Mental Health Disparities among Sexual Minorities

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Abstract

Decades of research has shown that the sexual minority (SM) or lesbian, gay, bisexual and/or queer people experience adverse physical and mental health outcomes to a greater extent than their heterosexual counterparts. This study drew from the 2016 Behavioral Risk Factor Surveillance System (BRFSS) data to examine mental health distress across SM subgroups from a large representative sample of adults within the US population. Multiple logistic regression analyses were conducted to assess the odds of experiencing more days of mental health distress for SM subgroups relative to their heterosexual counterparts. SM adults had a significantly greater odds of experiencing mental health distress compared to their heterosexual counterparts; however, the magnitude of these associations differed across SM subgroups. Compared to SM, Heterosexual males and females had a greater percent of individuals who reported 0 days of mental health distress per month (62.8% and 70.1%, respectively). The odds of lesbians experiencing more mental health distress was attenuated when adjusting for sociodemographic factors. The findings from this study highlight challenges for SM people in experiencing greater mental health distress compared to their heterosexual counterparts; however, there were differences across SM subgroups and within sociodemographic segments of the SM population.

Keywords: Mental Health; Sexual orientation; Health Disparities

Introduction

Decades of research has shown that sexual minorities (SMs) experience adverse health outcomes and experience health risks at a greater extent than their heterosexual counterparts. Previous studies have documented significant disparities in the health and health risk behaviors of SMs that span sexually communicable diseases, chronic health conditions, and adverse mental health outcomes (Daniel & Butkus, 2015; Institute of Medicine, 2011; Jason et al., 2014; Meyer, 2016; Tjepkema, 2008). There has been a lack of population-based data on SM adults that were underpowered and largely descriptive studies (Feinstein & Dyar, 2017; Li et al., 2016; Plöderl & Tremblay, 2015; Ross et al., 2017; Ulrich 2011). The SM population is composed of diverse subgroups based on sexual orientation and sociodemographic backgrounds. This body of research contributed insight on the extent to which mental health disparities persist within this growing segment of the population (CDC, 2016; Healthy People 2020, 2018; van Anders, 2015).

Addressing and ultimately eliminating the health disparities that persist among SMs is a recognized goal of public health (CDC, 2016; Healthy People 2020, 2018; Healthy People 2020, 2017). Public health entities have called for the examination of health disparities across SM subgroups while accounting for sociodemographic factors. The purpose of this study was to examine differences in the mental health distress both across sexual orientation subgroups and among sociodemographic factors for a large representative sample of SMs and heterosexual adults within the US population.

Methods

This study utilized data from the 2016 Behavioral Risk Factor Surveillance System (BRFSS) from 25 states that administered the optional sexual orientation module. Responses allowed participants to self-identify as heterosexual, lesbian or gay, or bisexual. The publicly available BRFSS data were downloaded from the CDC website and subsequently transferred to a data file. The original data set contained 192,445 participants identifying as straight, 3,057 identifying as lesbian or gay, and 3,433 identifying as bisexual.

Statistical power to identify subgroup differences was achieved via randomly selecting a sample of 10,000 subjects from the original pool of heterosexual participants for inclusion in the study. It should be noted that a similar methodology was

employed in a comparable study, and a sensitivity analysis of the heterosexual random selection of participants did not affect the statistical results.[15] Participants were further recoded into the following response options: (a) gay-male, (b) bisexual-male, (c) heterosexual-male, (d) lesbian-female, (c) bisexual-female, and (d) heterosexual-female. Boolean operations were used to select gay men and to identify lesbian women. A final analytic sample of 16,490 participants was ultimately retained across all sexual orientation groups.

Survey measures

The health outcome of mental health distress was examined across sexual orientation subgroups. The 2016 BRFSS survey measured the self-reported health outcome of mental health distress via the following common core survey item: "*Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good*?" (CDC, 2016).

