and provides data for local use (Minnesota Department of Education, 2015).

In 2013, of the 334 invited, 280 public operating school districts participated (84%). Students in grades 5, 8, 9, and 11 participated. Across the state, participation among the 4 grades was 67% of the total enrollment. Completion of the survey was voluntary and anonymous by each student. School districts that participated in the survey followed federal laws regarding parental notification, including adhering to the Family Educational Rights and Privacy Act (FERPA) and the Protection of Pupil Rights Amendment (PPRA). In addition to parental notification of survey administration, PPRA also requires schools to provide parents the opportunity to review the survey instrument and allow parents to opt their child out of the survey (Minnesota Department of Education, 2015).

### **Participants**

In total, 39,854 students in 5<sup>th</sup> grade, 42,841 students in 8<sup>th</sup> grade, 42,381 students in 9<sup>th</sup> grade, and 36,958 students in 11<sup>th</sup> grade participated in the 2013 MSS. Questions about sexual orientation were not asked to the 5<sup>th</sup> and 8<sup>th</sup> graders. The analyses presented in the present research will include 9<sup>th</sup> and 11<sup>th</sup> graders ( $n = 79,339$ ). Students in 9<sup>th</sup> grade and 11<sup>th</sup> grade were left separated to reduce effects that may be due to grade or cohort effects. The sample's ethnic and racial representation includes 50.2% male ( $n = 39,793$ ) and 49.8% female ( $n = 39,546$ ). The sample was 82.7% White, 1% Native

Hawaiian or Other Pacific Islander, 8.3% Black, 2.9% Hmong, 1% Somali, 6.8% Hispanic or Latino(a), 5% American Indian or Alaskan Native, and 7.1% Asian. The sample was evenly distributed between greater Minnesota (46.8%) and the Twin Cities Metro Area (53.2%).

### **Measures**

The 2013 MSS consisted of a wide range of measures and single-item indicators. The anonymous survey varied by grade on number of items. Questions adapted from the Global Appraisal of Individual Needs Short Screener (GAIN-SS) were of particular interest to the present study. The functions of the GAIN-SS are to identify individuals with 1 or more behavioral health disorders, serve as a periodic measure of behavioral health change over time, and look at events from the last 12 months using yes/no responses. The GAIN-SS possesses adequate internal consistency and overall and subscale construct validity (McDonell, Comtois, Voss, Morgan, & Ries, 2009).

Sexual orientation was assessed using a one-item indicator: *Which of the following best describes you?* Choices include (a) *heterosexual*, (b) *bisexual*, (c) *gay or lesbian*, and (d) *not sure (questioning)*. Participants who identified as heterosexual (option a) comprised 93.6% ( $n = 72,798$ ) of the sample, and will be referred to as heterosexual. Participants who identified as bisexual (option b) comprised 2.9% ( $n = 2223$ ) of the sample. Individuals who endorsed the Gay or Lesbian option (option c) comprised .8% of the sample. Not sure or questioning (option d) comprised 2.7% of the sample. Collectively, bisexual, gay or lesbian, and not sure/questioning (option b, c, and d) will be known as the sexual minority. Those who elected not to respond to this item comprised 2% of the sample.

**Procedure**

The Minnesota Student Survey was provided by public school students in Minnesota via local public school districts (or alternative education programs) and managed by the Minnesota Student Survey Interagency Team (2013). The Institution Review Board granted approval on February 15, 2015 (see Appendix C). Data from students in 5<sup>th</sup> and 8<sup>th</sup> grade were filtered out of analysis because sexual orientation was not assessed. Data from students in 9<sup>th</sup> grade and 11<sup>th</sup> grade were not combined in an attempt to test for grade effects. Several ANOVAs were conducted with Tukey HSD post hoc tests as follow-up analysis when necessary.

**Results**

Counties were sorted into rural, micropolitan, or metropolitan based on data from the Minnesota Health Department. Beginning in 2005, Minnesota has been divided into these three areas based on federal definitions provided by the Office of Management and Budget (OMB). A metropolitan statistical area (MSA) county contains a core urban area of 50,000 or more residents. A micropolitan core area must have less than 50,000, but more than 10,000 in population. A rural area has no central urban area with more than 10,000 residents. In Minnesota, 21 counties are considered metropolitan, 20 are categorized as micropolitan, and the remaining 46 counties are considered rural (Minnesota Department of Health, 2008).

