

Methodological Review of Sampling Procedures for Rural Dwelling Sexual and Gender Minority People

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Abstract

Purpose: The purpose of this paper was to review the methodological sampling and recruitment decisions of extant studies that included rural dwelling sexual and gender minority populations.

Design and Sample: This review searched PubMed, CINAHL, and SCOPUS for papers using the following inclusion criteria: a) English language; b) primary quantitative research published in the last 10 years, and; c) included a rural adult sexual or gender minority sample from the United States. Exclusion criteria included: a) duplicate studies; b) datasets older than 10 years; c) secondary data, and; d) did not differentiate between rural and non-rural samples. Thirteen articles were included in the final review.

Results: This review identified the data collection approaches, rural classification systems, recruitment strategies, and sample demographics. Five areas were identified as needing further discussion, including the lack of dissimilar research topics, predominant focus on men, missed

opportunity to identify transgender people, using social networks and smartphone applications as data collection strategies, and inconsistent rural classification systems.

Conclusions: Researchers should capitalize on social networking and smartphone platforms. Future research should include sexual minority women, transgender people, more racial and ethnic minorities, and expand beyond sexual health topics. Researchers should also use objective rural classification systems.

Keywords: Review, Homosexuality, Sexual minorities, Transgender persons, GLBT, Rural population

Methodological Review of Sampling Procedures for Rural Dwelling Sexual and Gender Minority People

Rural dwelling sexual and gender minority (SGM) people, which includes individuals who identify as lesbian, gay, bisexual, or transgender (LGBT), have unique health needs compared to urban dwellers and to non-SGM people. Rural dwelling SGM people lack social support, are more socially isolated, lack access to an LGBT community, and feel less comfortable disclosing their sexual orientation or gender identity (Austin, 2013; McCarthy, 2000; M. L. Williams, Bowen, & Horvath, 2005). Lack of social support and sense of belonging are heightened especially among rural SGM elders (Comerford, Henson-Stroud, Sionainn, & Wheeler, 2004; King & Dabelko-Schoeny, 2009; Lee & Quam, 2013). Various researchers have also found a greater prevalence of negative mental health outcomes and increased risky health behaviors among rural SGM people (Horvath, Iantaffi, Swinburne-Romine, & Bockting, 2014; McCarthy, 2000; M. L. Williams et al., 2005). Rural communities usually lack a diverse cadre of qualified and LGBT-affirmative health professionals (Institute of Medicine, 2005), resulting in a fear being discriminated against in the health care setting. Consequently, SGM people may delay seeking care or may hide their sexual orientation or gender identity from healthcare providers (Willging, Salvador, & Kano, 2006).

The rural geography and lack of transportation can further compound the wellbeing of SGM people. In general, disparities in health status and life expectancy between urban and rural areas can be partially explained by the fact that rural communities are geographically isolated from the services provided in large, urban areas. Moreover, for rural residents without access to or the ability to drive a private car, a lack of reliable transportation options provides significant barriers for people to travel to healthcare offices, which has negative effects on health outcomes (National Advisory Committee on Rural Health and Human Services, 2017).

Rural dwelling SGM individuals tend to lack social support as compared to their non-SGM counterparts. Social support is a strong mitigating factor against negative health outcomes though. Increased social contacts, social network size, and social support are associated with better health among both the general population and SGM individuals (Fredriksen-Goldsen et al., 2012; Zaninotto, Falaschetti, & Sacker, 2009). Given the breadth of research that has found strong relationships between social support and health outcomes, and given that rural SGM people tend to lack social support systems, more research is needed.

Despite the growing body of research findings indicating that rural SGM people experience negative health outcomes, more studies need to be conducted to confirm these findings and to elucidate new knowledge and relationships. The findings from additional research could inform the practice of public health nurses and workers. However, conducting research with rural dwelling SGM people can be challenging due to the barriers around sampling and recruiting participants. Despite the methodological advancements in sampling SGM people (Meyer & Wilson, 2009), rural dwelling SGM people remain scarce in most research studies. Since SGM people are easier to access in urban environments, researchers presumably do not purposefully target or do not use strategies that reach rural SGM people.