Days of mental health distress was a categorical variable with the following response options: 0, 1-14 days and 15-30 days of mental health distress per month. This study examined differences across subgroups via the weighted percentages of each categorical response option. Sociodemographic factors were also assessed including: ethnicity/race, education level, annual income, and age.

Complex sample weights

All analyses were weighted using standard technical procedures provided by the BRFSS website (www.cdc.gov/brfss). The complex sample weights adjusted the data for unequal selection probabilities, nonresponse and non-coverage errors in the respective sampling population.

Data analyses

We utilized SPSS (v. 25) to examine differences in mental health distress across subgroups and to identify the influence of sociodemographic factors on outcomes. All data analyses were completed using the complex samples add-on module. Multiple logistic regression was used to examine the odds of SM subgroups experiencing more days of mental health distress relative to their heterosexual counterparts. Gender-specific sexual orientation subgroups were examined via stratified models. For the logistic models, "0 Days of Mental Health Distress" was used as the reference category for the health outcome of mental health distress. The sexual orientation reference group was either "*heterosexual male" or "heterosexual female"* for the stratified models.

The frequency measures were used to assess the socio demographic structure of the respective segments of the study sample. The odds ratios (ORs) and 95% confidence intervals (CI) were used to assess the odds of SGM subgroups experiencing more days of mental health distress relative to their heterosexual counterparts after adjusting for sociodemographic factors. Each logistic regression model was assessed for model adequacy using goodness of fit tests. The statistical significance of factors in the model was assessed at the $p<0.05$ level.

Results

The sociodemographic structure of the study sample is shown in Table 1. Heterosexual males and bisexual males had a slightly higher proportion of participants who did not attend college. Gay males had the greatest proportion (%) of study participants with a college degree. Bisexual males and females had a higher proportion of study participants who did not graduate from college. Heterosexual males and heterosexual females had the smallest proportion of individuals with an annual income of less than $15,000 (7.2% and 9.0%, respectively) relative to the other SM groups. SM males and females made up a larger segment of the study participants who were younger in age (<35 years), while heterosexual males and females represented a larger segment of the study participants who were 45 years in age and older.

Mental health distress is presented by subgroups in Tables 2 and 3. The majority of study participants reported having mental health distress 0 days per month (n=9869; 56.2%). There were 4,111 study participants who reported having mental health distress 1-14 days per month, and 2,303 study participants who reported having mental health distress 15-30 days per month (27.0% and 15.7% of the study sample, respectively). Bisexual females were the only SM subgroup that had a greater percent of individuals who experienced mental health distress 1-14 days (36.2%) and 15-30 days (32.6%) per month versus 0 days of mental health distress (30.1%). Heterosexual males and females had a greater percent of individuals who reported having 0 days of mental health per month (62.8% and 70.1%, respectively). Accordingly, the heterosexual male subgroup had a smaller proportion of individuals who reported having mental health distress 1-14 days per month as well as 15-30 days per month (19.6% and 8.7%, respectively). The percent of individuals who reported 1-14 days and 15-30 days of mental health distress per month was higher for SMs compared to the heterosexual group (Table 2).

Stratified models assessing the odds of SM males or females experiencing elevated days of mental health distress per month relative to their heterosexual counterparts were assessed. For the male subsample, both males who identified as gay and as bisexual had significantly greater odds of experiencing mental health distress ($p<0.001$) relative to their heterosexual counterparts. The odds of increased mental health

distress for gay and bisexual males was twice that of their heterosexual counterparts. For the female subsample, those who identified as lesbian or bisexual had significantly greater odds of experiencing more mental health distress days relative to their heterosexual counterparts. Females who identified as lesbian or bisexual had 1.54 and 3.14 times the odds, respectively, of experiencing more mental health distress days relative to their heterosexual counterparts. Bisexual females had 5.4 times the odds of experiencing 15-30 days of mental health distress each month compared to their heterosexual counterparts.