Table 1 details the participant composition based on both grade and county type. The metropolitan counties comprised 53,589 (73.5%) of 9<sup>th</sup> and 11<sup>th</sup> grade participants.

There were 8,197 (11.2%) 9<sup>th</sup> and 11<sup>th</sup> grade participants from micropolitan counties. There were 9,482 (13.0%) rural, 9<sup>th</sup> and 11<sup>th</sup> grade participants. Approximately, 1,612 (2.2%) students in 9<sup>th</sup> and 11<sup>th</sup> grade did not indicate the county in which they resided. It is hypothesized that sexual minority individuals will have higher internalizing and externalizing means than their heterosexual peers; sexual minority youth in rural areas will report the highest internal and external means.

**Table 1.**  
*9<sup>th</sup> and 11<sup>th</sup> Grade County Type*

	9 <sup>th</sup> Grade	11 <sup>th</sup> Grade	Total
Metropolitan	28165	25424	53589
Micropolitan	4409	3788	8197
Rural	5171	4311	9482
No Response	864	748	1612
Total	38609	34271	72880

*Hypothesis 1- Sexual minority youth in the 9<sup>th</sup> grade will report more internalizing behaviors than heterosexual youth. Further, there will be a relationship between county size and self-reported internalizing behaviors; such that, individuals from rural communities will be more likely to report internalizing behaviors than youth from micropolitan and metropolitan areas.*

A one-way ANOVA was conducted to compare internalizing scores of all 9<sup>th</sup> grade participants from metropolitan, micropolitan, rural, and no response counties. This was done to assess any group differences that may exist before sexual orientation was taken into account. No significant difference was found ( $F(3, 38605) = .221, p = .882$ ). Regardless of the county of residence, the 9<sup>th</sup> grade students did not significantly differ on internalizing scores. Rural, 9<sup>th</sup> graders reported a mean score of 8.57 ( $sd = 1.68$ ). Students who reported residing in a micropolitan county reported a mean score of 8.55 ( $sd = 1.67$ ) for internalizing scores. Metropolitan, 9<sup>th</sup> graders reported a mean score of

8.56 ( $sd= 1.68$ ) for internalizing scores. Finally, the no response, 9<sup>th</sup> graders reported an internalizing mean score of 8.52 ( $sd= 1.66$ ).

Table 2 outlines the sexual orientation identification of the participants. Most students identified as heterosexual (93.8%). Gay/Lesbian comprised 1.7% of the sample. Individuals identifying as bisexual comprised 1.9% of the sample. Questioning or individuals unsure of their sexual orientation comprised 2.5% of the sample. Of the 72,880 participants utilized for the county area data, 1,154 participants elected to not respond to the sexual orientation question and were excluded from analyses.

**Table 2.**  
*9<sup>th</sup> and 11<sup>th</sup> Grade Sexual Orientation*

	9 <sup>th</sup> Grade	11 <sup>th</sup> Grade	Total
Heterosexual	35385	31910	67295
Gay/Lesbian	294	932	1226
Bisexual	1087	295	1382
Questioning/Not sure	1093	730	1823
Total	37859	33867	71726

A 4 (county type) x 4 (sexual orientation) between- subjects factorial ANOVA was calculated comparing internalizing scores for 9<sup>th</sup> grade participants from micropolitan, metropolitan, no response, or rural counties who identified as gay/lesbian, bisexual, heterosexual, or not sure/questioning. A significant main effect was found for sexual orientation ( $F(3, 37843) = 174.897, p < .001, \eta^2 = 0.0132$ ). Utilizing Tukey HSD, all sexual orientation groups were significantly different from each other ( $p < .001$ ). Heterosexual, 9<sup>th</sup> graders reported the highest internalizing scores ( $m = 8.65, sd = 1.63$ ). Participants identifying as bisexual reported the lowest internalizing scores ( $m = 6.72, sd = 1.80$ ). Gay/ lesbian and questioning/not sure reported internalizing scores of  $m = 7.31, sd = 1.9$  and  $m = 7.86, sd = 1.84$ , respectively. The main effect of county type ( $F(3,$



37843) = .697,  $p > .05$ ) and the interaction between county type and sexual orientation were both non-significant ( $F(9, 37843) = 1.340, p > .05$ ).