The lessons learned from recruiting other marginalized rural dwelling populations can be applied to SGM people. For example, younger age and higher income among rural dwelling people are predictors of willingness to participate in research (Morgan, Fahs, & Klesh, 2005). Other barriers to recruiting a rural population include uniqueness of the rural culture, necessity for rural-sensitive recruitment materials, over-sampling, and lack of local research infrastructure (Cudney, Craig, Nichols, & Weinert, 2004). Additionally, research involving other marginalized populations may require recruitment strategies such as spending time in the community and

distributing flyers to key community stakeholders (I. C. Williams et al., 2011). These studies indicate that specific strategies are needed to recruit rural dwelling people. However, the dearth of research and absence of a publication that reviews methodological recruitment strategies from extant studies that included rural dwelling SGM people could impede future researchers who want to include rural SGM people in their study.

Recruitment and sampling strategies are key methodological factors to the advancement of knowledge around the health and health care needs of rural SGM people. To understand recruitment and sampling of rural SGM people, this paper reviews the methodological decisions of extant studies that included rural SGM populations in their sampling/recruitment frame. The purposes of this project were to: 1) systematically search literature databases to identify and retrieve quantitative research publications that reported on rural or non-urban SGM populations, and 2) review the retrieved publications to identify key methodological information about the recruitment and data collection approaches, conceptual definitions for rural or non-urban, and sample characteristics (sample size, age, race, sex and/or gender, educational level, and income/employment status).

Methods

Design

This review project was accomplished by adapting the integrative review process described by Whittemore and Knafl (2005). The overarching goal of this project was to review and synthesize sampling and recruitment methods in extant research, and to report the findings in a useful way for future researchers. The process entailed the following sequential steps: problem identification, systematic literature search, data extraction, data analysis, and report of findings.

Search Method

A comprehensive search was conducted in the following databases: PubMed, CINAHL, and SCOPUS. The databases were searched using both key terms (MeSH in PubMed and subject headings in CINAHL) and non-key terms. The search terms included *rural*, *non-urban*, *lesbian*, *gay*, *bisexual*, *transgender*, *LGBT*, *homosexual*, *sexual minority*, and *gender minority*. Although homosexual is not a neutral term, it still legitimately used as a keyword in PubMed. The searches were conducted using various combinations of the search terms. The searches yielded a total of 980 articles. The article titles and abstracts were first assessed for inclusion criteria, and if a determination could not be made based on those alone, then the full article was retrieved and reviewed. This resulted in the inclusion of 13 articles (967 were excluded).

To be included, the articles must have (a) been published in the English language; (b) been published in the last 10 years; (c) been original quantitative primary research; (e) included a rural or non-urban adult SGM sample from the United States. Articles were excluded if they (a) reported the same data from a previously included study (duplicate studies); (b) used datasets that were older than 10 years; (c) used secondary data; (d) did not differentiate the results between rural and non-rural samples (e.g., sample recruited from both rural and urban areas but the results were pooled together).

Data Extraction and Analysis

A matrix table (Table 1) was created with column headers for citation, design, data collection, definition for rural or non-urban, recruitment/sampling approach, and sample characteristics for rural SGM sample. The first author read each article and extracted the data in to the matrix table. Both authors then created other tables (not shown) to compare the data, which allowed for easier recognition of patterns across the data. Both authors conducted the data analysis

using certain recommendations from Whittemore and Knafl (2005), including identifying and counting patterns and themes and making contrasts and comparisons.

Results

The 13 articles that met the inclusion criteria (Austin, 2013; Barefoot, Warren, & Smalley, 2015; Bennett, McElroy, Johnson, Munk, & Everett, 2015; Fisher, Irwin, & Coleman, 2014; Gilbert & Rhodes, 2014; Horvath et al., 2014; Hubach et al., 2015; Li, Hubach, & Dodge, 2015; Mendoza, Harner, Haseley, & Leedy, 2015; Preston, D'Augelli, Kassab, & Starks, 2007; Rosenberger, Schick, Schnarrs, Novak, & Reece, 2014; Schnarrs et al., 2010; Whitehead, Shaver, & Stephenson, 2016) were quantitative descriptive. The research topics included sexual health, modifiable health behaviors, mental health, and healthcare utilization.

