

9-14-2023

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Recommended Citation

Johnson, Tammie M. and Lee, Torhonda (2023) "Association Between LGB Status and Levels of Mental Distress, Florida BRFSS 2017-2019," *Florida Public Health Review*. Vol. 20, Article 7.

Available at: <https://digitalcommons.unf.edu/fphr/vol20/iss1/7>

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 ASSOCIATION BETWEEN LGB STATUS AND LEVELS OF MENTAL DISTRESS,
 FLORIDA BRFS 2017-2019

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Florida Public Health Review
 Volume 20
 Published September 14, 2023

Mental illness is one of the most common health conditions in the United States (US) and impacts over one-in-five adults in the US. Evidence suggests that lesbian, gay, and bisexual (LGB) individuals face a disproportionate burden of poor mental health compared to people who do not identify as members of this population. This study examines mental distress health disparities at and above the frequent mental distress (FMD) threshold among Florida adults who identify as lesbian, gay, or bisexual. Data from the 2017-2019 Florida Behavioral Risk Factor Surveillance System (BRFSS) were used for the analyses. The primary dependent variables used for the analysis were frequent mental distress (FMD) and persistent mental distress (PMD). This study defines PMD as reporting 21 or more days of poor mental health. The independent variable of interest was sexual orientation. Overall, 5.5% of the population identified as LGB, 13.2% reported FMD, and 8% reported PMD. The study reveals a strong association between identifying as lesbian, gay, or bisexual and mental distress, both frequent and persistent. The findings also displayed Florida adults identifying as LGB also have greater odds of reporting persistent mental distress, controlling for other demographic variables.

Background | Mental illness is one of the most common health conditions in the United States (US) and impacts over one-in-five adults in the US.¹ Poor mental health is a significant determinant of morbidity and mortality in the US and worldwide. It is associated with several adverse health outcomes and behaviors, including many chronic diseases and disabilities.^{2,3} While the specific cause of most mental disorders is unknown, research indicates that complex biological/genetic, psychological, and environmental factors are involved.⁴ In addition to multiple possible pathways of origin for mental disorders, there is a growing understanding that the experience of mental health is shaped to a great extent by social determinants, such as educational attainment and poverty.^{5,6}

Mental health can be defined in many ways. The World Health Organization (WHO) states it is "more than the absence of mental disorders. It exists on a complex continuum, which is experienced differently from one person to the next, with varying degrees of difficulty and distress and potentially very different social and clinical outcomes."⁷ Since mental health exists on a continuum, it is essential to distinguish between diagnosed mental illness and undiagnosed mental distress and consider the subjective experience and the burden of mental health problems on individual and community well-being.

Measures such as Health-Related Quality of Life (HRQOL) help to assess the burden of mental distress on individuals (whether or not they are diagnosed or treated for mental illness) and estimate functional

limitations based on self-report.⁸ The CDC has defined HRQOL as "an individual's or group's perceived physical and mental health over time."⁸ Since the early 1990s, the Behavioral Risk Factor Surveillance System has included four HRQOL questions, including a question about the number of days in the past 30 days a person's mental health was not good.⁹ People who reported that their mental health was "not good" for 14 or more of the preceding 30 days were defined as having frequent mental distress or FMD.¹⁰ FMD is associated with many adverse health outcomes.¹¹ Studies using FMD have also documented more significant burdens of health disparities across sexual orientation/identity.¹²

Frequent Mental Distress captures a temporal component of mental distress that can help identify persons experiencing more persistent (and thus likely more severe) mental health issues. The 14-day reference point was selected because it is similar to the time frame often used by clinicians and clinical researchers to identify clinical depression and anxiety disorders. However, FMD is not a diagnostic measure but represents the duration of reported symptoms of distress, regardless of the diagnosis of mental illness.¹³ One limitation of the FMD measure is the scaling method used to group responses into categories of 0, 1-13, >14 days.¹⁴ Extending the scale to capture more days may provide an even clearer picture of the influence of persistency of distress.