*Hypothesis 2- Sexual minority youth in the 11<sup>th</sup> grade will report more internalizing behaviors than heterosexual youth. Further, there will be a relationship between county size and self-reported internalizing behaviors; such that, individuals from rural communities will be more likely to report internalizing behaviors than youth from micropolitan and metropolitan areas.*

A one-way ANOVA was also conducted to compare internalizing scores of all 11<sup>th</sup> grade participants from metropolitan, micropolitan, rural, and no response counties. No significant difference was found ( $F(3, 34267) = 2.241, p = .081$ ). Regardless of county of residence, the 11<sup>th</sup> grade students did not significantly differ on internalizing scores. Rural, 11<sup>th</sup> graders reported a mean score of 8.53 ( $sd = 1.66$ ). Students who reported residing in a micropolitan county reported a mean score of 8.58 ( $sd = 1.66$ ) for internalizing scores. Metropolitan, 11<sup>th</sup> graders reported a mean score of 8.52 ( $sd = 1.66$ ) for internalizing scores. Finally, the no response, 11<sup>th</sup> graders reported an internalizing mean score of 8.63 ( $sd = 1.55$ ).

A 4 (county type) x 4 (sexual orientation) between- subjects factorial ANOVA was calculated comparing internalizing scores for 11<sup>th</sup> grade participants from micropolitan, metropolitan, no response, or rural counties who identified as gay/lesbian, bisexual, heterosexual, or not sure/questioning. A significant main effect was found for sexual orientation ( $F(3, 33851) = 80.011, p < .001, \eta^2 = 0.0068$ ). Utilizing Tukey HSD, all sexual orientation groups were significantly different from each other ( $p \leq .001$ ). Similar to the 9<sup>th</sup> graders, heterosexual, 11<sup>th</sup> graders reported the highest internalizing scores ( $m = 8.61, sd = 1.61$ ). Participants identifying as bisexual reported the lowest internalizing scores ( $m = 6.89, sd = 1.75$ ). Gay/ Lesbian and questioning/not sure reported internalizing scores of  $m = 7.47, sd = 1.80$  and  $m = 7.88, sd = 1.82$ , respectively. The

main effect of county type ( $F(3, 33851) = 2.555, p > .05$ ) and the interaction between county type and sexual orientation were both non-significant ( $F(9, 33851) = 1.527, p > .05$ ).

*Hypothesis 3- Sexual minority youth in the 9<sup>th</sup> grade will report more externalizing behaviors than heterosexual youth. Further, there will be a relationship between county size and self-reported externalizing behaviors; such that, individuals from rural communities will be more likely to report externalizing behaviors than youth from micropolitan and metropolitan areas.*

A one-way ANOVA was conducted to compare externalizing scores of all 9<sup>th</sup> grade participants from metropolitan, micropolitan, rural, and no response counties. This was done to assess any group differences that may exist before sexual orientation was taken into account. No significant difference was found ( $F(3, 37556) = 1.818, p = .141$ ). Regardless of county of residence, the 9<sup>th</sup> grade students did not significantly differ on externalizing scores. Rural, 9<sup>th</sup> graders reported a mean score of 2.33 ( $sd = 2.50$ ). Students who reported residing in a micropolitan county reported a mean score of 2.27 ( $sd = 2.50$ ) for externalizing scores. Metropolitan, 9<sup>th</sup> graders reported a mean score of 2.24 ( $sd = 2.43$ ) for externalizing scores. Finally, the no response, 9<sup>th</sup> graders reported an externalizing mean score of 2.28 ( $sd = 2.36$ ).