Table 1. *Sociodemographic Characteristics of Male & Female Orientation Subgroups*

Variables	**Gay (n=4403)**		**Bisexual Male (n=1818)**		**Heterosexual Male (n=1253)**		**Male Total**		**Lesbian (n=5597)**		**Bisexual Female (n=1239)**		**Heterosexual Female (n=180)**		**Female Total**	
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Race/Ethnic ID																
Black*	91	8.5%	104	12.9%	272	9.6%	467	10.0%	93	14.3%	156	10.0%	412	10.9%	661	11.2%
Hispanic*	156	14.9%	129	17.1%	294	17.7%	579	16.9%	85	16.8%	212	15.8%	342	14.0%	639	15.0%
White	1404	65.2%	860	58.1%	3410	62.9%	5674	62.6%	928	56.6%	1568	63.5%	4432	65.6%	6928	63.6%
Multiracial	59	1.6%	45	2.8%	119	2.0%	223	2.0%	52	3.1%	112	3.8%	111	1.0%	275	2.2%
Other	86	8.6%	82	7.7%	239	6.2%	407	7.1%	66	8.1%	103	5.8%	232	6.6%	401	6.6%
Unsure									15	1.0%	29	1.1%	68	1.9%	112	1.5%
Total	1818	100.0%	1252	100.0 %	4403	100.0 %	7473	100.0 %	1239	100.0%	2180	100.0%	5597	100.0%	9016	100.0%
Age																
18-24	180	18.2%	230	26.5%	294	15.3%	704	18.1%	109	19.4%	488	36.4%	217	10.2%	814	19.6%
25-34	281	22.9%	204	25.1%	442	16.6%	927	19.8%	177	20.3%	550	29.6%	454	15.1%	1181	20.3%
35-44	193	12.8%	134	12.8%	521	16.5%	848	14.9%	130	15.3%	356	15.0%	626	17.0%	1112	16.1%
45-54	378	20.2%	170	12.5%	699	16.0%	1247	16.4%	266	20.2%	281	8.8%	892	16.5%	1439	14.7%
54-64	427	15.9%	242	12.3%	1031	17.8%	1700	16.3%	312	12.5%	230	5.0%	1287	18.4%	1829	13.4%
65+	359	10.0%	272	10.8%	1416	17.8%	2047	14.6%	245	12.2%	275	5.2%	2121	22.8%	2641	15.8%
Total	1818	100.0%	1252	100%	4403	100.0 %	7473	100.0 %	1239	100.0%	2180	100%	5597	100.0%	9016	100.0%
Education																
> High School	57	5.6%	113	14.6%	337	13.7%	507	11.9%	65	12.1%	157	14.1%	379	12.8%	601	13.1%
High School	335	23.6%	381	30.8%	1242	32.4%	1958	29.9%	251	21.7%	548	26.6%	1544	25.1%	2343	25.0%
Attended College	460	31.6%	348	34.7%	1086	27.8%	1894	30.0%	298	35.7%	689	37.2%	1606	34.2%	2593	35.3%
College Graduate	961	38.8%	409	19.9%	1727	25.7%	3097	27.8%	622	30.4%	782	21.7%	2053	27.7%	3457	26.3%
Unsure/No Answer	5	0.5%	1	0.1%	11	0.4%	17	0.4%	3	0.1%	4	0.4%	15	0.2%	22	0.2%
Total	1818	100.0%	1252	100.0 %	4403	100.0 %	7473	100.0 %	1239	100.0%	2180	100.0%	5597	100.0%	9016	100.0%
Income																
> $15000	202	10.3%	148	14.6%	303	7.2%	653	9.4%	135	12.8%	290	13.1%	517	9.0%	942	10.8%
$15000-$24,999	229	11.9%	216	14.9%	486	10.4%	931	11.6%	160	13.8%	409	20.3%	837	15.9%	1406	16.9%
$25,000–$34,999	134	5.8%	146	13.6%	354	8.8%	634	9.0%	102	7.4%	210	9.2%	554	8.4%	866	8.5%
$35,000–$49,999	217	14.1%	149	11.3%	556	11.9%	922	12.4%	153	10.2%	257	12.1%	680	10.6%	1090	11.0%

