

Title:

Anxiety and depression symptoms among sexual and gender minority people by disability status: Findings from The PRIDE Study, 2019-2020

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ABSTRACT

Sexual and gender minority (SGM) people have increased anxiety and depressive disorders due, in part, to minority stress compared to cisgender and heterosexual people. Disability is associated with poorer mental health outcomes. With limited existing mental health data from SGM people with disabilities, we compared anxiety and depression symptoms between SGM people with or without disabilities. Participants from The PRIDE Study were classified into four disability categories based on self-reported disability from 2019-2020. Participants completed the Generalized Anxiety Disorder (GAD-7) questionnaire (anxiety) and the Patient Health Questionnaire (PHQ-9, depression). Means were calculated for GAD-7 and PHQ-9 scores by disability type. Logistic regression models examined associations between scores ≥ 10 (accepted cut-offs for clinical symptoms) and disability type. For GAD-7, SGM people across all disability types (physical, mental, intellectual, and other) had reported significantly higher scores compared to those without disabilities. SGM people with any disability had increased odds of having GAD-7 scores that were ≥ 10 compared to those without disabilities. Similar to anxiety scores, SGM people with any disability reported significantly higher PHQ-9 mean scores compared to those without disabilities. Additionally, SGM people with any disability had higher odds of having PHQ-9 scores that were ≥ 10 . Both anxiety and depression scores were significantly higher among SGM people with disabilities, signaling higher levels of anxiety and depression for this

specific minority population. Further examinations should explore upstream factors affecting anxiety and depression in the SGM disability community.

Public Health Significance: This study's results uncovered mental health disparities that exist for the SGM disability community and allow for a better understanding of commonly occurring mental health symptoms (e.g., anxiety, depression) by self-reported disability status in a SGM sample. Identification of these intragroup differences can assist public health screening and support tool development for diverse populations.

Keywords: disability, mental health, anxiety, depression, people with disabilities

INTRODUCTION

The Centers for Disease Control and Prevention (CDC) estimates about 26% of the United States population lives with a disability.¹ People with disabilities are up to 5 times more likely to have frequent mental distress (*i.e.*, >14 days of mentally unhealthy days in the past 30 days) compared to those without disabilities.² Beyond these differences, significant mental health disparities are prevalent among people with disabilities including increased prevalence of anxiety and depressive disorders.²⁻⁴ Reasons associated with the higher prevalence of mental health disparities include decreased access to healthcare services, disability stigma, ableism, and other social stressors.²⁻⁵ Many of these factors affecting mental health may differ by specific minority populations living with disabilities, such as sexual and gender minority (SGM) people.⁶

Structural, societal, and institutional discrimination as well as multiple minority stressors have exacerbated mental health diagnoses and outcomes across SGM communities.⁷⁻¹⁰ SGM adults were more likely to report higher anxiety and depression scores compared to their cisgender and heterosexual or straight counterparts.¹⁰ Specific subgroups, like cisgender bisexual adults, fared the worst compared to other sexual minority individuals.¹⁰ While there are many studies on the mental health of SGM people overall, few examine disability status and its relationship to mental health. Available studies with SGM people with disabilities have relied upon self-reported, categorical, mental health ratings (*e.g.*, “fair,” “poor,” “good,” “very good”), and to our knowledge, no studies have used standardized anxiety or depression screening tools.¹¹⁻

In support of understanding and augmenting care, research, and supportive policies for SGM people with disabilities, our study aims to augment the limited data regarding the mental health of SGM adults with disabilities by describing the differences in mental health outcomes (anxiety and depression symptoms) by disability status and classification among SGM people.

METHODS

Study Population

The Population Research in Identity and Disparities for Equality (PRIDE) Study is an online, national, community-engaged, prospective cohort study of SGM adults in the United States. Participants enrolled in The PRIDE Study must be at least 18 years of age or older, self-identify as a sexual and/or gender minority, read and understand English, and reside in the United States or its territories.¹⁴ Further details about The PRIDE Study were reported elsewhere.¹⁴ Participants were recruited *via* convenience sampling through PRIDENet – a national network of organizations that engage with SGM communities, digital communications, word of mouth, and outreach at conferences and events.