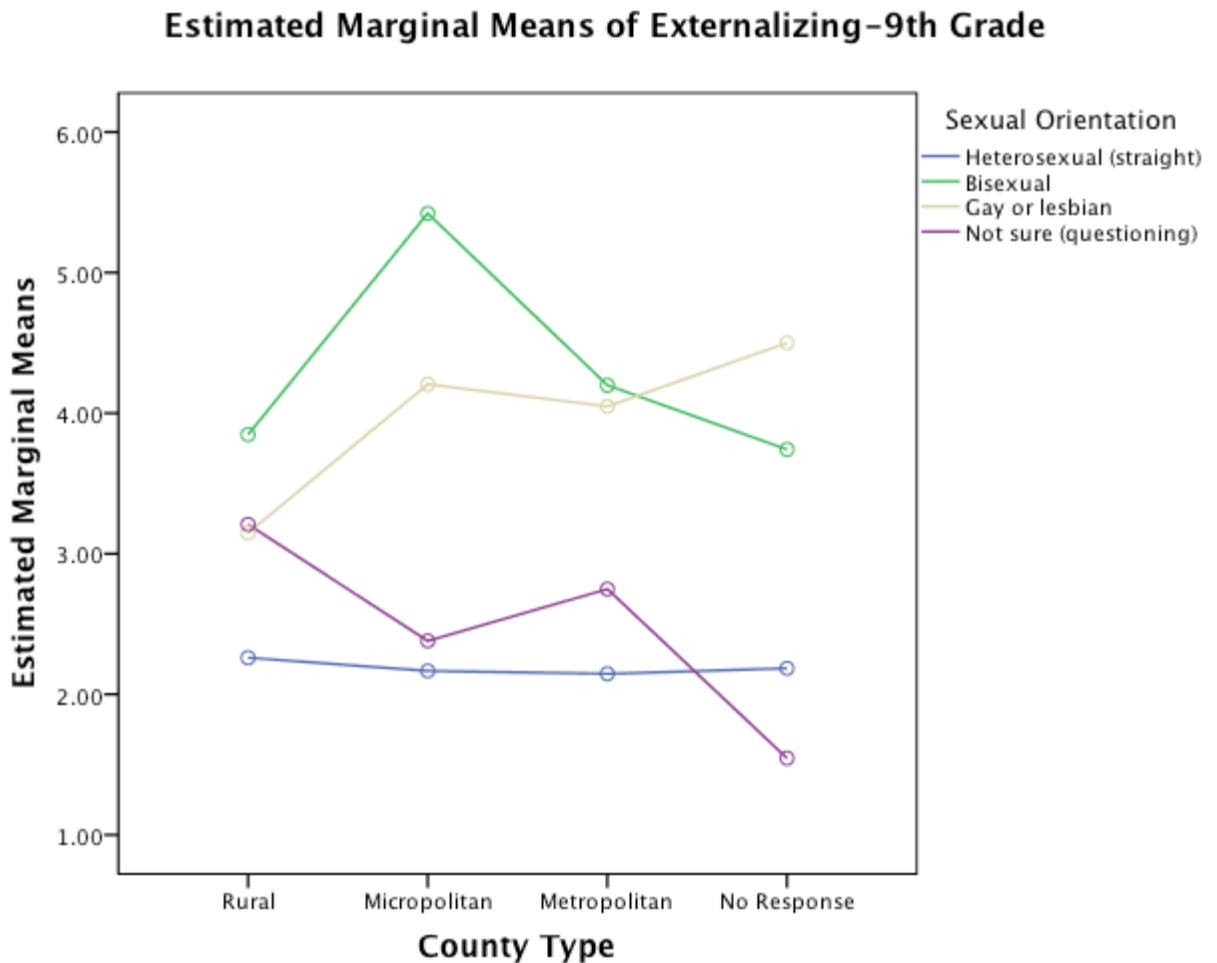
A 4 (county type) x 4 (sexual orientation) between- subjects factorial ANOVA was calculated comparing externalizing scores for 9<sup>th</sup> grade participants from micropolitan, metropolitan, no response, or rural counties who identified as gay/lesbian, bisexual, heterosexual, or not sure/questioning. A significant main effect was found for sexual orientation ( $F(3, 36829) = 89.20, p < .001, \eta^2 = 0.0071$ ). Utilizing Tukey HSD, all sexual orientation groups were significantly different from each other ( $p \leq .001$ ) with the exception of bisexual and gay/lesbian participants ( $p > .05$ ). Heterosexual, 9<sup>th</sup> graders reported the lowest externalizing scores ( $m = 2.17, sd = 2.33$ ). Participants identifying as

bisexual or gay/lesbian tended to report the highest externalizing scores ( $m = 4.26$ ,  $sd = 3.58$  and  $m = 3.99$ ,  $sd = 4.05$ , respectively). Questioning/not sure reported externalizing scores of  $m = 2.76$ ,  $sd = 2.86$ . The main effect of county type was non-significant ( $F(3, 36820) = 2.057$ ,  $p > .05$ ). However, there was a statistically significant interaction between sexual orientation and county type ( $F(9, 36820) = 4.9566$ ,  $p < .001$ ,  $\eta^2 = 0.0012$ ).