$50,000 +	876	48.1%	429	31.2%	2167	48.2%	3472	45.0%	563	43.4%	664	26.7%	2113	40.5%	3340	36.7%
Unsure/No Answer	160	9.7%	164	14.3%	537	13.4%	861	12.7%	126	12.4%	350	18.5%	896	15.6%	1372	16.0%
Total	1818	100.0%	1252	100.0 %	4403	100.0 %	7473	100.0 %	1239	100.0%	2180	100.0%	5597	100.0%	9016	100.0%
Total N (%)									5597		1239		2180		9016	

Note. Race/Ethnicity *non-Hispanic. Weighted % by Sociodemographic Subgroup. N excludes Unsure and No Response.

Table 2. *Mental Health Distress Across Male & Female Sexual Orientation Subgroups*

Mental Health Distress	**Sexual Orientation**											
	Gay		**Bisexual Male**		**Heterosexual Male**		**Male Total**		**Lesbian**		**Bisexual Female**	
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
0 Days	974	51.0%	650	48.6%	3243	70.8%	4867	61.8%	643	50.4%	756	30.1%
1-14 Days	549	32.7%	351	32.3%	770	19.6%	1670	25.2%	373	29.8%	778	36.3%
15 -30 Days	279	15.1%	232	17.5%	338	8.7%	849	11.9%	212	19.1%	610	32.0%
Unknown / Not Sure	16	1.1%	19	1.6%	52	0.9%	87	1.1%	11	0.7%	36	1.6%
Total	1818	100.0%	1252	100.0%	4403	100.0%	7473	7473	1239	100.0%	2180	100.0%

Note. Weighted % per sexual orientation subgroups

Table 3. *Mental Health Distress across Sociodemographic Subgroups of the Study Sample*

	0 Days		**1-14 Days**		**15-30 Days**		**Total**	
	n	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Race/Ethnicity								
White	7654	55.7%	3133	27.5%	1667	15.7%	12602	100.0%
Black	677	56.2%	254	24.2%	178	18.6%	1128	100.0%
Hispanic	671	58.3%	336	27.8%	194	12.8%	1218	100.0%
Multi-Racial	243	40.2%	144	28.7%	108	30.8%	499	100.0%
Other	491	62.3%	202	25.9%	108	11.1%	808	100.0%
Did Not Identify	133	49.3%	42	18.7%	48	27.2%	235	100.0%
Total	9869	56.2%	4111	27.0%	2303	15.7%	16490	100.0%
Education Level								
>High School	592	53.2%	226	20.9%	258	24.4%	1108	100.0%
High school	2614	57.4%	922	25.1%	692	16.2%	4301	100.0%
Some College	2517	53.4%	1172	29.1%	746	16.8%	4488	100.0%
Degree	4116	59.6%	1785	29.4%	606	10.1%	6554	100.0%
No Response	30	75.1%	6	7.7%	1	4.0%	39	100.0%
Total	9869	56.2%	4111	27.0%	2303	15.7%	16490	100.0%

Annual Income								
> $15,000	697	39.1%	410	31.0%	455	28.0%	1595	100.0%
$15,000-$24,999	1218	47.5%	606	29.7%	480	21.9%	2338	100.0%
$25,000-$34,999	881	56.1%	384	28.0%	218	15.0%	1500	100.0%
$35,000-$49,999	1235	60.0%	490	23.4%	268	15.7%	2012	100.0%
$50,000+	4487	62.2%	1768	27.6%	519	9.8%	6812	100.0%
Unsure	1351	57.1%	453	22.0%	363	18.3%	2233	100.0%
Total	9869	56.2%	4111	27.0%	2303	15.7%	16490	100.0%
Age								
18-24	585	40.4%	541	36.7%	379	21.9%	1519	100.0%
25-34	970	49.3%	694	31.2%	417	18.1%	2108	100.0%
35-44	1024	55.3%	581	25.6%	334	18.4%	1960	100.0%
45-54	1517	57.4%	753	27.4%	390	14.0%	2686	100.0%
55-64	2240	65.5%	797	21.6%	452	12.2%	3529	100.0%
65+	3533	75.7%	745	15.5%	331	7.6%	4688	100.0%
Total	9869	56.2%	4111	27.0%	2303	15.7%	16490	100.0%

