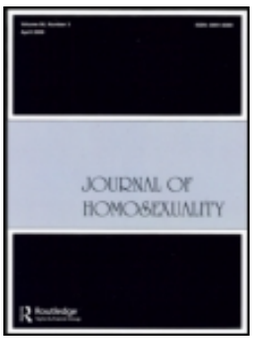

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Christopher M. Fisher, Jay A. Irwin & Jason D. Coleman

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LGBT Health in the Midlands: A Rural/Urban Comparison of Basic Health Indicators

CHRISTOPHER M. FISHER, PhD
College of Public Health, University of Nebraska Medical Center, Omaha, Nebraska, USA

JAY A. IRWIN, PhD
Department of Sociology and Anthropology, University of Nebraska at Omaha, Omaha, Nebraska, USA

JASON D. COLEMAN, PhD, MSPH
School of Health, Physical Education, and Recreation, University of Nebraska at Omaha, Omaha, Nebraska, USA

Research into the health and wellbeing of rural lesbian, gay, bisexual, and transgender (LGBT) populations is limited. A community-based participatory research (CBPR) approach was used to develop an online survey for LGBT Nebraskans. The 770 participants replied to an array of questions on social determinants of health and basic health outcomes. Only significant differences in having health insurance were found between urban and rural participants. Social determinants of health were explored. Results of this study suggest that regional culture may be more salient to health for lesbian, gay, bisexual, and transgender persons living in the Midwest than rural or urban residence.

KEYWORDS *LGBT, health outcomes, rural*

The health and wellbeing of lesbian, gay, bisexual, and transgender (LGBT) individuals and other sexual minority populations has become a public health topic of great interest to researchers, policy makers, and funders of health research. Basic health disparities include smoking prevalence and alcohol use (Greenwood et al., 2005; Tang et al., 2004; Gruskin et al., 2001;

Address correspondence to Christopher M. Fisher, College of Public Health, University of Nebraska, 986075 Nebraska Medical Center, Omaha, NE 68198-6075, USA. E-mail: cfisherm@unmc.edu

Stall & Wiley, 1988), mental health (Kenagy, 2005; Kosciw et al., 2008), suicide ideation (Kosciw et al., 2008), HIV disease and AIDS, particularly for gay and bisexual men and transgender persons (Smith et al., 2010; CDC, 2009b), and increased cancer risk (e.g., cervical, breast; Bowen et al., 2004; Case et al., 2004) for lesbian and bisexual women. In 2011, the Institutes of Medicine (IOM), at the behest of the National Institutes of Health (NIH), released the first ever comprehensive report on LGBT health. One key recommendation was to increase research to better understand the unique lived experiences of LGBT persons with a particular focus on addressing health disparities (IOM, 2011).

Existing literature on LGBT health is small in comparison to the overall body of health research; it has been estimated to represent one tenth of one percent (0.1%) of the total peer-reviewed literature (Boehmer, 2002). Within this body of research, most work has been done with LGBT participants living in large metropolitan regions. Far less research has been conducted in rural parts of the United States (Leedy & Connolly, 2008; Kennedy, 2010). The small amount of rural LGBT research that exists has focused primarily on the cultural context of living in rural America—specifically, the impact on mental health, access to services, and the politics of identity in conservative, rural America.

A small but rich source of information on U.S. LGBT rural life has come from ethnographic and qualitative research and a few quantitative studies. Narratives have highlighted the complexity of rural living for LGBT persons (Cody & Welch, 1997; Oswald, 2002; Oswald & Masciadrelli, 2008). Rural LGBT individuals have voiced experiences with stigma, discrimination, and isolation as well as a need for social support systems (Pickett, 2010; Leedy & Connolly, 2008; King & Dabelko-Schoeny, 2009, Meyer, 2011), all of which have been linked to impact on mental health, access to services, and identity development. Similarly, for LGBT adolescents, increased isolation and mental health issues have been reported, including greater rates of suicide behaviors (Poon & Saewyc, 2009; Yarbrough, 2004). Mental health care and general health care services have been described as lacking in support for LGBT clients (Walinsky & Whitcomb, 2010; Willging, Salvador, & Kano, 2006; Eady, Dobinson, & Ross, 2011; Addis et al., 2009; Mollon, 2012). Finally, one study has explored the impact of same-sex marriage debates in rural LGBT populations describing an uneasy tension in local communities; participants described both ways in which inclusive marriage policies could redress stigma, discrimination, and homophobia and beliefs that such laws would not reduce societal homophobia (Shulman et al., 2009).

Much of the work on the cultural context of rural LGBT life indicates a "harder" life due to stigma, discrimination, and lack of social, structural, and institutional supports, though positive aspects of rural LGBT life have been identified. Oswald and Culton (2003) described the best things about rural life as an LGBT individual, which included close relationships, high quality

of life, involvement with social networks, and self-acceptance. Similarly, high levels of tolerance and acceptance for LGBT persons were found in a study of gay men in rural Massachusetts (Kirkey & Forsyth, 2001). A few studies highlight some positive aspects of LGBT rural life, while a larger body points to challenges. The discrepancies in the literature highlight a need for further research to further describe the complexities of an ever-changing lived dynamic among rural LGBT persons.

Research on LGBT populations has been predominately qualitative in nature. Many studies have included only one or two subgroups within the larger LGBT community (e.g., gays and lesbians only, transgender only), and most lacked comparisons to nearby or culturally similar urban areas. Only one known study has described, though not compared to urban populations, basic health indicators and outcomes of a rural LGBT population; a West Virginia study found a significant smoking disparity (Lee et al., 2011). No known studies have examined social determinants of health and compared them to regionally similar metropolitan area LGBT populations.

THE CURRENT STUDY

The current study examined differences in health outcomes between urban and rural LGBT persons living in a predominantly rural, conservative state in the Midwestern United States and compared those outcomes to state and national data where possible. Data were collected as part of a larger study conducted using a community-based participatory research approach in Nebraska. The larger study was developed to describe the physical, mental, social, and sexual health of LGBT Nebraskans.

In the United States, Nebraska is the 16th largest state geographically (77,354 square miles), and it has the 38th largest population (1,842,641). Nebraska contains two metropolitan statistical areas (MSAs; as defined by the U.S. Census Bureau)—Omaha and Lincoln; all other areas are considered rural. LGBT communities throughout Nebraska have fewer social and structural supports when compared to larger urban areas such as the metropolitan areas of Minneapolis/St. Paul or Chicago. Examples of social and structural support systems include LGBT bars (a handful exist in Omaha and two in Lincoln), community centers (at the time of this study, one existed in Omaha that recently closed; a virtual center exists in Lincoln, but none are found in more rural parts of the state), and LGBT-specific organizations (e.g., sports leagues, churches; a handful exist in Omaha and Lincoln). The state has one Ryan White HIV Clinic based in Omaha and one AIDS Service Organization, also based in Omaha, to serve the entire state. Institutional supports in the form of policy are virtually nonexistent; same-sex marriage is unconstitutional in Nebraska, and, until recently, even basic employment nondiscrimination policies did not exist, even at a local level (Omaha and

Lincoln city councils passed such ordinances in 2012, though both cities now face repeal of these protections).

METHODS

A community-based participatory research (CBPR) approach (Reece & Dodge, 2004; Israel et al., 1998) was used to design the online survey. Researchers worked with a variety of community partners throughout the state to develop the content of the survey over the course of a year. After completion of data collection, the research team engaged community partners to discuss interpretation of the descriptive results and develop a community report (see http://www.unmc.edu/publichealth/mshrcResearch.htm), which has since been used by partners to apply for grants, to address identified needs, and take action in addressing policy (i.e., the city ordinances mentioned above). Further details on the CBPR process for the project are forthcoming in a separate publication by the lead author.

Participants

Participants were self-identified lesbian, gay, bisexual, and/or transgender persons age 19 and over who were living, working, and/or "playing" in Nebraska (the age of majority in Nebraska is 19). "Playing" was the research team's way of capturing participants who may have lived and worked in an adjoining state but frequently visited Nebraska; it was theorized they were likely to access services or participate in events (e.g., HIV education at a bar, playing in a sports league) in Nebraska and thus were part of the population of interest. A total of 770 participants completed the survey.