As depicted in Graph 1, heterosexual 9<sup>th</sup> graders report approximately the same amount of externalizing behaviors, regardless of county type. However, the no response group complicates the interaction interpretation. While bisexual students tended to report higher instances of externalizing behaviors than other groups for rural, micropolitan, and metropolitan counties, gay or lesbian individuals reporting no county affiliation reported higher instances of externalizing behaviors than bisexual students. Similarly, students who were questioning or not sure of their sexual orientation reported higher instances of externalizing behaviors than heterosexual students for rural, micropolitan, and metropolitan counties. This was not the case for questioning (not sure) youth that did not report their county; they reported the lowest externalizing behaviors.

**Graph 1.**

*Means of Externalizing behaviors categorized by sexual orientation- 9<sup>th</sup> graders*



*Hypothesis 4- Sexual minority youth in the 11<sup>th</sup> grade will report more externalizing behaviors than heterosexual youth. Further, there will be a relationship between county size and self-reported externalizing behaviors; such that, individuals from rural communities will be more likely to report externalizing behaviors than youth from micropolitan and metropolitan areas.*

A one-way ANOVA was conducted to compare externalizing scores of all 11<sup>th</sup> grade participants from metropolitan, micropolitan, rural, counties. Those who did not

respond were also compared. This was done to assess any group differences that may exist before sexual orientation was taken into account. No significant difference was found ( $F(3, 33524) = .842, p = .471$ ). Regardless of county of residence, the 11<sup>th</sup> grade students did not significantly differ on externalizing scores. Rural, 11<sup>th</sup> graders reported a mean score of 2.29 ( $sd = 2.29$ ). Students who reported residing in a micropolitan county reported a mean score of 2.35 ( $sd = 2.36$ ) for externalizing scores. Metropolitan, 11<sup>th</sup> graders reported a mean score of 2.34 ( $sd = 2.25$ ) for externalizing scores. Finally, the no response, 9<sup>th</sup> graders reported an externalizing mean score of 2.33 ( $sd = 2.27$ ).

A 4 (county type) x 4 (sexual orientation) between- subjects factorial ANOVA was calculated comparing internalizing scores for 11<sup>th</sup> grade participants from micropolitan, metropolitan, no response, or rural counties who identified as gay/lesbian, bisexual, heterosexual, or not sure/questioning. A significant main effect was found for sexual orientation ( $F(3, 33121) = 21.153, p < .001, \eta^2 = 0.0019$ ). Utilizing Tukey HSD, all sexual orientation groups were significantly different from each other ( $p \leq .001$ ) except for the bisexual and the gay/lesbian group, which were not significantly different ( $p > .05$ ). Similar to the 9<sup>th</sup> graders, heterosexual, 11<sup>th</sup> graders reported the lowest externalizing scores ( $m = 2.28, sd = 1.61$ ). Participants identifying as bisexual or gay/lesbian reported the highest externalizing scores ( $m = 3.62, sd = 1.75$  and  $m = 3.42, sd = 1.75$ ), respectively. Those who identified as questioning/not sure reported externalizing scores of  $m = 2.76, sd = 1.80$ . The main effect of county type ( $F(3, 33121) = 1.460, p > .05$ ) and the interaction between county type and sexual orientation were both non-significant ( $F(9, 33121) = 1.127, p > .05$ ).

### Discussion

*Hypothesis 1- Sexual minority youth in the 9<sup>th</sup> grade will report more internalizing behaviors than heterosexual youth. Further, there will be a relationship between county size and self-reported internalizing behaviors; such that, individuals from rural communities will be more likely to report internalizing behaviors than youth from micropolitan and metropolitan areas.*

The results of the factorial ANOVA for 9<sup>th</sup> grade, Minnesota youth indicate a significant group difference among the sexual orientations for self-reported internalizing behaviors. Unexpectedly and contrary to hypothesis 1, heterosexual individuals reported the highest amount of internalizing behavior scores suggesting heterosexual students may be at a greater risk than non-heterosexual students for developing mental health disorders related to internalizing behaviors. Further, individuals identifying as bisexual reported the lowest internalizing behavior scores suggesting they are less likely to develop mental health disorders related to internalizing behaviors than their non-bisexual peers. These findings do not align with the present body of literature, which suggests sexual minority students, especially bisexual individuals, are at greater risk for mental health issues in comparison to their heterosexual peers. As preliminary analyses indicated, there was no main effect for county size. Students, whether they were from metropolitan, micropolitan, rural, or non-response counties, did not significantly differ from each other on self-reported internalizing behaviors. Furthermore, there was no interaction between county type and sexual orientation for self-reported internalizing behaviors. Ultimately, youth of differing sexual orientations were not more or less likely to report internalizing behaviors based on county type.