Data Collection

Most of the quantitative studies used internet surveys as the primary approach to collect data. One of the studies conducted face-to-face questionnaires (Gilbert & Rhodes, 2014), and another only used paper surveys (Preston et al., 2007).

Definition of Rural or Non-Urban

Most of the articles (n = 10) provided clear conceptual or operational definitions for 'rural' or 'non-urban.' In the other three studies (Gilbert & Rhodes, 2014; Mendoza et al., 2015; Schnarrs et al., 2010), the authors only reported that participants were recruited from rural areas and did not provide specific definitions. Of the 10 studies that provided definitions, four (Austin, 2013; Barefoot et al., 2015; Horvath et al., 2014; Rosenberger et al., 2014) used a categorical question that asked research subjects to self-report geographical location of their residence, such as large city or urban area, suburbs of large city, town or village, or rural area. However, none of those

studies defined the population size for each geographical location, thus leaving participants to interpret the definitions for each of the geographical locations.

The remaining six articles that provided a definition used either self-reported zip codes or county of residence to determine geographical areas; however, the classification systems differed. Some researchers classified zip codes using Rural-Urban Community Areas (RUCA) codes (Bennett et al., 2015) or Metropolitan Statistical Areas (MSA) (Fisher et al., 2014), which are systems used by the federal government. Two other studies used the Index of Relative Rurality (IRR) to categorize the geographical area based on self-reported county or zip code (Hubach et al., 2015; Li et al., 2015). The other two studies used a pre-determined population density for rural or non-urban areas. Preston and colleagues (2007) classified a county as rural if the population density was fewer than 274 persons per square mile, whereas Whitehead and colleagues (2016) used a population density of fewer than 1,000 persons per square mile.

Recruitment / Sampling Approach

Seven recruitment approaches were identified during the review, including print ads (n = 4), electronic ads (n = 8), paper flyers (n = 4), emails (n = 4), respondent driven or snowball sampling (n = 3), community partnerships (n = 2), and participation incentives (n = 6). The number of recruitment approaches per study ranged from one to five (M = 2.4). None of the papers clearly justified recruitment approaches. The print and electronic advertisements were published mostly in LGBT specific publications and websites (social networking and dating). Paper flyers were primarily distributed at LGBT-specific events, community centers, and social venues. Those studies that used emails as a recruitment approach primarily sent them to LGBT-related organizations and listservs. The studies that used community partnerships worked with HIV agencies.

Three studies used either respondent driven sampling or snowball sampling to recruit participants. Gilbert and colleagues (2014) recruited 17 seed participants and then incentivized them to refer other people from their social networks, achieving a final sample size of 190. Mendoza and colleagues (2015) distributed 25 paper surveys at LGBT community gatherings and then asked participants to refer their friends to an online survey, yielding a sample size of 41. The third study (Fisher et al., 2014) did not report how they accomplished respondent driven sampling and resulted in a sample size of 75.

Sample Characteristics for Rural SGM Sample

Key demographic and sample characteristics were reviewed for each study, including SGM sample size (non-SGM sample size not reported), age, race and ethnicity, sex or gender, educational level, and income/employment status. As shown on Table 1, numerous studies did not comprehensively report the sample characteristics.

The SGM sample sizes ranged from 41 to 5357 ($M = 745.15$). Eleven studies reported the age as either categorically or using the mean. One study (Gilbert & Rhodes, 2014) had a sample that was 100% Latino, and two other studies had diverse samples (Barefoot et al., 2015; Gilbert & Rhodes, 2014), where non-Hispanic white made up less than 80% of the total sample. Three studies (Fisher et al., 2014; Horvath et al., 2014) did not report race or ethnicity details. Additionally, nine of the studies reported samples that had received at least some college education. Two studies reported a mostly high school educated sample (Gilbert & Rhodes, 2014; Horvath et al., 2014; Mendoza et al., 2015), and two other studies did not report the educational level for their subjects. Overall, most of the studies recruited samples that were college educated.