Recruitment

LGBT populations have been referred to as "hidden populations" (Sullivan & Losberg, 2003). A representative sample is extremely difficult to achieve. Thus, a convenience sample was obtained through a multipronged strategy. Despite low levels of social, structural, and institutional support, a strong network exists across the state with e-mail Listservs as the primary means of communication for LGBT individuals. Primary recruitment was through community partners who had access to these Listservs. The second recruitment strategy included advertisements in LGBT-friendly publications, fliers posted in LGBT-friendly venues (e.g., bars, coffeeshops, retail establishments), and palm cards distributed at Pride celebrations and regional LGBT events. The third method of recruitment was through a non-incentivized respondent-driven sample (Binson et al., 2007). All e-mails and the online survey had

messaging to encourage passing the link on to other LGBT persons. A couple months into recruitment, about 250 people had completed the survey. In an effort to boost the sample size, the research team worked with the university public relations team to create a press release about the study. Upon release, the article hit the Associate Press wire and was picked up in mainstream newspapers across the state and nation. The sample size more than doubled in a week. Data collection ceased upon reaching recruitment numbers in the protocol approved by the Institutional Review Board.

Procedures

Participants were directed to a university-hosted Web site to complete the survey. The introductory page provided a description of the study. Potential participants could click through to learn more about the study, which involved reading the study information sheet (written informed consent was waived by IRB to protect the anonymity of participants). If a visitor to the site then agreed to participate, they were asked three qualifying questions to ascertain if they met the inclusion criteria. If all criteria were met, they were then taken to the survey. The 67-item survey took approximately 30 minutes to complete, and participants had the option to not answer any question to which they felt uncomfortable responding by selecting the option "Prefer not to answer"; all questions still required an answer to progress through the survey. At the end of the survey, participants were given the opportunity to receive a $5 gift card to a major retailer for their time. Participants who accepted were taken to a different Web site not connected to the survey to provide their mailing address. Gift cards were mailed within one week of a participant completing the survey. Only about half of participants took the incentive.

Measures

For the purposes of this article, measures included basic sociodemographic information, basic health outcomes, and LGBT-specific social determinants of health.

Sociodemographics

Sociodemographic variables included ZIP code, age, sexual orientation, gender, transgender identity status, race, Latino ethnicity, relationship status, educational attainment, employment status, household income, and housing situation. ZIP code data was utilized to categorize participants as either urban (either Omaha or Lincoln Metropolitan Statistical Areas) or rural (all others). Measurement of sociodemographic variables generally followed standard

survey questions found in the Behavioral Risk Factor Surveillance Survey (CDC, 2009a) with the exception of relationship status; mutually exclusive options included legally married to same-sex partner (Omaha, Nebraska borders Council Bluffs, Iowa and is included in the Omaha MSA; Iowa legalized same-sex marriage in 2009), legally married to opposite-sex partner, partnered to/dating exclusively someone of the same sex, partnered to/dating exclusively someone of the opposite sex, divorced (not partnered), widowed (not partnered), single (dating more than one person), single (not dating), other, and prefer not to answer.

Basic health outcomes

Basic health outcomes for this study included standard measures of self-identified general health, access to health care as measured by health insurance status, smoking behaviors, and drinking behaviors (CDC, 2009a). Suicide behaviors are covered elsewhere (Irwin et al., 2014). State- and national-level data on these outcomes were also included for comparison where available.

LGBT-specific social determinants of health

Social determinants of health are often conceptualized as basic sociodemographic characteristics such as income and education. More advanced descriptions of social determinants move from the individual to the structural and institutional levels. To this end, we included measures specific to LGBT participants.

Social engagement (modified from Kippax et al., 1992) was a measure of the frequency with which and the various ways someone who is LGBT might engage with the LGBT community. Twenty-one items included frequency of such activities as going to an LGBT bar, LGBT private social party, LGBT religious service, and LGBT restaurant/café/coffeehouse. Items were rated on a 5-point scale from *never* to *a lot (at least once a week)*. Scores were summed to determine level of involvement in LGBT social activities; reliability for the total scale was high (alpha = 0.856).

Outness (Wright et al., 1998) measured how "out" participants were to a variety of social and familial circles regarding their sexual orientation and/or gender identity. Circles included friends, parents, siblings, other family members, coworkers, employer, and acquaintances (7 items). Options were ranked on a 5-point Likert scale ranging from out to "everyone" in that circle to not out to anyone ("none of them know"). Overall scores were derived through summing of coded responses; reliability was high (alpha = 0.913).

Perceived discrimination and violence scales (Wright et al., 1998) were used to determine levels of experienced discrimination (15 items) and violence (9 items) on the basis of LGBT status as perceived by the respondent. Items included questions such as "You were treated unfairly by employers, bosses, supervisors because of your LGBT status" and "You were hit, beaten, or physically attacked because of your LGBT status." Responses included "never," "once," "twice," or "three or more times" over a person's lifetime. Scores were sums of responses to all items for each scale. Reliability of both scales were high (respectively, alpha = 0.904 and alpha = 0.819).

Internalized homophobia was measured using a standard scale (Wright et al., 1998). The 11-item scale included statements such as "I have a positive attitude about being LGBT" and "I often feel ashamed that I am LGBT." Participants indicated their agreement on a 5-point Likert scale from *strongly disagree* to *strongly agree*. Reliability for the scale was high (alpha = 0.805). The rest of this article refers to this scale as Self-Acceptance. Over the years, the research team and community partners felt the construct of internalized homophobia has come to hold a negative connotation. To challenge the negative paradigm inferred by "phobia," we agreed that one with low internalized homophobia could be said to have a high level of self-acceptance. The items in the scale, in our opinion, can also be said to be asking about the construct of self-acceptance.

Mental health, a factor shown to be of particular importance in the small amount of literature on rural LGBT, was measured with Centers for Epidemiologic Studies Depression (CES-D) scale (Radloff, 1977). The 20-item scale asked participants to indicate how often each item had occurred for them in the past week. Statements included things such as "I felt lonely," I enjoyed life," and "I was happy." Options were ranked on a 4-point scale ranging from *rarely or none of the time (less than one day)* to *most or all of the time (5–7 days)*. Scores were calculated per standard protocols (Radloff, 1977). Reliability for the scale in this study was high (alpha = 0.929).

Analysis

Descriptive statistics were run for all items and scale scores above and broken out by rural and urban. Within rural and urban, further distinctions were made between lesbians, gay men, bisexuals (men and women), and transgender participants as well as by gender. Additional descriptive statistics were run for basic comparisons between rural and urban participants (i.e., chi squares, *t* tests). Finally, logistic regressions were run with all key factors to determine if rural versus urban status held any explanatory power for the four health outcomes measured in this study. IBM SPSS Statistics v. 20 was used for all analyses.

Ethical Considerations

All procedures involving human participants were approved by the Institutional Review Board at the University of Nebraska Medical Center. Additional precautions were taken to ensure that no identifying information existed beyond the point data collection ceased; all names and contact information for the mailing of incentives were destroyed. Finally, community-based participatory research (CBPR) principles require that equity in the dissemination and use of data is attended to in any CBPR study (Israel et al., 1998). Community engagement processes were used to develop a community report before any data was written up for peer-reviewed manuscript consideration.

RESULTS

The purpose of this study was to describe health outcomes for rural LGBT persons living in Nebraska and compare those outcomes to their urban counterparts. Participants ($N = 770$) were from across the state of Nebraska and the adjoining community of Council Bluffs, Iowa (part of the Omaha MSA). Excluded from analyses were those indicating a ZIP code outside the immediate area surrounding Nebraska (e.g., Des Moines, IA, Denver, CO; $n = 44$) and the small number of people indicating their gender as "intersex" ($n = 3$), resulting in a final sample size of $N = 723$. Figure 1 depicts rates of response by ZIP code. Note that the genders reported were predominately male and female as almost all transgender participants identified one of these as their gender; "other" represents the option made available to participants.