*Hypothesis 2- Sexual minority youth in the 11<sup>th</sup> grade will report more internalizing behaviors than heterosexual youth. Further, there will be a relationship*

*between county size and self-reported internalizing behaviors; such that, individuals from rural communities will be more likely to report internalizing behaviors than youth from micropolitan and metropolitan areas.*

The results of the factorial ANOVA for 11<sup>th</sup> grade, Minnesota youth indicate a significant group difference among the sexual orientations for self-reported internalizing behaviors. Similar to the 9<sup>th</sup> grade students, but still unexpectedly and contrary to hypothesis 2, heterosexual individuals reported the highest amount of internalizing behavior scores suggesting heterosexual students may be at a greater risk than non-heterosexual students for developing mental health disorders related to internalizing behaviors. Further, individuals identifying as bisexual reported the lowest internalizing behavior scores suggesting they are less likely to develop mental health disorders related to internalizing behaviors than their non-bisexual peers. As mentioned previously, these findings do not align with the present body of literature, which suggests sexual minority students, especially bisexual individuals, are at greater risk for mental health issues in comparison to their heterosexual peers. As preliminary analyses indicated, there was no main effect for county size. Students, whether they were from metropolitan, micropolitan, rural, or non-response counties, did not significantly differ from each other on self-reported internalizing behaviors. Furthermore, there was no interaction between county type and sexual orientation for self-reported internalizing behaviors. Ultimately, youth of differing sexual orientations were not more or less likely to report internalizing behaviors based on county type.

*Hypothesis 3- Sexual minority youth in the 9<sup>th</sup> grade will report more externalizing behaviors than heterosexual youth. Further, there will be a relationship between county size and self-reported externalizing behaviors; such that, individuals from rural communities will be more likely to report externalizing behaviors than youth from micropolitan and metropolitan areas.*

The results of the factorial ANOVA for 9<sup>th</sup> grade, Minnesota youth indicate a significant group difference among the sexual orientations for self-reported externalizing behaviors. Contrary to the results of hypothesis 1 and 2 analyses, but aligning with the literature, heterosexual individuals reported the lowest amount of externalizing behavior scores suggesting heterosexual students may be at a lower risk than non-heterosexual students for developing mental health disorders related to externalizing behaviors. Further, individuals identifying as bisexual reported the highest externalizing behavior scores suggesting they may be more likely to develop mental health disorders related to externalizing behaviors than their non-bisexual peers. These findings do align with the present body of literature, which suggests sexual minority students, especially bisexual individuals, are at greater risk for mental health issues in comparison to their heterosexual peers. As preliminary analyses indicated, there was no main effect for county size. Students, whether they were from metropolitan, micropolitan, rural, or non-response counties, did not significantly differ from each other on self-reported externalizing behaviors. However, there was a significant interaction between county type and sexual orientation for self-reported internalizing behaviors. Ultimately, youth of differing sexual orientations were not more or less likely to report internalizing behaviors based on county type. These interactions generally revolved around the county no-response group. Generally, youth unsure of their sexual orientation reported more externalizing behaviors than heterosexual students in micropolitan, metropolitan, and rural counties. However, when no county was reported, unsure/questioning youth reported less externalizing behaviors than heterosexual youth. Similarly, bisexual youth tended to report the highest amount of externalizing behaviors in micropolitan, metropolitan, and rural counties.



However, for individuals that were unsure of their county of residence, bisexual students reported less externalizing behaviors than gay or lesbian students; bisexual students in no-response counties still reported more externalizing behaviors than heterosexual and not/sure questioning sexual orientation youth.

*Hypothesis 4- Sexual minority youth in the 11<sup>th</sup> grade will report more externalizing behaviors than heterosexual youth. Further, there will be a relationship between county size and self-reported externalizing behaviors; such that, individuals from rural communities will be more likely to report externalizing behaviors than youth from micropolitan and metropolitan areas.*