The PRIDE Study's 2019 Annual Questionnaire included questions assessing disability identity. Participants self-identified as living with a disability by answering the question: "Do you currently identify as a person with a disability?" The response options were binary (yes/no). As a follow-up question, individuals were asked: "What condition(s) or problem(s) are related to your disability?" Participants were then classified into four disability categories – physical (*e.g.*, arthritis, circulatory diseases, paralysis), mental (*e.g.*, anxiety, depression, memory problems), intellectual/developmental/neurodivergent (*e.g.*, attention deficit hyperactivity disorder [ADHD]),

autism, hearing problems), and other (*e.g.*, chemical sensitivities, food sensitivities, sleep disorders) – adapting the US Centers for Disease Control and Prevention’s classification.^{15,16} (We modified the CDC category labels from “intellectual and developmental” to “intellectual/developmental/neurodivergent” to explicitly acknowledge the inclusion of ADHD, autism, and related disabilities in this category.) Despite debate, the CDC classifies hearing problems (including deafness) in the intellectual/developmental category; we opted to maintain the classification for the purpose of this study. Further, we opted to not sub-segment these categories into separate groups due to small sample sizes. Participants could select multiple disabilities and may therefore be included in multiple disability categories. Further details about this current study’s inclusion criteria and disability classification schema are reported elsewhere.⁶ We used person-first language in this paper to focus on individuality rather than a specific disability or diagnosis, but we recognize the diversity of perspectives – not all communities embrace this approach and that some disability communities (*e.g.*, Deaf, Autism) may prefer identity-first language.¹⁷

Sociodemographic Characteristics

Data were collected in The PRIDE Study’s 2019 Annual Questionnaire between July 1, 2019 to May 28, 2020, which was administered *via* Qualtrics (Qualtrics LLC; Provo, UT) through the study’s web-based research platform.¹⁴ Sociodemographic characteristics were tabulated such as age, sexual orientation, gender identity, race/ethnicity, income level, education, and employment status.

Generalized Anxiety Disorder (GAD-7)

The GAD-7 was created to measure the severity of general anxiety disorder symptoms with seven items assessing symptoms present during the past two weeks, each on a four-point Likert-type scale ranging from 0 (“Not at all”) to 3 (“Nearly Every Day”).¹⁸ The GAD-7 score (0-21) is a sum of all seven items. A GAD-7 score ≥ 10 indicates a widely accepted cut-off for anxiety symptoms related to GAD.

Patient Health Questionnaire (PHQ-9)

The PHQ-9 was created to measure depressive symptoms during the past two weeks with nine items, each on a four-point scale ranging from 0 (“Not at all”) to 3 (“Nearly every day”).¹⁹ The PHQ-9 score (0-27) is a sum of all nine items. A PHQ-9 score ≥ 10 indicates moderate-severe depressive symptoms.

Data Analysis

Analyses were performed in SAS Version 9.4. Descriptive statistics for sociodemographic characteristics were assessed by disability status, any *versus* none. However, we display the counts and percentages of the sociodemographic characteristics by disability type. The predictor variable was the disability type (physical, mental, intellectual, and other). The outcome variables were the mean GAD-7 and PHQ-9 scores. Mean GAD-7 and PHQ-9 scores were assessed along with standard deviations and p-values for each disability group, derived from bivariate comparisons *versus* no disability as the reference group.

Logistic regression models were performed to estimate the association of having a GAD-7 or PHQ-9 score ≥ 10 by disability type. We present crude and adjusted odds ratios (ORs) with

95% CI. Covariates included were age,^{1,2} race/ethnicity,^{2,11} income,¹¹ employment status,^{11,13} and education.¹³ Records with missing categorical covariates were entered in models.

Ethics Review

This study was approved by Stanford University's Institutional Review Boards. The PRIDE Study's Research Advisory Committee (RAC) and Participant Advisory Committee (PAC) have reviewed and approved this ancillary study. The RAC and PAC are composed of subject matter experts including healthcare professionals, researchers, and people with disabilities. As a community-engaged research program, The PRIDE Study involves community members in all stages of the research process. For ancillary studies (like this study), research proposals are evaluated by the RAC (science committee) and the PAC (community committee) to ensure a proposed study is appropriate, feasible, not harmful to SGM communities, and rigorous. RAC and PAC approval is required. Feedback from the RAC and PAC improves study design and helps ensure relevance to SGM communities and the broader scientific community. Moreover, the study team and co-authors include people from various SGM communities, some of whom are people with disabilities. All participants provided informed consent.

RESULTS

Sociodemographic Characteristics

The sociodemographic characteristics of this sample have been previously reported in greater detail elsewhere.⁶ In summary, about 31% (n=1,540) of the sample reported having a disability, and SGM people with disabilities significantly differed across the sociodemographic factors (all $p < 0.001$) (Table 1). Relative to those without disabilities, SGM people with

disabilities were more often non-cisgender (*i.e.*, transgender and gender-diverse) (70.4% vs. 49.3%, $p < 0.001$). Table 2 reports participant characteristics by the four disability categories: physical ($n=941$), mental ($n=1,237$), intellectual/developmental/neurodivergent ($n=555$), and other ($n=98$).