Note. Race/Ethnicity = non-Hispanic. Weighted % by Sociodemographic Subgroup. N Excludes Unsure and No Response.

Table 4 presents the odds after adjusting for sociodemographic factors. Persistent mental health distress findings were found among the male sub-group after adjusting for sociodemographic factors, as gay and bisexual males continued to have statistically significantly greater odds of experiencing elevated mental health distress relative to their heterosexual male counterparts. Gay males had twice the odds of experiencing mental health distress days relative to their heterosexual counterparts. Bisexual males had 1.93 and 2.19 greater odds of experiencing mental health distress 1-14 days and 15 -30 days per month, respectively, relative to their heterosexual counterparts after adjustment. Black (non-Hispanic) males had significantly greater odds of experiencing more days of mental health distress days relative to White (non-Hispanic) males. Males who did not complete high school had significantly greater odds of experiencing mental health distress relative to males with a college degree. Younger age and lower income were also associated with more distressed mental health days. Males with an annual income of less than $15,000 had over four-fold greater odds of experiencing more days of mental health distress per month relative to those with an income of $50,000 or above.

Table 4 shows that SM females experience more days of mental health distress per month relative to their heterosexual counterparts after adjustment for demographic factors. Some of the findings of mental health distress among sexual orientation subgroups attenuated after adjustment. Persistently significantly greater odds of experiencing mental health distress (15-30 days per month) was found among lesbian females relative to their heterosexual counterparts. Females who identified as bisexual continued to have significantly greater odds of having more mental health distress days per month relative to their heterosexual counterparts. Interestingly, females who identified as Black (non-Hispanic), Hispanic, and Other had significantly lower odds of having more mental health distress days relative to White (non-Hispanic) females. Similar to the male segment of the study sample, lower income and educational attainment played a role in higher mental health distress.

Table 4. *Adjusted Mental Health Distress Odds of SGM Male & Female Subgroups & Significant Sociodemographic Factors*

Significant Predictors		**1-14 Days**				**15-30 Days**			
		OR	**95%**	**CI**	**P**	**OR**	**95%**	**CI**	**P**
Males*									
Sexual Orientation	Gay Male	1.95	1.50	2.55	.000	2.22	1.66	2.97	.000
	Bisexual Male	1.93	1.42	2.61	.000	2.19	1.59	2.99	.000
Race/ Ethnicity	Black					1.56	1.02	2.39	.040
	Hispanic					.512	.341	.767	.001