Sexual orientation-based inequities in mental health are well documented.¹⁵ Evidence suggests that lesbian, gay, and bisexual (LGB) individuals face a

disproportionate burden of poor mental health compared to people who do not identify as members of this population.¹⁵⁻¹⁹ This disparity has been partly attributed to minority stress or the stress LGB people experience because of the stigma and discrimination of having a marginalized identity in a heteronormative society.^{20,21} In Florida, human rights advocacy organizations have identified discriminatory policies that are hostile to members of the lesbian, gay, bisexual, transgender, and queer (LGBTQ+) community. A press release by the Human Rights Campaign (HRC) described numerous anti-LGBTQ+ bills enacted during the 2023 session of the Florida Legislature. The HRC described these as “bills designed to scale back the freedoms of LGBTQ+ people and other vulnerable communities.”²² One bill, SB 266, went into effect July 1, 2023, and prohibits Florida’s public colleges and universities from allocating funds for diversity, equity, and inclusion (DEI) programs.²³ Legislative initiatives such as these create an environment that may increase the stigmatization of marginalized populations, including the LGBTQ+ population.

This study examines mental distress health disparities at and above the FMD threshold among Florida adults who identify as lesbian, gay, or bisexual.

Methods | Data from the 2017-2019 Florida Behavioral Risk Factor Surveillance System (BRFSS) were used for the analyses. Data after 2019 were not included because the Florida BRFSS questionnaires for 2020-2022 did not include sexual orientation questions. The BRFSS is an ongoing cross-sectional survey conducted by the Centers for Disease Control and Prevention in coordination with state and territory health departments. The details of the BRFSS methodology are available elsewhere.²⁴⁻²⁶

The analysis excluded data from participants with invalid responses (missing, don’t know, refused) for any of the key dependent variables, the independent variable of interest, and secondary independent variables. In total, 39,876 adults aged 18 years and older were included in the analyses.

The primary dependent variables used for the analysis were frequent mental distress (FMD) and persistent mental distress (PMD). The level of mental distress was determined using the BRFSS survey instrument question, “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?” Those with FMD reported 14 or more days of poor mental health.¹⁰ This study defines PMD as reporting 21 or more days of poor mental health.

The independent variable of interest was sexual orientation. All participants were asked, “Which of the following best represents how you think about yourself?” The available response options were:

“Gay,” “Straight, that is, not gay,” “Bisexual,” “Something else,” “Don’t know/Not sure,” and “Refused.” Those who responded “gay,” “lesbian,” or “bisexual” were categorized as lesbian, gay, or bisexual (LGB). Those who responded “straight” or “heterosexual” were categorized as “straight.” Those who responded “unsure” or refused to respond were excluded from the analysis. The question did not include response options necessary to identify those in other sexual minority groups, such as “transgender” or “queer.”

Other independent variables included sex (male or female), age group (grouped as 18-44, 45-64, 65 and older), race/ethnicity (categorized as non-Hispanic white, non-Hispanic black, Hispanic, non-Hispanic other race, and non-Hispanic multi-race), and education level (grouped as less than high school, high school graduate, some college or technical school, college or technical school graduate).

Data were re-weighted to account for aggregating multiple years of data and managed using SAS 9.4.²⁷ The data were analyzed using SAS-callable SUDAAN 11.0.²⁸ The university IRB determined this project is exempt from IRB review according to federal regulations.

Results | Table 1 shows the characteristics of the Florida BRFSS participants included in the study. Overall, 5.5% of the population identified as LGB, 13.2% reported FMD, and 8% reported PMD. Figure 1 shows the distribution of identifying as LGB by demographic characteristics. Note that there are statistically significant differences by sex, age, and race/ethnicity. The data revealed a statistically significant higher prevalence of identifying as LGB among females, those in the 18-44 age group compared to the remaining age groups, and Hispanics compared to non-Hispanic Whites.

Table 2 shows the bivariate analyses and chi-square p-values. Overall, 28.2% of LGB adults reported having FMD compared to 12.4% of heterosexual adults ($p < 0.001$). A higher proportion of LGB adults also reported having PMD (16.5%) compared to their heterosexual counterparts (7.5%, $p < 0.001$).