The results of the factorial ANOVA for 11<sup>th</sup> grade, Minnesota youth indicate a significant group difference among the sexual orientations for self-reported externalizing behaviors. Similar to the 9<sup>th</sup> grade students, aligning with the literature, heterosexual individuals reported the lowest amount of externalizing behavior scores suggesting heterosexual students may be at a lower risk than non-heterosexual students for developing mental health disorders related to externalizing behaviors. Further, individuals identifying as bisexual reported the highest externalizing behavior scores suggesting they may be more likely to develop mental health disorders related to externalizing behaviors than their non-bisexual peers. These findings do align with the present body of literature, which suggests sexual minority students, especially bisexual individuals, are at greater risk for mental health issues in comparison to their heterosexual peers. As preliminary analyses indicated, there was no main effect for county size. Students, whether they were from metropolitan, micropolitan, rural, or non-response counties, did not significantly differ from each other on self-reported externalizing behaviors. There was no significant interaction between county type and sexual orientation for externalizing behaviors in 11<sup>th</sup> grade Minnesota youth. Ultimately, youth

of differing sexual orientations were not more or less likely to report externalizing behaviors based on county type.

Arguably, one of the most interesting findings from this study centers on the dichotomy of self-reported externalizing and internalizing behaviors. Individuals identifying as bisexual reported the most externalizing behaviors and the fewest internalizing behaviors. Conversely, individuals identifying as heterosexual reported the most internalizing behaviors and the fewest externalizing behaviors. The literature does not often dichotomize internalizing and externalizing behaviors for sexual minorities. It is difficult to ascertain whether sexual minorities are at a greater risk for psychopathology because of internalizing and externalizing behaviors or solely externalizing behaviors increasing the overall risk of developing psychopathology.

Furthermore, many studies utilizing sexual minority participants do not have the sample size to investigate group differences among the sexual minorities. Bisexual youth reported the most externalizing behaviors consistently throughout the present study. Stiffman, Hadley-Ives, Elze, Johnson, and Dore (1999) reported neighborhood environment affected mental health and behavior (especially for externalizing problems) directly in adolescents from urban areas. Elze (2002) suggests a relationship between perceptions of a negative environment for sexual minority youth and their externalizing behaviors. Perhaps, individuals identifying as bisexual perceive their environments as very negative in regards to their sexual orientation. However, the research of Elze (2002) is correlative in nature. Directional issues could mean sexual minority youth may appraise their environment as more negative because their externalizing behaviors generate negative evaluations from the community as opposed to their externalizing

behaviors occurring as a result of the environment. Elze (2002) utilizes gay, lesbian, and bisexual participants; the speculative nature of bisexual participants' relationship to their environment demonstrates the need for future research comparing and contrasting sexual orientations.

Overall, it is important to be cautious with the significant results of this study. There were a large number of participants. In an attempt to convey a more accurate depiction of results, effect sizes were reported for all significant findings. It is important to note, all effect sizes were small ( $\eta^2 < .01$ ; Cohen, 1988).

### **Limitations**

Interpretations based on the present data should be made tentatively due to several limitations from the study. First, the data was archival. Specifically, with the sexual orientation question, students were asked to respond if they were gay or lesbian. Gay and lesbian youth were grouped together for analyses. However, these two groups may have responded differently to various survey questions thus complicating analyses.

Additionally, sexual orientation, especially for youth, may be a difficult question for some participants to answer regardless of the anonymity of the survey. This may result in response bias often associated with survey research. Further, gender identification was a simple dichotomous male or female response. This may not have accurately represented some participants. Some participants may have elected not to respond because there may not have been a sufficient response option. Finally, with non-experimental research, several issues arise with causality, directionality, and potential third variable problems. For causality, taking students who identify as bisexual for example, being bisexual may not cause lower internalizing scores. They may simply be related and the third variable

problem may actually be causing any real differences. Issues of directionality also may arise.

The present study has several strengths as well. The large participant pool is rare for this line of research, particularly for the sexual minority groups. The participants were from across all of Minnesota giving rise to a sufficiently representative sample of Minnesota youth. Few studies compare sexual orientation groups beyond heterosexual and non-heterosexual sexual orientations.

While the limitations of this study subdue gross implications, it may be fruitful to explore initiatives and programs that may target externalizing behaviors as opposed to internalizing behaviors for sexual minority youth, particularly among bisexual youth. Furthermore, individuals identifying as bisexual may be reprimanded for a specific externalizing behavior such as underage drinking. They may be referred to an alcohol education program. However, the individual may benefit more from a program designed to target a group's unique stressors such as sexual minority status and minority-related stressors. Targeting these avenues are effective in changing negative behavioral health patterns (Castro, Barrera, & Martinez (2004).