Table 1 details the sociodemographics of participants broken out by urban and rural geography and within each by gender. Similarly, Table 2 provides a breakdown of sociodemographics distinguished by sexual orientation. The majority of participants resided in an urban area ($n = 642$, 89.5%), were White ($n = 652$, 91.6%), and were relatively well educated, having at least some college ($n = 646$, 91.6%), with more than half having a bachelor's degree or above ($n = 390$, 55.3%). A majority of participants were employed for wages ($n = 528$, 73.6%), with nearly one quarter identifying as a student ($n = 171$, 23.8%). Nearly one fifth of participants fell at or below the poverty line with less than $15,000 a year in income ($n = 128$, 19.3%), while over one third indicated annual income above $50,000 ($n = 262$, 39.5%). A little more than half of participants were in a monogamous relationship (married or exclusively partnered/dating one person; $n = 397$, 55.6%), while almost one third were single and not currently dating anyone ($n = 217$, 30.3%). A majority were self-sustaining with regard to housing, either renting or owning their residence ($n = 575$, 81.6%).

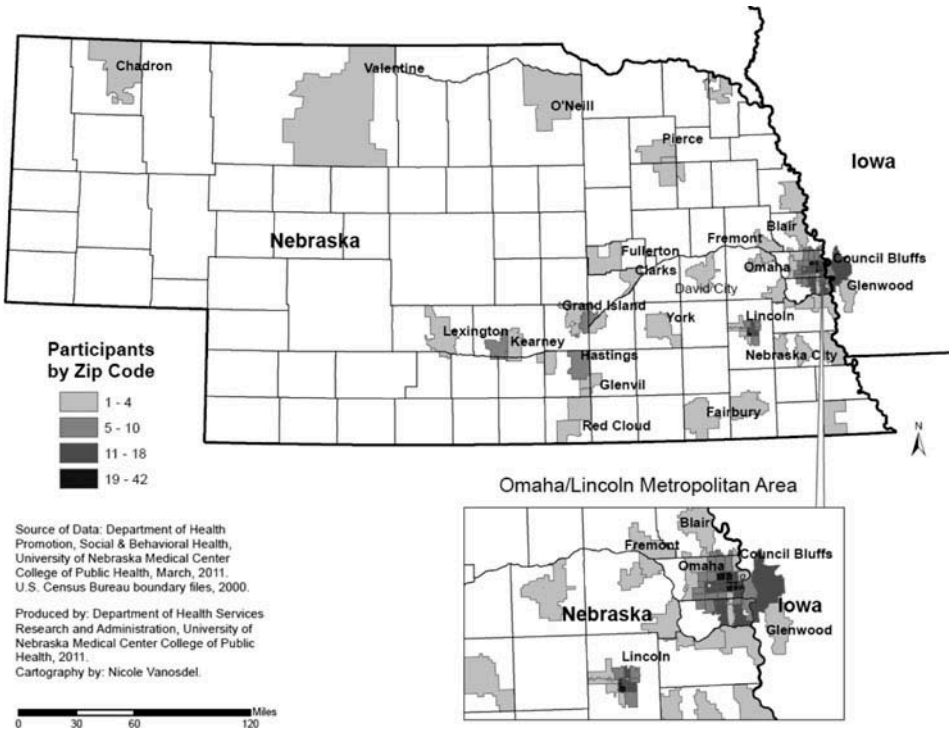

FIGURE 1 Response rates by zip code.

Rural participants ($n = 75$) were predominantly male ($n = 49$, 65.3%) and White ($n = 71$, 95.9%). In comparison to urban participants, rural LGBT respondents were slightly younger (44.0% vs. 38.6% age 19–29), had a higher rate of being in a monogamous relationship (67.5% vs. 56.5%), had lower levels of educational attainment (32.0% vs. 58.1% with bachelor's degree or above), made less money (47.7% vs. 30.2% below $25,000 per year), and had higher rates of living with family (16.7% vs. 6.2%). More rural participants identified as bisexual (21.3% vs. 15.9%), while rates of transgender identity were similar between rural and urban populations (10.7% vs. 10.8%). All persons identifying with a heterosexual orientation also identified as transgender.

Basic health outcomes for participants are detailed in Table 3 (by gender) and Table 4 (by orientation). Overall, perceived general health was high ($n = 655$, 91.0%), higher than BRFSS data for the state and country (see Table 3). A majority of participants had health insurance ($n = 592$, 83.0%) similar to state and national statistics. The number of participants who smoked at least some days was 26.0% ($n = 183$), a rate higher than state and national numbers by almost 6%. Similarly, rates of binge drinking were more than double state and national averages for the sample ($n = 297$, 41.0% vs. 18.5% and 15.7%, respectively).

TABLE 1 Participant characteristics by geography and gender (N = 717)

	Urban (N = 642, 89.5%)								Rural (N = 75, 10.5%)								Totals (*N* = 717)							
	Female N = 243 (37.9%)		Male N = 379 (59.0%)		Other N = 20 (3.1%)		Urban Total		Female N = 25 (33.3%)		Male N = 49 (65.3%)		Other N = 1 (1.3%)		Rural Total		Female *N* = 268 (37.4%)		Male *N* = 428 (59.7%)		Other *N* = 21 (2.9%)		Total	
Characteristics	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	*N*	%	*N*	%	*N*	%	*N*	%
Transgender	27	11.1	24	6.0	19	95.0	70	9.8	2	8.0	5	10.2	1	100.0	8	10.7	29	10.8	29	6.8	20	95.2	78	10.9
Age	(n = 241)		(n = 374)																					
19-29	94	39.0	142	38.0	9	45.0	245	38.6	9	36.0	24	49.0	–	–	33	44.0	103	38.7	166	39.2	9	42.9	278	39.2
30-39	63	26.1	85	22.7	5	25.0	153	24.1	6	24.0	7	14.3	–	–	13	17.3	69	25.9	92	21.7	5	23.8	166	23.4
40-49	46	19.1	78	20.9	1	5.0	125	19.7	7	28.0	7	14.3	–	–	14	18.7	53	19.9	85	20.1	1	4.8	139	19.6
50-59	27	11.2	41	11.0	4	20.0	72	11.3	2	8.0	9	18.4	–	–	11	14.7	29	10.9	50	11.8	4	19.0	83	11.7
60+	11	4.6	28	7.5	1	5.0	40	6.3	1	4.0	2	4.1	1	100.0	4	5.3	12	4.5	30	7.1	2	9.5	44	6.2
Race	(n = 242)		(n = 376)						(n = 48)															
White	222	91.7	343	91.2	16	80.0	581	91.1	24	96.0	46	95.8	1	100.0	71	95.9	246	92.1	389	91.7	17	81.0	652	91.6
Black or African American	6	2.5	8	2.1	0	–	14	2.2	–	–	–	–	–	–	0	0.0	6	2.2	8	1.9	–	–	14	2.0
Asian	1	0.4	2	0.5	0	–	3	0.5	1	4.0	–	–	–	–	1	1.4	2	0.7	2	0.5	–	–	4	0.6
American Indian or Alaska Native	0	–	3	0.8	0	–	3	0.5	–	–	–	–	–	–	0	0.0	–	–	3	0.7	–	–	3	0.4
Other	13	5.4	20	5.3	4	20.0	37	5.8	–	–	2	4.2	–	–	2	2.7	13	4.9	22	5.2	4	19.0	39	5.5
Latino	13	5.3	19	5.0	0	–	32	4.5	–	–	3	6.1	–	–	3	4.0	13	4.9	22	5.1	–	–	35	4.9
Relationship Status			(n = 377)																					
Legally married to same-sex partner	27	11.1	25	6.6	0		52	8.1	1	4.0	–	–	1	100.0	2	2.7	28	10.4	25	5.9	1	4.8	54	7.6
Legally married to opposite-sex partner	12	4.9	19	5.0	1	5.0	32	5.0	3	12.0	2	4.1	–	–	5	6.7	15	5.6	21	4.9	1	4.8	37	5.2