Logistic regression models were fitted for the dependent variables (Table 3). Controlling for the remaining independent variables in the models, the odds of reporting FMD were 2.6 times higher among those identifying as LGB than their straight counterparts ($p < 0.001$). Similarly, LGB adults had 2.3 times higher odds of PMD than straight adults ($p < 0.001$). Potential interactions were assessed using a pairwise approach and revealed no significant interactions.

Discussion | The study reveals a strong association between identifying as lesbian, gay, or bisexual and

mental distress, both frequent and persistent. The disparity regarding frequent mental distress and other mental health outcomes is well-documented in the literature.^{12,15-17,21,29-31} However, we could not identify peer-reviewed research measuring persistent mental distress using BRFSS data. This study reveals that Florida adults identifying as LBG also have greater odds of reporting persistent mental distress, controlling for other demographic variables.

Does the magnitude of mental distress matter? As measured in this and other studies, frequent mental distress is used because it aligns with the 14-day period used to diagnose clinical depression.³² In this study, persistent mental distress is defined as 21 or more days of mentally unhealthy days out of the past 30 days, which indicates a more severe level of mental distress. Although there is no clinical diagnosis of severe depression, researchers from Brazil found that the Diagnostic and Statistical Manual of Mental Disorders-5 (DSM-5) criteria could be used to discriminate between moderate and severe depression.³³ The authors found that severe depression is associated with a significant increase in many adverse feelings, such as suicidality, loss of interest, and feelings of worthlessness.³³ Severe depression is not analogous to major depressive disorder. A clinical diagnosis of major depressive disorder is based on the severity of symptoms rather than the number of days of mental distress in the past 30 days.³⁴

There are contributing factors to consider when attempting to understand the relationship between mental distress and being a member of the LGB community. Meyer (2003) proposed a conceptual framework for understanding the increased risk of poor mental health among LGB populations. The author posited that minority stress, described as stress among minorities and other stigmatized social groups, contributes to excess mental distress in this population.²¹ Although the acceptance of sexual minorities has increased in recent years, the literature shows that social stressors such as victimization, discrimination, and stigmatization contribute to minority stress.^{21,30,35} The literature also reveals that sexual minority populations are disproportionately affected by social determinants of health such as food, housing, and financial insecurity.³⁶

Adverse childhood experiences (ACEs) must also be considered. It is well-documented in the literature that ACEs are related to various mental health outcomes, chronic conditions, and risky behaviors.³⁷⁻⁴³ Likewise, it is well-documented in the literature that there is a strong relationship between ACEs and being part of a sexual minority group, such as the LGB community.⁴⁴⁻⁴⁸ Adverse childhood experiences among sexual minorities are related to poor health and adverse health outcomes.⁴⁹⁻⁵¹

This study has limitations. BRFSS is a cross-sectional study; therefore, temporality cannot be inferred. In addition, cross-sectional studies are prone to biases such as recall bias. BRFSS collects data from non-institutionalized adults aged 18 years and older with access to telephone service within households or through personal cell phones. Populations most at risk for experiencing mental distress (institutionalized, homeless, economically disadvantaged) are underrepresented in the data. Another limitation is residual confounding introduced by categorizing some variables and the absence of potentially important variables from the dataset. Moreover, the prevalence of identifying as LGB among Florida adults varies significantly by sex, age, and race/ethnicity. This variation may be true or hesitancy to identify as or report identifying as LGB among some subpopulations. In addition, we could not examine the data for other sexual minority groups, such as queer or transgender, because the BRFSS question used to collect these data does not include the response options needed to identify these participants.

The evidence presented in this study supports further research on the relationships between FMD and PMD and health outcomes in all populations, including the LGB community. In 2021, the US Surgeon General issued an advisory regarding mental health.⁵² Although focused on youth regardless of sexual orientation, the advisory illustrates an ecological model noting “sexual orientation” under individual factors that affect mental health. The challenges faced by members of the LGB community and other marginalized groups must be understood to develop systemic strategies to mitigate the effect of these challenges on mental health and mental distress.