Education Level	>High School					2.06	1.31	3.24	.002
	High School	.754	.563	1.01	.058				
Income Level	> $15,000	1.94	1.22	3.09	.005	4.49	2.93	6.89	.000
	$15k-$25k					2.86	1.95	4.20	.000
	$35k-$50k					1.53	1.01	2.30	.043
Age	18-24 Yrs	4.21	2.84	6.25	.000	3.06	1.86	5.03	.000
	25-34 Yrs	2.35	1.65	3.35	.000	2.56	1.62	4.06	.000
	35-44 Yrs	2.02	1.36	2.99	.000	3.29	2.03	5.32	.000
	45-54 Yrs	2.06	1.46	2.91	.000	1.83	1.14	2.94	.012
	55-64 Yrs	1.60	1.15	2.23	.005	1.63	1.03	2.59	.039
Females**									
Sexual Orientation	Lesbian	1.35	.985	1.85	.062	1.73	1.21	2.48	.003
	Bisexual	2.32	1.82	2.97	.000	3.79	2.82	5.10	.000
Race/ Ethnicity	Black					.566	.371	.863	.008
	Hispanic	.663	.471	.933	.018	.447	.293	.681	.000
	Other	.549	.346	.870	.011	.431	.243	.763	.004
Education Level	> High School	.581	.382	.885	.011	1.88	1.13	3.11	.014
	High School	.727	.553	.956	.023	1.38	1.00	1.91	.050
	Some College					1.44	1.06	1.96	.021
Income Level	> $15,000	1.67	1.13	2.49	.010	3.33	2.12	5.22	.000
	$15k-$25k	1.45	1.04	2.03	.030	2.04	1.34	3.12	.001
	$35k-$50k	1.83	1.28	2.62	.001	1.98	1.26	3.13	.003
Age	18-19 Yrs	3.46	2.34	5.12	.000	4.17	2.62	6.64	.000
	25-34 Yrs	2.70	1.94	3.77	.000	3.28	2.19	4.93	.000
	35-44 Yrs	2.15	1.53	3.04	.000	3.63	2.37	5.57	.000
	45-54 Yrs	2.21	1.59	3.06	.000	3.15	2.06	4.83	.000
	55-64 Yrs	1.49	1.09	2.07	.014	2.29	1.53	3.43	.000

Note. *Wald=56.44; *Cox & Snell=.065; **Wald=96.98; **Cox & Snell=.17

Discussion

The findings from this study provide evidence that SMs have significantly greater odds of experiencing poorer mental health outcomes relative to their heterosexual counterparts. The most interesting of these findings was that while all SM subgroups had significantly greater odds of experiencing more days of mental health distress per month relative to their heterosexual counterparts, the magnitude of those odds differed by sex and SM subgroups. A recent study found that collapsing SM subgroups resulted in missing the magnitude of health behavior concerns in underrepresented LGBT groups (Smalley, Barefoot, & Warren, 2015).

Females who identified as bisexual had notably greater odds of experiencing more days of mental health distress days across all subgroups. A similar study found that females who identified as lesbian or bisexual were more likely to report depression and that bisexual females were also less likely to report good health (Pharr et al., 2019). Thus, it appears that all SM groups face unique health challenges, but the bisexual female subgroup may be at higher risk.

Males who identified as gay or bisexual had an elevated odds of experiencing days of mental health distress per month relative to their heterosexual counterparts. Upon adjustment of demographic factors, gay males, bisexual males and bisexual females continued to have significantly greater odds of experiencing worse self-reported mental health.

While this study provided valuable insights concerning the disparities and unique health needs of

SMs, it is important to recognize the limitations of these findings. The cross-sectional nature of the BRFSS precludes drawing causal relationships. The telephone survey protocol utilized for the BRFSS also limited the study participants to adults with landline or cellular telephones; hence, the BRFSS data does not represent homeless nor incarcerated adult populations. The BRFSS data are also self-reported; hence, they may be biased due to self-reporting and related biases inherent to self-reported data (e.g., social desirability bias). Lastly, the BRFSS data used in this study were limited to the twenty-five states that included the Sexual Orientation module in the 2016 BRFSS survey. Therefore, generalizing our findings to the entire adult population or populations in the US is not advised.

SMs experienced more days of mental health distress relative to their heterosexual counterparts, which has important implications for research and subsequent health equity endeavors. Our findings support the recommendations and conclusions put forth in recent SM studies. Specifically, there is a need for more representative samples of SMs in order to examine and compare mental health outcomes. This study may provide important insight for guiding public health initiatives and interventions aimed at addressing the mental health needs of SMs within socio demographic segments of the population, and provides additional, important data relative to the impact of understanding the complex nature of the social determinants of health. There is a need for tailoring and increased mental health screening, access to inclusive care, and targeted interventions for SMs.

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