(*Continued*)

TABLE 1 (Continued)

	Urban (N = 642, 89.5%)								Rural (N = 75, 10.5%)								Totals (*N* = 717)							
	Female N = 243 (37.9%)		Male N = 379 (59.0%)		Other N = 20 (3.1%)		Urban Total		Female N = 25 (33.3%)		Male N = 49 (65.3%)		Other N = 1 (1.3%)		Rural Total		Female *N* = 268 (37.4%)		Male *N* = 428 (59.7%)		Other *N* = 21 (2.9%)		Total	
Characteristics	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	*N*	%	*N*	%	*N*	%	*N*	%
Partnered to/dating exclusively someone of the same sex	116	47.7	128	34.0	5	25.0	249	38.9	9	36.0	17	34.7	–	–	26	34.7	125	46.6	145	34.0	5	23.8	275	38.5
Partnered to/dating exclusively someone of the opposite sex	13	5.3	15	4.0	1	5.0	29	4.5	–	–	2	4.1	–	–	2	2.7	13	4.9	17	4.0	1	4.8	31	4.3
Divorced or Widowed, not partnered	10	4.1	14	3.7	3	15.0	27	4.2	–	–	2	4.1	–	–	2	2.7	10	3.7	16	3.8	3	14.3	29	4.1
Single, dating more than one person	11	4.5	21	5.6	1	5.0	33	5.2	3	12.0	4	8.2	–	–	7	9.3	14	5.2	25	5.9	1	4.8	40	5.6
Single, not dating	47	19.3	140	37.1	2	10.0	189	29.5	9	36.0	19	38.8	–	–	28	37.3	56	20.9	159	37.3	2	9.5	217	30.3
Other	7	2.9	15	4.0	7	35.0	29	4.5	–	–	3	6.1	–	–	3	4.0	7	2.6	18	4.2	7	33.3	32	4.5
Education	(n = 241)		(n = 374)		(n = 18)				(n = 24)		(n = 47)													
High School or GED	9	3.7	21	5.6	0	–	30	4.7	4	16.7	7	14.9	–	–	11	15.3	13	4.9	28	6.7	–	–	41	5.8
Some College	68	28.2	112	29.9	4	22.2	184	29.1	6	25.0	20	42.6	1	100.0	27	37.5	74	27.9	132	31.4	5	26.3	211	29.9
2 year college degree	17	7.1	20	5.3	1	5.6	38	6.0	3	12.5	4	8.5	–	–	7	9.7	20	7.5	24	5.7	1	5.3	45	6.4
Bachelors Degree	85	35.3	115	30.7	8	44.4	208	32.9	4	16.7	6	12.8	–	–	10	13.9	89	33.6	121	28.7	8	42.1	218	30.9
Masters Degree	47	19.5	77	20.6	3	16.7	127	20.1	5	20.8	6	12.8	–	–	11	15.3	52	19.6	83	19.7	3	15.8	138	19.6
Professional (PhD, MD, JD, etc.)	12	5.0	20	5.3	0	–	32	5.1	–	–	2	4.3	–	–	2	2.8	12	4.5	22	5.2	–	–	34	4.8

Other	3	1.2	9	2.4	2	11.1	14	2.2	2	8.3	2	4.3	–	–	4	5.6	5	1.9	11	2.6	2	10.5	18	2.6
Employment (not mutually exclusive)																								
Employed for wages	189	77.8	282	74.4	11	55.0	482	67.2	16	64.0	30	61.2	–	–	46	61.3	205	76.5	312	72.9	11	52.4	528	73.6
Self-employed	11	4.5	30	7.9	2	10.0	43	6.0	–	–	4	8.2	1	100.0	5	6.7	11	4.1	34	7.9	3	14.3	48	6.7
Out of work for more than 1 year	6	2.5	13	3.4	3	15.0	22	3.1	1	4.0	1	2.0	–	–	2	2.7	7	2.6	14	3.3	3	14.3	24	3.3
Out of work for less than 1 year	11	4.5	19	5.0	1	5.0	31	4.3	3	12.0	4	8.2	–	–	7	9.3	14	5.2	23	5.4	1	4.8	38	5.3
Homemaker	4	1.6	1	0.3	0	–	5	0.7	2	8.0	–	–	–	–	2	2.7	6	2.2	1	0.2	–	–	7	1.0
Student	66	27.2	83	21.9	6	30.0	155	21.6	4	16.0	12	24.5	–	–	16	21.3	70	26.1	95	22.2	6	28.6	171	23.8
Retired	8	3.3	14	3.7	0	–	22	3.1	–	–	2	4.1	–	–	2	2.7	8	3.0	16	3.7	–	–	24	3.3
Unable to work	8	3.3	4	1.1	1	5.0	13	1.8	3	12.0	4	8.2	–	–	7	9.3	11	4.1	8	1.9	1	4.8	20	2.8
Income	(n = 227)		(n = 353)		(n = 17)				(n = 21)		(n = 45)													
≤ $15,000	45	19.8	52	14.7	8	47.1	105	17.6	7	33.3	16	35.6	–	–	23	34.3	52	21.0	68	17.5	8	44.4	128	19.3
$15,001-$25,000	30	13.2	43	12.2	2	11.8	75	12.6	3	14.3	5	11.1	1	100.0	9	13.4	33	13.3	48	12.3	3	16.7	84	12.7
$25,001-$50,000	58	25.6	104	29.5	5	29.4	167	28.0	8	38.1	15	33.3	–	–	23	34.3	66	26.6	119	30.6	5	27.8	190	28.6
$50,001-$75,000	37	16.3	61	17.3	1	5.9	99	16.6	2	9.5	7	15.6	–	–	9	13.4	39	15.7	68	17.5	1	5.6	108	16.3
$75,001 or more	57	25.1	93	26.3	1	5.9	151	25.3	1	4.8	2	4.4	–	–	3	4.5	58	23.4	95	24.4	1	5.6	154	23.2
Housing	(n = 240)		(n = 374)		(n = 19)				(n = 24)		(n = 47)													
Rent my apartment, house or room	92	38.3	170	45.5	12	63.2	274	43.3	6	25.0	13	27.7	–	–	19	26.4	98	37.1	183	43.5	12	60.0	293	41.6
Own my own home	104	43.3	146	39.0	3	15.8	253	40.0	10	41.7	18	38.3	1	100.0	29	40.3	114	43.2	164	39.0	4	20.0	282	40.0
Residential treatment facility	1	0.4	1	0.3	0	–	2	0.3	–	–	–	–	–	–	0	0.0	1	0.4	1	0.2	–	–	2	0.3
Live with friends (pay no rent)	0	–	2	0.5	0	–	2	0.3	–	–	–	–	–	–	0	0.0	–	–	2	0.5	–	–	2	0.3
Live with partner (pay no rent)	10	4.2	18	4.8	1	5.3	29	4.6	2	8.3	2	4.3	–	–	4	5.6	12	4.5	20	4.8	1	5.0	33	4.7
Live with family (pay no rent)	16	6.7	23	6.1	0	–	39	6.2	3	12.5	9	19.1	–	–	12	16.7	19	7.2	32	7.6	–	–	51	7.2
Other	17	7.1	14	3.7	3	15.8	34	5.4	3	12.5	5	10.6	–	–	8	11.1	20	7.6	19	4.5	3	15.0	42	6.0

TABLE 2 Participant characteristics by geography and orientation (N = 723)