The data used to complete this analysis predates recent Florida legislation that potentially affects the physical and mental health of members of the LGBTQ+ community. These bills affect healthcare, education, the use of public restrooms, and the local government’s ability to enact ordinances related to non-discrimination.^{23,53-56} An essential public health service is assessing and monitoring population health.⁵⁷ The BRFSS is an essential tool for monitoring health among Florida adults. To continue tracking health outcomes, mental and physical, and behavioral risk factors among LGBTQ+ communities, these data must continue to be routinely collected.

Figure 1. Percentage of Florida adults aged 18+ years identifying as lesbian, gay, or bisexual, by demographic characteristics, FL BRFSS 2017-2019

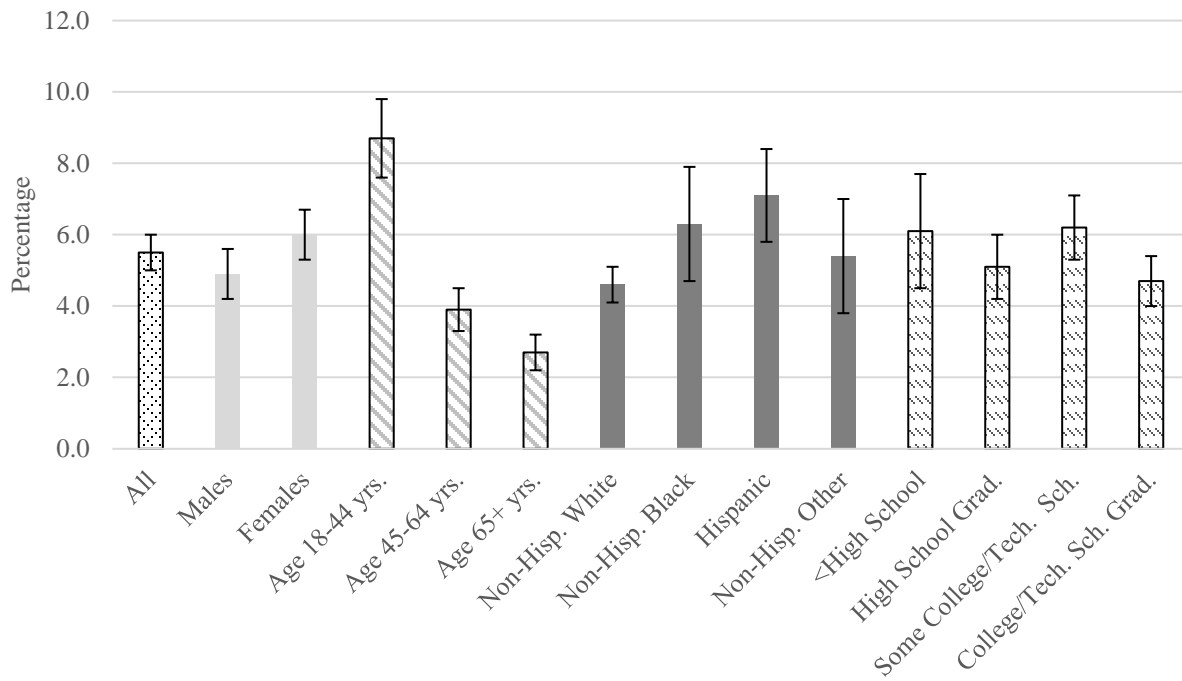


Table 1. Distribution of demographic, exposure, and outcome variables among non-institutionalized Florida adults aged 18 years and older, Florida BRFSS, 2017-2019

Characteristic	N	Percentage*	95% Confidence Interval	
			Lower Limit	Upper Limit
All	39,876			
Sex				
Males	17,594	48.2	47.1	49.2
Females	22,282	51.8	50.8	52.9
Age Group (years)				
18-44	10,398	39.3	28.3	40.4
45-64	13,652	33.7	32.7	34.8
65 and older	15,826	27.0	26.2	27.8
Race/Ethnicity				
Non-Hispanic White	29,969	59.0	57.9	60.0
Non-Hispanic Black	3,920	14.0	13.2	14.8
Hispanic	4,125	23.1	22.0	24.2
Non-Hispanic Other &	1,862	4.0	3.6	4.4
Multi-Race				
Education				
<High School	3,946	12.6	11.9	13.4
High School Graduate	11,903	29.4	28.4	30.4
Some College/Technical	12,218	32.7	31.7	33.7
School				
College/Technical School	11,809	25.3	24.4	26.1
Graduate				
Sexual Orientation				
Lesbian, Gay, or Bisexual	1,702	5.5	5.0	6.0
Heterosexual ("Straight")	38,174	94.5	94.0	95.0
Mental Distress				
Frequent Mental Distress	5,460	13.2	12.5	14.0
Chronic Mental Distress	3,411	8.0	7.4	8.6