All studies reported the sex or gender of their sample in either the body of the paper or in the title. Six studies had male-only samples (Gilbert & Rhodes, 2014; Hubach et al., 2015; Li et

al., 2015; Preston et al., 2007; Rosenberger et al., 2014; Schnarrs et al., 2010) and three had female-only samples (Austin, 2013; Barefoot et al., 2015; Mendoza et al., 2015). Five studies (Bennett et al., 2015; Fisher et al., 2014; Gilbert & Rhodes, 2014; Horvath et al., 2014; Whitehead et al., 2016) included transgender people in their sample, and one study included intersex people (Bennett et al., 2015). The number of transgender people per study ranged from seven to 344. The remaining studies either did not collect gender identity data or did not report it.

Discussion

Although there were only 13 articles identified in this project, the results of the review revealed important information. Five distinct areas were identified as needing further discussion, including the lack of dissimilar research topics, predominant focus on men, missed opportunity to identify transgender people, using social networks and smartphone applications as data collection strategies, and inconsistent rural classification systems.

Future studies need to expand beyond the four topics identified in these research studies, which included sexual health, modifiable health behaviors (e.g., smoking and obesity), mental health, and healthcare utilization. Although these research studies contributed important findings to the state of science for rural SGM people, a wide research gap remains. For example, researchers have established numerous health and healthcare disparities among SGM people, such as tobacco and alcohol use, breast cancer, lack of preventive screenings, depression and suicidality, and homelessness (Institute of Medicine, 2011). Adding to the concern, many of these areas overlap with health disparities among the general rural population. For instance, rural areas tend to have higher rates of mental health issues and suicidality (Centers for Disease Control and Prevention, 2016b) and lack comprehensive healthcare services, such as mental health and disease

specialists (Institute of Medicine, 2005). Most of these areas are not well understood among rural dwelling SGM people, thus leaving numerous research opportunities.

This review revealed that much of the research with rural SGM people heavily focuses on men, which is likely related to the fact that half of the studies focused on sexual health. This is not surprising though, considering that of the 113 studies funded by National Institutes of Health between 1989 and 2011, over 86% studied sexual minority men and 79% focused on HIV/AIDS (Coulter, Kenst, Bowen, & Scout, 2014). Gay men certainly need to be studied given their high rates of depression, anxiety, suicidality (Cochran & Mays, 2008), alcohol and drug abuse (Ostrow & Stall, 2008), and HIV (Centers for Disease Control and Prevention, 2016a). However, the lack of representation of sexual minority women and transgender people in the already limited body of rural SGM research is concerning. The unique health needs of those other sub-groups remain poorly understood.

Over half of the studies in this review only reported binary sex/gender (male or female), and thus missed the opportunity to include rural transgender people in their sample, a group that is grossly underrepresented in research. Since scientific knowledge about the health, mental health, and social status of people in the U.S. comes from survey data, and because these data are important to assessing the need for public health policies and group disparities, researchers should collect birth sex and gender identity data (American Psychological Association, 2016). Moreover, one of the only known studies that recruited rural and non-rural individuals who were exclusively transgender found higher rates of poverty, depression, and anxiety among rural dwellers (Horvath et al., 2014), indicating a need to identify transgender people in research. Although there is no consensus on how to ask questions about gender identity, the majority of research supports using a two-step method (capturing assigned birth sex and current gender identity) (Office of

Management and Budget, 2016). Future researchers should collect sexual orientation and gender identity data.

Although researchers have been using social media to effectively recruit vulnerable populations for many years (UyBico, Pavel, & Gross, 2007), many of the studies in this review successfully capitalized on existing internet platforms that are safe spaces for SGM people. For example, studies used networking sites and smartphone applications meant for social and sexual encounters, such as Grindr, Craigslist, and Facebook. The Pew Research Center (2015) established that nearly 60% of rural residents use social networking websites, which poses an opportunity to use those platforms to recruit for research. Although cell phone coverage is limited in some rural areas, future researchers may also reach more rural SGM people by using innovative smartphone applications and/or text messaging to recruit and collect survey data. For example, Hofmann and Patel (Hofmann & Patel, 2015) found text messaging as an effective tool for recruitment. Another study, conducted by the University of California San Francisco (University of California San Francisco, 2016), used a novel smartphone application that allows research subjects to enroll and participate in studies using cell phones.