	Urban (N = 648, 89.5%)								Rural (N = 75, 10.5%)								Totals (N = 723)									
	Gay/Lesbian N = 489 (75.5%)		Bisexual N = 103 (15.9%)		Heterosexual N = 14 (2.2%)		Unsure/Questioning/ Other N = 42 (6.5%)		Gay/ Lesbian N = 55 (73.3%)		Bisexual N = 16 (21.3%)		Heterosexual N = 2 (2.7%)		Unsure/Questioning/ Other N = 2 (2.7%)		Gay/ Lesbian N = 544 (75.2%)		Bisexual N = 119 (16.5%)		Heterosexual N = 16 (2.2%)		Unsure/Questioning/Other N = 44 (6.1%)		Total	
Characteristics	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%
Transgender	16	3.3	18	17.5	14	100.0	22	52.4	1	1.8	3	18.8	2	100.0	2	100.0	17	3.1	21	17.6	16	100.0	24	54.5	78	10.8
Age	(n = 481)		(n = 100)				(n = 40)																			
19-29	163	33.9	49	49.0	9	64.3	24	60.0	23	41.8	8	50.0	2	100.0	–	–	186	34.7	57	49.1	11	68.8	24	57.1	278	39.2
30-39	124	25.8	19	19.0	1	7.1	9	22.5	11	20.0	2	12.5	–	–	–	–	135	25.2	21	18.1	1	6.3	9	21.4	166	23.4
40-49	105	21.8	19	19.0	–	–	1	2.5	9	16.4	4	25.0	–	–	1	50.0	114	21.3	23	19.8	0	0.0	2	4.8	139	19.6
50-59	58	12.1	8	8.0	3	21.4	3	7.5	9	16.4	2	12.5	–	–	–	–	67	12.5	10	8.6	3	18.8	3	7.7	83	11.7
60+	31	6.4	5	5.0	1	7.1	3	7.5	3	5.5	–	–	–	–	1	50.0	34	6.3	5	4.3	1	6.3	4	9.5	44	6.2
Race	(n = 482)		(n = 101)				(n = 41)				(n = 15)															
White	444	92.1	89	88.1	12	85.7	36	87.8	53	96.4	14	93.3	2	100.0	2	100.0	497	92.6	103	88.8	14	87.5	38	88.4	652	91.6
Black or African American	11	2.3	3	3.0	–	–	–	–	–	–	–	–	–	–	–	–	11	2.0	3	2.6	0	0.0	0	0.0	14	2.0
Asian	2	0.4	1	1.0	–	–	–	–	–	–	1	6.7	–	–	–	–	2	0.4	2	1.7	0	0.0	0	0.0	4	0.6
American Indian or Alaska Native	2	0.4	1	1.0	–	–	–	–	–	–	–	–	–	–	–	–	2	0.4	1	0.9	0	0.0	0	0.0	3	0.4
Other	23	4.8	7	6.9	2	14.3	5	12.2	2	3.6	–	–	–	–	–	–	25	4.7	7	6.0	2	12.5	5	11.6	39	5.5
Latino	23	4.7	8	7.8	–	–	1	2.4	3	5.5	–	–	–	–	–	–	26	4.8	8	6.7	0	0.0	1	2.3	35	4.8

Relationship Status	(n = 484)		(n = 102)		(n = 13)		(n = 41)																	
Legally married to same-sex partner	50	10.3	2	2.0	–	–	–	–	1	1.8	–	–	–	–	1	50.0	51	9.5	2	1.7	0	0.0	1	2.3	54	7.6
Legally married to opposite-sex partner	4	0.8	19	18.6	4	30.8	5	12.2	–		5	31.3	–	–	–	–	4	0.7	24	20.3	4	26.7	5	11.6	37	5.2
Partnered to/dating exclusively someone of the same sex	220	45.5	20	19.6	–	–	9	22.0	25	45.5	1	6.3	–	–	–	–	245	45.5	21	17.8	0	0.0	9	20.9	275	38.5
Partnered to/dating exclusively someone of the opposite sex	6	1.2	16	15.7	3	23.1	4	9.8	–	–	1	6.3	1	50.0	–	–	6	1.1	17	14.4	4	26.7	4	9.3	31	4.3
Divorced or Widowed, not partnered	9	1.9	14	13.7	–	–	4	9.8	1	1.8	1	6.3	–	–	–	–	10	1.9	15	12.7	0	0.0	4	9.3	29	4.1
Single, dating more than one person	23	4.8	6	5.9	2	15.4	2	4.9	5	9.1	2	12.5	–	–	–	–	28	5.2	8	6.8	2	13.3	2	4.7	40	5.6
Single, not dating	154	31.8	22	21.6	3	23.1	10	24.4	20	36.4	6	37.5	1	50.0	1	50.0	174	32.3	28	23.7	4	26.7	11	25.6	217	30.3
Other	18	3.7	3	2.9	1	7.7	7	17.1	3	5.5	–	–	–		–	–	21	3.9	3	2.5	1	6.7	7	16.3	32	4.5
Education	(n = 479)		(n = 101)				(n = 39)		(n = 52)																	
High School or GED	22	4.6	5	5.0	2	14.3	1	2.6	9	17.3	1	6.3	1	50.0	–	–	31	5.8	6	5.1	3	18.8	1	2.4	41	5.8
Some College	127	26.5	41	40.6	4	28.6	12	30.8	16	30.8	9	56.3	–	–	2	100.0	143	26.9	50	42.7	4	25.0	14	34.1	211	29.9
2 year college degree	28	5.8	6	5.9	3	21.4	1	2.6	4	7.7	3	18.8	–	–	–	–	32	6.0	9	7.7	3	18.8	1	2.4	45	6.4

(*Continued*)

TABLE 2 (Continued)

	Urban (N = 648, 89.5%)								Rural (N = 75, 10.5%)								Totals (N = 723)								
	Gay/Lesbian N = 489 (75.5%)		Bisexual N = 103 (15.9%)		Heterosexual N = 14 (2.2%)		Unsure/Questioning/ Other N = 42 (6.5%)		Gay/ Lesbian N = 55 (73.3%)		Bisexual N = 16 (21.3%)		Heterosexual N = 2 (2.7%)		Unsure/Questioning/ Other N = 2 (2.7%)		Gay/ Lesbian N = 544 (75.2%)		Bisexual N = 119 (16.5%)		Heterosexual N = 16 (2.2%)		Unsure/Questioning/Other N = 44 (6.1%)		Total	
Characteristics	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%	*N*	%
Bachelors Degree	162	33.8	27	26.7	3	21.4	16	41.0	6	11.5	3	18.8	1	50.0	–	–	168	31.6	30	25.6	4	25.0	16	39.0	218	30.9
Masters Degree	103	21.5	14	13.9	2	14.3	8	20.5	11	21.2	–	–	–	–	–	–	114	21.5	14	12.0	2	12.5	8	19.5	138	19.6
Professional (PhD, MD, JD, etc.)	26	5.4	5	5.0	–	–	1	2.6	2	3.8	–	–	–	–	–	–	28	5.3	5	4.3	0	0.0	1	2.4	34	4.8
Other	11	2.3	3	3.0	–	–	–	–	4	7.7	–	–	–	–	–	–	15	2.8	3	2.6	0	0.0	0	0.0	18	2.6
Employment (not mutually exclusive)																										
Employed for wages	378	77.3	69	67.0	11	78.6	24	57.1	35	63.6	9	56.3	2	100.0	–	–	413	75.9	78	65.5	13	81.3	24	54.5	528	73.0
Self-employed	31	6.3	5	4.9	2	14.3	5	11.9	1	1.8	2	12.5	1	50.0	1	50.0	32	5.9	7	5.9	3	18.8	6	13.6	48	6.6
Out of work for more than 1 year	16	3.3	3	2.9	–	–	3	7.1	1	1.8	1	6.3	–	–	–	–	17	3.1	4	3.4	0	0.0	3	6.8	24	3.3
Out of work for less than 1 year	21	4.3	6	5.8	1	7.1	3	7.1	4	7.3	2	12.5	–	–	1	50.0	25	4.6	8	6.7	1	6.3	4	9.1	38	5.3
Homemaker	2	0.4	3	2.9	–	–	–	–	1	1.8	1	6.3	–	–	–	–	3	0.6	4	3.4	0	0.0	0	0.0	7	1.0
Student	101	20.7	32	31.1	3	21.4	19	45.2	11	20.0	4	25.0	1	50.0	–	–	112	20.6	36	30.3	4	25.0	19	43.2	171	23.7
Retired	16	3.3	4	3.9	1	7.1	1	2.4	2	3.6	–	–	–	–	–	–	18	3.3	4	3.4	1	6.3	1	2.3	24	3.3
Unable to work	5	1.0	8	7.8	–	–	–	–	7	12.7	–	–	–	–	–	–	12	2.2	8	6.7	0	0.0	0	0.0	20	2.8
Income	(n = 456)		(n = 93)		(n = 12)		(n = 36)		(n = 50)		(n = 14)				(n = 1)											
≤ $15,000	63	13.8	26	28.0	3	25.0	13	36.1	20	40.0	3	21.4	–	–	–	–	83	16.4	29	27.1	3	21.4	13	35.1	128	19.3
$15,001-$25,000	55	12.1	15	16.1	2	16.7	3	8.3	5	10.0	3	21.4	–	–	1	100.0	60	11.9	18	16.8	2	14.3	4	10.8	84	12.7