*Percentages may not sum to 100 because of rounding to one decimal place

Table 2. Prevalence of frequent mental distress (FMD) and chronic mental distress (PMD) among non-institutional Florida adults aged 18 years and older, Florida BRFSS 2017-2019

Characteristic	Frequent Mental Distress			Persistent Mental Distress				
	%	95% CI		p-value*	%	95% CI		p-value*
		LL	UL			LL	UL	
All	13.2	12.5	14.0		8.0	7.4	8.6	
Sex				<0.001				0.096
Males	11.6	10.6	12.7		7.5	6.7	8.4	
Females	14.7	13.7	15.8		8.5	7.7	9.3	
Age Group (years)				<0.001				<0.001
18-44	15.1	13.9	16.5		8.5	7.6	9.6	
45-64	15.2	13.9	16.6		9.7	8.6	10.9	
65 and older	8.0	7.1	8.9		5.0	4.4	5.8	
Race/Ethnicity				0.064				0.042
Non-Hispanic White	13.9	13.1	14.7		8.6	8.0	9.3	
Non-Hispanic Black	11.4	9.6	13.6		6.4	5.0	8.2	
Hispanic	12.3	10.4	14.4		7.2	5.7	9.0	
Non-Hispanic Other &	15.2	12.0	19.2		5.6	6.2	11.8	
Multi-Race								
Education				<0.001				<0.001
<High School	19.7	17.1	22.6		12.6	10.5	15.0	
High School Graduate	13.9	12.5	15.4		8.4	7.3	9.6	
Some College/Technical	14.0	12.8	15.3		8.7	7.7	9.8	
School								
College/Technical	8.2	7.3	9.2		4.3	3.7	5.0	
School Graduate								
Sexual Orientation				<0.001				<0.001
Lesbian, Gay, or	28.2	23.8	32.9		16.5	13.0	20.7	
Bisexual								
Heterosexual	12.4	11.7	13.1		7.5	6.9	8.1	
("Straight")								

*Chi-square test

CI=Confidence Interval

LL=Lower Limit

UL=Upper Limit

Table 3. Results from logistic regression models examining the odds ratios for frequent mental distress (FMD) and persistent mental distress (PMD) for each of the characteristics included in the study, Florida BRFSS 2017-2019

Characteristic (Referent)	Frequent Mental Distress			p-value	Persistent Mental Distress		
	OR	OR 95% CI	UL		OR	OR 95% CI	UL
Sex (Males)				<0.001			0.035
Females	1.38	1.21	1.57		1.90	1.01	1.41
Age Group (65 years and older)				<0.001			<0.001
18-44	2.24	1.89	2.66		1.90	1.56	2.33
45-64	2.29	1.94	2.70		2.24	1.84	2.73
Race/Ethnicity (Non-Hispanic Black)				<0.001			<0.001
Non-Hispanic White	1.61	1.30	2.00		1.73	1.31	2.28
Hispanic	1.07	0.80	1.42		1.11	0.77	1.61
Non-Hispanic Other & Multi-Race	1.62	1.15	2.29		1.62	1.03	2.54
Education (Coll./Tech. Grad.)				<0.001			<0.001
<High School	3.26	2.61	4.08		3.78	2.90	4.91
High School Graduate	1.92	1.60	2.30		2.17	1.74	2.70
Some College/Technical	1.84	1.55	2.18		2.16	1.76	2.66
School Sexual Orientation (Heterosexual)				<0.001			<0.001
Lesbian, Gay, or Bisexual	2.58	2.03	3.28		2.34	1.75	3.14

OR=Odds Ratio

CI=Confidence Interval

LL=Lower Limit

UL=Upper Limit

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