Future research should be conducted to further investigate why heterosexual individuals are reporting the more internalizing behaviors than non-sexual minority youth. The MSS, for 9<sup>th</sup> and 11<sup>th</sup> grade youth, included a sexual orientation item for the first time in 2013. Future studies should look at trends that may develop in subsequent survey administrations. It may also be fruitful to include the sexual orientation question for 5<sup>th</sup> and 8<sup>th</sup> grade youth as well which may be related to the development of psychopathology. Future MSS sexual orientation items should include more inclusive

sexual orientation and identity response options while also providing age-appropriate definitions to dissuade any confusion and ambiguity. Overall, more validated measures should be included in the construction of the MSS to allow more scientifically sound future research.

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Appendix A  
GAIN-SS Internalizing Items

Question introduction reads: This question asks about SIGNIFICANT problems. Problems are considered significant when you have them for two or more weeks, when they keep coming back, keep you from meeting your responsibilities, or make you feel like you can't go on.

1. During the last 12 months, have you had SIGNIFICANT problems with feeling very trapped, lonely, sad, blue, depressed or hopeless about the future?
  - A. Yes
  - B. No
2. During the last 12 months, have you had SIGNIFICANT problems with sleep trouble, such as bad dreams, sleeping restlessly or falling asleep during the day?
  - A. Yes
  - B. No
3. During the last 12 months, have you had SIGNIFICANT problems with feeling very anxious, nervous, tense, scared, panicked or like something bad was going to happen?
  - A. Yes
  - B. No
4. During the last 12 months, have you had SIGNIFICANT problems with becoming very distressed and upset when something reminded you of the past?
  - A. Yes
  - B. No
5. During the last 12 months, have you had SIGNIFICANT problems with thinking about ending your life or committing suicide?
  - A. Yes
  - B. No

Appendix B  
GAIN-SS Externalizing Items

1. Did you do any of the following TWO OR MORE TIMES? Lie or con to get things you wanted or to avoid having to do something.
  - A. Yes
  - B. No
2. Did you do any of the following TWO OR MORE TIMES? Have a hard time paying attention at school, work or home
  - A. Yes
  - B. No
3. Did you do any of the following TWO OR MORE TIMES? Have a hard time listening to instructions at school, work or home
  - A. Yes
  - B. No
4. Did you do any of the following TWO OR MORE TIMES? Be a bully or threaten other people
  - A. Yes
  - B. No
5. Did you do any of the following TWO OR MORE TIMES? Start fights with other people
  - Yes
  - A. Yes
  - B. No
6. Run away from home?
  - A. Never
  - B. Once or Twice
  - C. Three to Five Times
  - D. Six to Nine Times
  - E. 10 or more times
7. Damaged or destroyed property
  - A. Never
  - B. Once or Twice
  - C. Three to Five Times
  - D. Six to Nine Times
  - E. 10 or more times
8. Hit or beat up another person?
  - A. Never
  - B. Once or Twice
  - C. Three to Five Times
  - D. Six to Nine Times
  - E. 10 or more times
9. Taken something from a store without paying for it?
  - A. Never
  - B. Once or Twice
  - C. Three to Five Times
  - D. Six to Nine Times
  - E. 10 or more times

Appendix C  
IRB Approval

February 12, 2015

Dear Eric Sprankle, PhD:

Re: IRB Proposal entitled "[719881-1] Predicting Mental Health Outcomes of Lesbian, Gay, Bisexual, and Questioning Youth in Minnesota"  
Review Level: Level [I]

Your IRB Proposal has been approved as of February 12, 2015. On behalf of the Minnesota State University, Mankato IRB, we wish you success with your study. Remember that you must seek approval for any changes in your study, its design, funding source, consent process, or any part of the study that may affect participants in the study. Should any of the participants in your study suffer a research-related injury or other harmful outcome, you are required to report them to the Associate Vice-President of Research and Dean of Graduate Studies immediately.

The approval of your study is for one calendar year less a day from the approval date. When you complete your data collection or should you discontinue your study, you must submit a Closure request (see <http://grad.mnsu.edu/irb/continuation.html>). Please include your IRBNet ID number with any correspondence with the IRB.

Sincerely,

A handwritten signature in black ink that reads "Mary Hadley".

Mary Hadley, Ph.D.  
IRB Coordinator

A handwritten signature in black ink that reads "Julie A. Carlson".

Julie Carlson, Ed.D.  
IRB Co-Chair

A handwritten signature in black ink that reads "Jeffrey Buchanan".

Jeffrey Buchanan, Ph.D.  
IRB Co-Chair