Clearly defining the target population early in a research study is important for determining the eligibility of individuals for a study, for applying the results to other relevant populations, and for assuring the overall validity of the results (Eldredge, Weagel, & Kroth, 2014). Although this issue is not specific to SGM populations, there was no consistency between the studies in how they operationally defined *rural*, which limits the ability to compare and generalize findings. Moreover, numerous studies used a categorical self-report question to identify the rural sample. This type of question requires the research subject to interpret the definition of each geographical category, which could affect the reliability. Further psychometric testing should be done to

establish the test-retest reliability and validity of geographical location questions. Researchers could also use a more reliable measure, such as categorizing self-reported zip codes using the U.S. Census Bureau's classification system. Other more sophisticated methods based on network science and community-level data (Wunderlich, 2016) may provide more accurate geographical classifications, but they can be complex and typically require statisticians with specialized knowledge.

Conclusions

One limitation of the review was its focus on the PubMed, CINAHL, and SCOPUS databases. The authors did not search other databases or gray literature. Thus, it is possible that the authors missed other articles on this topic. Additionally, the authors did not include qualitative research because the recruitment approaches are typically less intensive than quantitative studies.

Despite these limitations, the findings from this review can assist future researchers with their methodological decisions. Researchers should take advantage of existing social networking and smartphone application platforms for SGM users, especially considering a large percentage of Americans use the internet and have cell phones. This approach should be used in conjunction with collaborations or partnerships with rural community resources. Future research needs a more diverse sample and include sexual minority women, transgender people, and more racial and ethnic minorities. Additionally, the topics of research need to expand beyond sexual health. Finally, researchers could use a more objective rural classification system and not rely on the participants to interpret their geographical location.

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Table 1: Review of Studies that Included Rural Dwelling Sexual and Gender Minority People

Citation	Design	Data Collection	Definition for Rural or Non-Urban	Recruitment / Sampling Approach	Sample Characteristics for Rural SGM Sample*
Austin, E. L. (2013). Sexual orientation disclosure to health care providers among urban and non-urban southern lesbians	Quantitative Descriptive	Online and paper survey	Self-reported as either large city, suburbs of large city, small city, town or village, or rural area Those not living in large city or suburbs were coded as “non-urban”	<ul style="list-style-type: none"> • Print and Electronic Advertisements: LGBT local newspapers and magazines; lesbian-oriented websites; message boards • Paper Flyers: LGBT events, community- and university-based enters, support groups, bookstores, and religious organizations • Incentive: Not offered 	<ul style="list-style-type: none"> • N = 309 • Age: M = 41.4 years • Race/Ethnicity: 8.5% non-white • Sex and/or Gender: 100% female • Education: 62.1% college • Income: 41.9% above \$50K
Barefoot, K. N., Warren, J. C., & Smalley, K. B. (2015). An examination of past and current influences of rurality on lesbians’ overweight/obesity risks	Quantitative Descriptive	Online survey	Self-reported as either living in a rural or urban area	<ul style="list-style-type: none"> • Electronic Advertisements: Volunteer section of every U.S. municipality on Craigslist (477 sites) for a total of 3 times throughout the year because system deleted them every 30 days • Emails: Over 5,000 sent out to LGBT-related organizations and listservs located in all 50 states • Incentive: Raffle to win \$50 gift card 	<ul style="list-style-type: none"> • N = 1,019 • Age: M = 32.2 years • Race/Ethnicity: 74.5% white • Sex and/or Gender: 100% female • Education: 88.5% at least some coll
Bennet, K., McElroy, J. A., Johnson, A. O., Munk, N., & Everett, K. D. (2015). A persistent disparity: Smoking in rural sexual and gender minorities	Quantitative Descriptive	Online and paper survey	Self-reported zip code was categorized as either urban or rural using Rural-Urban Commuting Area Codes (RUCA ranges from 1-9 and this study coded 1-3 as urban and 4-9 as rural)	<ul style="list-style-type: none"> • Print and Electronic Flyers: Six different Missouri Pride Festival booths • Emails: LGBT Missouri listservs and organizations • Incentive: Not offered 	<ul style="list-style-type: none"> • N = 353 • Race/Ethnicity: 91.4% white; 5.1% Hispanic • Sex and/or Gender: 61.1% female; 0.9% intersex; 2% transgender • Education: 76.1% at least some coll
Fisher, C. M., Irwin, J. A., & Coleman, J. D. (2014). LGBT health in the midlands: A rural/urban comparison of basic health indicators	Quantitative Descriptive	Online survey	Self-reported zip codes were categorized as either urban (Metropolitan Statistical Areas) or rural (all others)	<ul style="list-style-type: none"> • Print Advertisements: LGBT publications • Paper Flyers: LGBT venues; LGBT events and pride celebrations; • Email: LGBT community listservs in Nebraska 	<ul style="list-style-type: none"> • N = 75 • Age: 44% (19-29 years); 17.3% (30-39); 18.7% (40-49); 14.7% (50-59); 5.3% (60+) • Sex and/or Gender: 65.3% male; 37.9% female; 10.7% transgender • Education: 87.7% at least some coll • Income: 47.7% less than \$25K