$25,001-$50,000	137	30.0	20	21.5	1	8.3	9	25.0	18	36.0	5	35.7	–	–	–	–	155	30.6	25	23.4	1	7.1	9	24.3	190	28.6
$50,001-$75,000	77	16.9	18	19.4	1	8.3	3	8.3	5	10.0	2	14.3	2	100.0	–	–	82	16.2	20	18.7	3	21.4	3	8.1	108	16.3
$75,001 or more	124	27.2	14	15.1	5	41.7	8	22.2	2	4.0	1	7.1	–	–	–	–	126	24.9	15	14.0	5	35.7	8	21.6	154	23.2
Housing	(n = 479)		(n = 101)		(n = 13)		(n = 40)		(n = 52)																	
Rent my apartment, house or room	199	41.5	49	48.5	6	46.2	20	50.0	15	28.8	4	25.0	–	–	–	–	214	40.3	53	45.3	6	40.0	20	47.6	293	41.6
Own my own home	205	42.8	35	34.7	5	38.5	8	20.0	20	38.5	7	43.8	1	50.0	1	50.0	225	42.4	42	35.9	6	40.0	9	21.4	282	40.0
Residential treatment facility	2	0.4	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	0.4	0	0.0	0	0.0	0	0.0	2	0.3
Live with friends (pay no rent)	2	0.4	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	0.4	0	0.0	0	0.0	0	0.0	2	0.3
Live with partner (pay no rent)	24	5.0	4	4.0	–	–	1	2.5	4	7.7	–	–	–	–	–	–	28	5.3	4	3.4	0	0.0	1	2.4	33	4.7
Live with family (pay no rent)	25	5.2	10	9.9	1	7.7	3	7.5	7	13.5	3	18.8	1	50.0	1	50.0	32	6.0	13	11.1	2	13.3	4	9.5	51	7.2
Other	22	4.6	3	3.0	1	7.7	8	20.0	6	11.5	2	12.5	–	–	–	–	28	5.3	5	4.3	1	6.7	8	19.0	42	6.0

TABLE 3 Health outcomes and social determinants of health by geography and gender (N = 717)

	Urban (N = 642, 89.5%)						Rural (N = 75, 10.5%)						Comparison to state and national[1]			
	Female N = 243 (37.9%)		Male N = 379 (59.0%)		N = 20 (3.1%)		Female N = 25 (33.3%)		Male N = 49 (65.3%)		Other Other N = 1 (1.3%)		Total N = 717		NE	United States
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	%	%
Basic health outcomes																
Perceived general health (excellent to good)	212	87.2	356	93.9	18	90.0	21	84.0	47	95.9	1	100.0	655	91.00	88.0	85.4
Had health insurance	212	87.2	315	83.1	11	55.0	17	68.0	37	75.5	–	–	592	83.00	85.5	83.2
Smoked some or every day	61	25.1	97	25.6	3	15.0	7	28.0	15	30.6	–	–	183	26.00	19.1	19.0
Binge drank in last 30 days	82	33.7	179	47.2	5	25.0	8	32.0	23	46.9	–	–	297	41.00	18.5	15.7
LGBT-specific social determinants of health	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD				
Social engagement (range = 21 to 105)	38.1	9.1	40.9	11.3	40.3	12.0	34.5	7.7	37.7	8.5	49.0	0.0				
Outness (range = 7 to 35)	25.9	8.1	26.1	8.3	24.1	8.7	23.8	8.8	22.2	8.3	35.0	0.0				
Perceived discrimination (range = 15 to 60)	23.3	9.3	24.4	8.5	26.6	12.0	24.3	10.8	24.1	10.2	37.0	0.0				
Experienced violence (range = 9 to 36)	10.0	2.4	10.5	3.0	11.2	3.8	10.0	2.4	10.6	3.3	22.0	0.0				
Self-acceptance (range = 13 to 55)	44.8	6.0	42.9	6.6	44.9	6.7	42.3	6.4	40.6	6.7	51.0	0.0				
Depression (range = 0 to 56)	14.0	12.0	13.5	11.1	19.0	15.5	17.4	11.8	16.5	12.5	5.0	0.0				

[1]Data from 2007-2008 Nebraska BRFSS (NE DHHS, 2010)

TABLE 4 Health outcomes and social determinants of health by geography and orientation (N = 723)

	Urban (N = 648, 89.5%)									Rural (N = 75, 10.5%)							
	Gay/ Lesbian N = 489 (37.9%)			Bisexual N = 103 (59.0%)		Heterosexual N = 14 (59.0%)		Unsure/ Questioning/ Other N = 42 (3.1%)		Gay/Lesbian N = 55 (37.9%)		Bisexual N = 16 (59.0%)		Heterosexual N = 2 (59.0%)		Unsure/ Questioning/ Other N = 2 (3.1%)	
Characteristics	N	%		N	%	N	%	N	%	N	%	N	%	N	%	N	%
Basic health outcomes																	
Perceived general health (excellent to good)	452	92.4	1	87	84.5	13	92.9	37	88.1	52	94.5	13	81.3	2	100.0	2	100.0
Had health insurance	410	83.8	1	87	84.5	11	78.6	30	71.4	45	81.8	7	43.8	2	100.0	–	–
Smoked some or every day	116	23.7	0	27	26.2	4	28.6	14	33.3	16	29.1	6	37.5	–	–	–	–
Binge drank in last 30 days	207	42.3	0	36	35.0	5	35.7	18	42.9	25	45.5	6	37.5	–	–	–	–
LGBT-specific social determinants of health	Mean	SD		Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Social engagement (range = 21 to 105)	41.0	10.5		34.9	8.4	34.9	7.5	38.4	9.8	37.7	8.1	33.6	9.2	32.0	1.4	41.0	11.3
Outness (range = 7 to 35)	28.1	6.8		17.9	8.7	23.8	7.1	22.1	8.3	25.1	7.4	14.6	6.1	20.5	16.3	34.0	1.4
Perceived discrimination (range = 15 to 60)	24.6	8.7		21.0	8.3	27.2	9.0	24.9	11.0	25.1	11.0	21.8	8.0	23.0	5.7	27.0	14.1
Experienced violence (range = 9 to 36)	10.4	2.9		10.1	2.7	10.9	3.4	10.3	2.6	10.7	3.4	9.4	0.9	9.0	0.0	15.5	9.2
Self-acceptance (range = 13 to 55)	44.2	6.4		41.6	6.5	42.8	8.0	42.6	6.3	42.0	6.6	38.0	6.4	43.5	4.9	47.0	5.7
Depression (range = 0 to 56)	12.8	11.0		17.2	13.4	14.8	12.5	17.2	12.5	16.0	12.1	19.3	12.1	20.0	24.0	11.0	8.5

Rural participants were similar to their urban counterparts regarding perceived general health. However, rural LGBT had lower rates of having health insurance (72.0% vs. 83.8%) with rural females faring worse than their male counterparts (68.0% vs. 75.5%). Bisexual persons had lower ratings of general health for both urban and rural populations, as did urban participants who indicated unsure, questioning, or other for sexual orientation. Smoking rates were higher for rural participants (29.3% vs. 25.1%). Bisexual participants, regardless of geography, had overall higher rates of smoking than their gay/lesbian counterparts. Both rural and urban males had higher rates of binge drinking in the last 30 days (combined, 47.2% vs. 33.6%). Rural gays, lesbians, and bisexuals had slightly higher rates of binge drinking than their urban counterparts.

Despite observed differences on basic health outcomes between urban and rural participants, only having health insurance was significant in a chi-square test (see Table 5). Urban participants were more likely to have had health insurance, x^2 (2, 744) = 6.884, $p = .032$.

LGBT-specific social determinants of health were measured vis-à-vis the six constructs of social engagement, outness, perceived discrimination, experienced violence, self-acceptance, and depressive symptoms. Mean scores for these scales are detailed in Tables 3 (by gender) and 4 (by sexual orientation). Observable differences were slight. Analyses of mean differences between urban and rural participants are detailed in Table 6. Rural participants had significantly lower social engagement ($t = 2.410$, $p = .016$), were not as out to familial and social circles ($t = 2.997$, $p = .003$), were less accepting of their LGBT identity ($t = 2.976$, $p = .003$), and

TABLE 5 Basic Health Outcomes differences between urban and rural

Basic health outcomes	X^2	df	Sig.
Perceived general health (excellent to good)	1.807	2	0.405
Had health insurance	6.884	2	0.032
Smoked some or every day	1.144	2	0.564
Binge drank in last 30 days	1.270	2	0.530

TABLE 6 Social determinants of health by geography t-tests

LGBT-specific social determinants of health	Urban Mean	Rural Mean	*t*	df	Sig.
Social engagement (range = 21 to 105)	39.8	36.8	2.410	714	0.016
Outness (range = 7 to 35)	26.0	22.9	2.997	713	0.003
Perceived discrimination (range = 15 to 60)	24.1	24.4	0.262	712	0.793
Experienced violence (range = 9 to 36)	10.0	10.5	0.534	713	0.593
Self-acceptance (range = 13 to 55)	43.6	41.3	2.976	715	0.003
Depression (range = 0 to 56)	13.9	16.7	1.966	712	0.050

had higher scores on the CES-D inventory ($t = 1.966$, $p = .050$). No significant differences existed for perceived discrimination or experienced violence.

The final analysis for exploring differences in health outcomes between rural and urban LGBT participants involved a logistic regression for each basic health outcome that included sociodemographics (step 1), significant LGBT-specific social determinants of health (referred to as LGBT specific indicators; step 2), and rural status (step 3; see Table 7). Perceived general health was not affected by a participants' geographic location. However, the final model did reveal that for all participants, those with higher income were more likely to perceive they had better overall general health by a multiplicative factor of 1.253 (95% CI: 1.063–1.482, $p < 0.01$), controlling for all other variables in the model. Older individuals, females, and those with more depressive symptoms were less likely to perceive better general health by a multiplicative factor of 0.955 (95% CI: .930–.981, $p < 0.01$), 2.456 (95% CI: 1.237–4.877, $p < 0.05$) and 0.956 (95% CI: .900–.983, $p < 0.05$), respectively, controlling for all other variables in the model.

Urban participants were more likely to have health insurance by a multiplicative factor of 2.090 (95% CI: 1.009 – 4.326, $p < 0.05$), controlling for all other variables in the model. Other factors significantly correlated to having insurance included being unemployed (less likely, adjusted odds ratio = 0.217, $p < 0.001$), lower income (less likely, adjusted odds ratio = 0.726, $p < 0.001$), and higher depressive symptoms (more likely, adjusted odds ratio = 1.030, $p < 0.05$). Also, those who were out to more people in their familial and social circles were more likely to have health insurance by a multiplicative factor of 1.065 (95% CI: 1.024–1.108, $p < 0.01$), controlling for all other variables in the model.

Only a college education had explanatory power for smoking behaviors. Persons with a college education were less likely to currently smoke some days or every day by a multiplicative factor of 0.501 (95% CI: 0.330–0.761, $p < 0.01$), controlling for all other variables in the model.

Binge drinking in the past 30 days was explained by age (older persons less likely, adjusted odds ratio = 0.964, $p < 0.001$) and being male (more likely, adjusted odds ratio = 1.617, $p < 0.05$). LGBT persons who were more socially engaged were also more likely to have binge drunk in the last 30 days by a multiplicative factor of 1.035 (95% CI: 1.011–1.058, $p < 0.01$), controlling for all other variables in the model. Transgender persons were much more likely to have binge drunk in the past 30 days by a multiplicative factor of 4.711 (95% CI: 2.014–11.017, $p < 0.001$), the highest adjusted odds ratio in all four models.

Table 7 Logistic Regressions of Basic Health Outcomes

	Perceived General Health (N = 612)		Insurance Status (N = 608)		Smoking Status (N = 609)		Binge Drinking Status (N = 487)	
	Adjusted Odds Ratio±	95% CI	Adjusted Odds Ratio	95% CI	Adjusted Odds Ratio	95% CI	Adjusted Odds Ratio	95% CI
Socio-demographics								
Unemployed	1.363	.482 – 3.851	.217***	.099 – .477	1.449	.709 - 2.960	1.045	.423 – 2.581
Income	1.253**	1.063 – 1.482	.726***	.640 – .823	1.072	.976 - 1.177	1.015	.917 – 1.124
College Education	.894	.420 – 1.903	1.128	.637 – 1.996	.501**	.330 - .761	1.025	.657 – 1.600
Age	.955**	.930 – .981	.998	.975 – 1.022	1.007	.990 - 1.024	.964***	.947 – .982
Married or Partnered	.864	.438 – 1.707	.707	.410 – 1.220	.782	.524 - 1.167	.882	.583 – 1.335
Male	2.456*	1.237 – 4.877	1.491	.839 – 2.648	.877	.580 - 1.326	1.617*	1.061 – 2.465
Transgender	2.227	.949 – 5.226	1.140	.438 – 2.967	.869	.424 - 1.783	4.711***	2.014 – 11.017
Minority Race	2.364	.822 – 6.801	.746	.279 – 1.996	1.717	.823 - 3.582	.710	.295 – 1.709
Hispanic	1.014	.231 – 4.450	.430	.139 – 1.328	.523	.190 - 1.441	.802	.269 – 2.394
LGBT Specific Indicators								
Outness	1.009	.967 – 1.053	1.065**	1.024 – 1.108	.987	.960 - 1.015	1.016	.987 – 1.045
Self Acceptance	1.022	.966 – 1.081	.994	.994 – 1.042	.984	.949 - 1.021	1.009	.972 – 1.047
Social Engagement	1.010	.977 – 1.044	1.000	.975 – 1.025	1.004	.985 - 1.024	1.035**	1.011 – 1.058
Depressive Symptoms	.956*	.90 – .983	1.030*	1.006 – 1.055	1.000	.981 - 1.018	1.009	.990 – 1.028
Urban	1.316	.457 – 3.787	2.090*	1.009 – 4.326	.965	.522 - 1.786	1.178	.615 – 2.259

*p<0.05, **p<0.01, ***p<0.001

± All AORs reported for each variable are the result of adjusted for all variables listed as predictors of the health outcomes

DISCUSSION

The purpose of the present study was to assess basic health outcome differences between urban and rural LGBT persons in the Midlands region of the United States. The four basic health outcomes considered were perceived general health, health insurance status, smoking behaviors, and binge drinking behaviors.

Observed differences between urban and rural participants indicated that rural LGBT in this study were younger, had lower educational attainment, made less money, had higher rates of monogamous relationships, and lived with family more. Further, more rural participants described their sexual orientation as bisexual, experienced binge drinking more often, smoked tobacco more frequently, and reported lower rates of health insurance coverage when compared to their urban counterparts. Some differences in reported outcomes may be related to differences in age. Younger people, particularly those under 29 (44% of the rural sample), may not have completed a college degree, which would potentially lead to higher income and a general state of improved health indicators typically associated with education and income (Baum, Ma, & Payea, 2007). Interestingly, rural LGBT participants had more monogamous relationships (67.5% vs. 56.5%). Living in more rural parts of the state may mean fewer dating and sexual partner options, leading to more monogamous relationships. Conversely, the higher rates of monogamy may reflect migration trends from urban to rural areas after having identified a long-term partner. A larger percentage of reported bisexual identity among rural participants may also be associated with the overall youthfulness of the rural respondents; younger generations tend to take a more flexible approach to sexual orientation identity (Savin-Williams, 2005).