				<ul style="list-style-type: none"> • University press release which was then picked up by newspapers resulting in dramatic increase in participation • Respondent-driven sampling • Incentive: \$5 gift card 	
Gilbert, P. A., & Rhodes, S. D. (2014). Immigrant sexual minority Latino men in rural North Carolina: An exploration of social context, social behaviors, and sexual outcomes	Quantitative Descriptive	Face-to-face survey using Spanish-speaking male interviewer	Not reported clearly but participants had to reside in one of seven rural counties in central North Carolina to be included in the study	<ul style="list-style-type: none"> • Respondent-driven sampling (17 seed participants recruited from community partner social networks) • Incentive: \$50 for participating and \$20 for each referral 	<ul style="list-style-type: none"> • N = 190 • Age: M = 25.5 years • Race/Ethnicity: 100% Latino • Sex and/or Gender: 100% male; 16% transgender • Education: 32% at least some college • Income: 83% less than \$29K
Horvath, K. J., Iantaffi, A., Swinburne-Romine, R., & Bockting, W. (2014). A comparison of mental health, substance use, and sexual risk behaviors between rural and non-rural transgender persons	Quantitative Descriptive	Online survey	Self-reported residence as rural or small town (coded as “rural”), city, large town or suburban (coded as “non-rural”)	<ul style="list-style-type: none"> • Electronic Advertisements: Transgender community websites; online mailing lists; journals; forums • Incentive: \$30 online gift certificate 	<ul style="list-style-type: none"> • N = 344 (62.2% transwomen and 37.8% transmen) • Age: M = 38.7 years (transwomen); 26.2 (transmen) • Education: 38.8% at least some college (transwomen); 62.3% (transmen) • Income: 28% poverty (transwomen), 46% (transmen)
Hubach et al. (2015). Loneliness, HIV-related stigma, and condom use among a predominantly rural sample of HIV-positive men who have sex with men (MSM)	Quantitative Descriptive	Online survey	Self-reported county of residence was categorized as rural or mixed rural using Index of Relative Rurality	<ul style="list-style-type: none"> • Electronic Advertisements: Social networking websites for gay men • Paper Flyers: Venues for gay men with HIV throughout south central Indiana • Incentive: \$25 retail gift card 	<ul style="list-style-type: none"> • N = 100 • Age: M = 42.6 years • Race/Ethnicity: 86% white • Sex and/or Gender: 100% male • Education: 64% at least some college • Income: 62% less than \$20K
Li, M. J., Hubach, R. D., & Dodge, B. (2015). Social milieu and mediators of loneliness among gay and bisexual men in rural Indiana	Quantitative Descriptive	Online survey	Self-reported zip code analyzed using Index of Relative Rurality	<ul style="list-style-type: none"> • Electronic Advertisements: Mobile applications and websites geared toward men who have sex with men (Adam4Adam, Craigslist, Grindr); community organizations; college LGBT centers • Incentive: Not offered 	<ul style="list-style-type: none"> • N = 225 • Age: M = 30.7 years • Race/Ethnicity: 84% white; 7.1% Asian / Pacific Islander • Sex and/or Gender: 100% male • Education: 87.6% at least some college • Income: 25.33% unemployed

Mendoza, N. S., Harner, V., Haseley, H., & Leedy, G. (2015). The physical self-perceptions of rural lesbians and heterosexual women	Quantitative Descriptive	Online and paper survey	Not reported clearly but participants were recruited from rural areas in Wyoming	<ul style="list-style-type: none"> • Paper Advertisements: United Gays and Lesbians of Wyoming newspaper • Respondent-driven: Twenty-five paper surveys distributed at annual LGBT community social gathering in southeast Wyoming and those women were asked to refer lesbian friends to take the online survey 	<ul style="list-style-type: none"> • N = 41 • Age: M = 40.40 years
Preston, D. B., D'Augelli, A. R., Kassab, C. D., & Starks, M. T. (2007). The relationship of stigma to the sexual risk behavior of rural men who have sex with men	Quantitative Descriptive	Paper survey	Self-reported county was classified as rural if population density was fewer than 274 persons per square mile	<ul style="list-style-type: none"> • Incentive: Not reported • Mailing lists of non-profit political action group and a social group used to mail out surveys • Two local AIDS organizations distributed and collected surveys • Surveys distributed at pride festivals, gay bars, social groups, dances, etc. • Incentive: Not reported 	<ul style="list-style-type: none"> • N = 414 • Age: M = 40 years • Race/Ethnicity: 89% white • Education: 78% at least some college
Rosenberger, J. G., Schick, V., Schnarrs, P., Novak, D. S., & Reece, M. (2014). Sexual behaviors, sexual health practices, and community engagement among gay and bisexually identified men living in rural areas of the United States	Quantitative Descriptive	Online survey	Self-reported residence as large city, medium city, small city, small town not close to city, or rural area Included if lived in small city or small town not close to city	<ul style="list-style-type: none"> • Email: To every account holder on the world's largest internet-based networking site for men who are seeking social or sexual interactions with other men • Incentive: Not reported 	<ul style="list-style-type: none"> • N = 5,357 • Age: M = 40.6 years • Race/Ethnicity: 90% white • Education: 84.4% at least some college • Income: 66% full-time job
Schnarrs, P. W. et al. (2010). Sexual compulsivity, the internet, and sexual behaviors among men in a rural area of the United States	Quantitative Descriptive	Online survey	Not reported clearly but participants were recruited from the rural Midwest U.S.	<ul style="list-style-type: none"> • Electronic Advertisements: Internet forums and local resource websites for MSM • Paper Flyers: Local retail stores and venues • Face-to-face at community venues for HIV testing and AIDS organizations 	<ul style="list-style-type: none"> • N = 246 • Race/Ethnicity: mostly white • Sex and/or Gender: 100% male

Whitehead, J., Shaver, J., & Stephenson, R. (2016). Outness, stigma, and primary health care utilization among rural LGBT populations	Quantitative Descriptive	Online survey	Self-reported zip code was classified as rural if had a population density of less than 1,000 people per square mile	<ul style="list-style-type: none"> • Incentive: Raffle for 1 of 40 \$50 Visa gift card • Electronic Advertisements: Facebook (targeted 18+ year old with LGBT related interests who reported rural zip codes) • Incentive: Not offered 	<ul style="list-style-type: none"> • N = 1,014 • Age: M = 32.4 years • Race/Ethnicity: 88% white • Sex and/or Gender: 36.3% female; 47% male; 16.7% transgender • Education: 77% at least some college
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*Non-LGBT and non-rural sample size not reported