Participants in the current study had overall higher rates of perceived general health compared to state and national data; bisexuals and rural females fell slightly below state and/or national averages. It may be that part of this is explained by the culture of Nebraska, summed up best by the state motto, "The Good Life." Despite other negative health outcomes and a relatively conservative culture, which includes a constitutional amendment that bans same-sex marriages (a stark contrast to neighboring Iowa, a portion of which was included in this study), this "good life" or optimistic culture may permeate into LGBT subcultures, leaving participants feeling that all things considered, things are pretty good. The higher than average perceived general health may also be an indication of lower health literacy rates; higher smoking and binge drinking rates indicate that overall general health may not be as good as perceived.

Smoking rates for the sample were 7% higher than state and national averages. Binge drinking behaviors were reported at more than twice the rate of state and national averages. Smoking rates were higher for rural

participants. It may be that overall rates, and the even higher rates for rural LGBT, are again related to culture for the region. Nebraska has been one of the last states to enact policies such as higher cigarette taxes and public accommodation smoking bans. Other research has demonstrated a targeting of LGBT populations by tobacco companies (Stevens, Carlson, & Hinman, 2004; Goebel, 1994; Smith & Malone, 2003), which may partially explain some of the higher urban rates where such marketing may occur. Minority stress research has related higher rates of smoking and binge drinking (Hamilton & Mahalik, 2009; Hatzenbuehler, Nolen-Hoeksema, & Erickson, 2008; Meyer, 2003) to social stressors that may be more endemic to rural LGBT populations, both through discrimination and isolation. Higher binge drinking rates in urban areas may be a result of a continuation of a culture of bars as the only available venue for LGBT socialization (only urban areas in Nebraska have bars that cater exclusively to LGBT clientele).

Less an impact of culture and perhaps more a function of income, rural participants had overall lower rates of health insurance coverage compared to state and national data. Urban participants were on par with state and national numbers for health insurance coverage. Of all the basic health outcomes presented, only having health insurance was statistically significant in a rural versus urban comparison. Urban participants were more likely to have insurance. This may be due to higher incomes in general for urban LGBT as well as the types of employment opportunities available to urban participants (e.g., larger companies based in urban areas may be more likely to offer health insurance as a benefit).

Beyond sociodemographic differences, we measured social determinants of health specific to LGBT populations, including social engagement, outness, perceived discrimination, violence, self-acceptance, and depressive symptoms. Rural participants were significantly different from their urban counterparts in that they had lower levels of social engagement, were out to fewer people in their familial and social circles, had lower levels of self-acceptance (or, conversely, higher levels of internalized homophobia), and higher scores on the CES-D, an inventory of depressive symptoms. Social engagement is likely lower due to access; as previously stated, there are few social outlets for rural LGBT persons in Nebraska. It is possible this, in turn, leads to some of the findings related to LGBT-specific social determinants of health. Lower social engagement may be related to feelings of isolation leading to more depressive symptoms and less acceptance of one's identity. Thus, lower social engagement, combined with the more conservative culture of Nebraska, may result in less comfort being out to family and in non-LGBT social circles. It is possible there is a strong relationship between these determinants, but it is beyond the scope of this article. Interestingly, overall rates of perceived discrimination and violence due to one's LGBT identity were low, and there were no statistical differences between urban and rural participants. We again hypothesize this may be due to culture,

particularly a culture of silence (Fine, 1988); in other words, as long as LGBT identity is kept hidden or underground, then those who would otherwise perpetuate discrimination and violence are not given the opportunity.

Finally, logistic regressions were conducted for basic health outcomes with all sociodemographic and LGBT specific indicators included in the model, with the final step entered being urban versus rural. Controlling for all other variables in the model, living in a rural community was correlated only to insurance status. Urban LGBT participants were 209% more likely to have had health insurance. However, employment and income were still stronger correlates for having had health insurance. It may be that the relationship between living in a rural community is most closely associated with income and employment opportunities. Actual income was not measured; therefore, it is difficult to say with certainty what disparities exist with regard to income for LGBT persons living in rural Nebraska. Those indicating higher depressive symptoms were also more likely to have had health insurance, which may be a function of being more acutely aware of depressive symptoms because of clinical relationships with doctors that are facilitated by having health insurance. Interestingly, being out to more familial and social circles also correlated significantly with having had health insurance. It may be the confidence that comes from or results in authentically representing one's whole self is symptomatic of a typology of personal characteristics and traits that are also associated with self-efficacy to obtain a job that provides health insurance or purchase one's own insurance.

Correlates for other basic health outcomes included higher income, lower age, and lower depressive symptoms for higher perceived general health, higher education for lower smoking rates, and lower age, being male, being transgender, and being more socially engaged for higher binge drinking rates. Results for smoking are not surprising given the outcomes of other studies described earlier. Perhaps the most interesting outcome was the strongest correlation in the model, that of transgender participants being 471.1% more likely to have engaged in binge drinking in the last 30 days. It may be that transgender participants are addressing minority stress they experience, both internally and externally driven, through alcohol. The stress transgender persons in this study experience may be related to the conservative culture mentioned earlier.

The culture of the Midwest may be the single largest explanation of the health similarities described above. Logistic regressions confirm that a rural versus urban geographic residence is not a strong correlate to basic health outcomes, except for having health insurance, which is still better explained by employment and income. Observed variances between rural and urban LGBT persons indicate there are some modest differences in this sample, but perhaps, in the end, both populations may be more closely tied together by regional culture than divided by minor health outcome differences.

The present study was limited predominately by the nature of the sample. The convenience of the sample limited our ability to generalize

beyond the sample itself, nor provide a true comparison to state and national data obtained through more sophisticated sampling techniques. This issue is not uncommon in LGBT research as we are working with a predominantly hidden population, perhaps more hidden in this case due to a conservative culture not explicitly supportive of LGBT identities. The results were also limited by the small rural sample size ($n = 75$). A lack of formal infrastructure for rural LGBT communities (e.g., bars, community centers, social and activity clubs) made recruitment a challenge. The authors traveled to various rural communities for small events such as a quarterly drag show, dance, and picnic event held in central Nebraska to advertise the study but with limited success. It may have been that a conservative culture and stigma contributed to relatively low response rates from rural participants. Finally, a key inclusion criterion for participation was to self-identify as LGBT. There may have been those, particularly in rural communities, who were not comfortable self-identifying or who may have seen the study as for those living in the big cities. Future research should continue to confront the challenge of obtaining generalizable samples of LGBT participants, particularly from rural communities.

CONCLUSIONS

Most basic health outcome differences between rural and urban LGBT persons were not statistically significant. The CBPR approach to the study enabled the authors to discuss findings with community members from across the state. The overwhelming consensus, though anecdotal in nature, was that regional culture played a significant role in health outcome similarities for LGBT persons. Specifically, a culture of silence around sexual minorities and stigma resulting from the silence may be responsible for negative health outcomes. Further, it may be that regional culture trumps an urban versus rural culture in the Great Plains region of the United States. Future research should continue to wrestle with the conceptualization of urban versus rural determinants of health and health-related outcomes. It is our belief that urban Chicago, Minneapolis, or Kansas City are likely very different from a U.S. Census Bureau-defined urban area that also includes places such as Omaha and Lincoln, Nebraska. Additionally, future research should consider a mixed-methods approach to gain both the quantitative data we presented here along with qualitative data that further explores the lived cultural experience of participants. Results of this study suggest that culture may indeed trump population density for lesbian, gay, bisexual, and transgender persons living in the Midwest. Changing culture is a slow, laborious process but may be the best hope for reducing health disparities for LGBT persons regardless of where they live, work, and play.

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