Generalized Anxiety Disorder-7

The mean GAD-7 scores were significantly higher for SGM people with any disability (8.58 ± 5.62 , $p < 0.001$), physical disability (8.59 ± 5.78 , $p < 0.001$), mental disability (9.45 ± 5.47 , $p < 0.001$), intellectual/developmental/neurodivergent disability (9.45 ± 5.49 , $p < 0.001$), and other disabilities (9.13 ± 5.72 , $p < 0.001$) compared to SGM people with no disabilities (5.17 ± 4.83) (Table 3).

Patient Health Questionnaire-9

The mean PHQ-9 scores significantly differed for SGM people with any disability (11.03 ± 6.61 , $p < 0.001$), physical disabilities (11.31 ± 6.73 , $p < 0.001$), mental disabilities (12.10 ± 6.38 , $p < 0.001$), intellectual/developmental/neurodivergent disabilities (11.27 ± 6.63 , $p < 0.001$), and other disabilities (12.39 ± 6.36 , $p < 0.001$) compared to SGM people without disabilities (mean 6.10 ± 5.37 , $p < 0.001$) (all $p < 0.001$) (Table 3).

Logistic Regression Models

Compared to SGM people without disabilities, SGM people with any disability (adjusted odds ratio [aOR] 2.56, 95% confidence interval [CI] 2.20-2.97), physical disabilities (aOR 2.88, 95% CI 2.41-3.45), mental disabilities (aOR 3.10, 95% CI 2.65-3.63),

intellectual/developmental/neurodivergent disabilities (aOR 2.13, 95% CI 1.73-2.64), and other disabilities (aOR 3.11, 95% CI 1.97-4.91) were more likely to have a GAD-7 score ≥ 10 (Table 4).

Compared to SGM people without disabilities, SGM people with any disability (aOR 3.22, 95% CI 2.79-3.71), physical disabilities (aOR 3.77, 95% CI 3.17-4.49), mental disabilities (aOR 4.29, 95% CI 3.59-4.90), intellectual/developmental/neurodivergent disabilities (aOR 3.33, 95% CI 2.72-4.09), and other disabilities (aOR 5.71, 95% CI 3.57-9.12) were more likely to have a PHQ-9 score ≥ 10 (Table 4).

DISCUSSION

This study examined anxiety and depressive symptoms and their relationship to disability status among SGM people with disabilities. We found that anxiety and depressive symptoms were significantly higher among SGM people with disabilities compared to those without disabilities. These differences persisted across all four disability groups, suggesting that people with each type of disability were at a greater risk for poorer mental health. These differences in mental health outcomes among SGM people by disability status are not surprising, as studies report active discrimination, increased social stigma, lack of acceptance/tolerance of SGM identities, social exclusion, and isolation among SGM people with disabilities.²⁰⁻²⁴ However, most studies with SGM communities do not report on disability status, limiting what is known about disabilities among SGM people. In addition to limited studies, public health data has lacked its ability to stratify by diverse minoritized populations – such as SGM with disability identities – due to poor collection of sexual orientation and gender identity data. Therefore, our

study combats the dearth of literature about disability status and its relationship to mental health in the SGM community and underscores the importance of examining other determinants of health that may influence mental health outcomes.

General population studies have reported worse mental health outcomes among people with disabilities.²⁵ People with disabilities have greater unmet healthcare needs resulting in a greater burden of comorbidities and resultant physical and mental distress than peers without disabilities.²⁵⁻²⁷ Similar findings exist across the limited studies on disability among SGM people.¹¹⁻¹³ However, most of the current literature has examined the number of poor mental health distress days.^{1,11,13} Our study adds to the current literature, furthering our knowledge about the differences with anxiety and depression symptoms for the SGM disability communities. While our study did not describe the reasons *why* SGM people with disabilities had worse mental health symptoms, a lack of social support, disability-related stigma and discrimination, and inadequate access to healthcare services (including mental health) are associated with poorer mental health status.^{1,25,28-31} Moreover, our study's findings may assist mental healthcare professionals in identifying the social health factors that may affect the mental health of their patients. Our findings allow us to focus on mental health while also highlighting the crosscutting nature of mental health in public health approaches to educate the public on the intersection of disability stigma and SGM health.

SGM individuals with disabilities in our study may have worse mental health symptoms of anxiety and depression due to limited access to healthcare services. In another study, we found that SGM people with disabilities had up to 4-8 times higher odds of delaying care and being

unable to obtain care compared to those without disabilities.⁶ In that study, participants had reported that high costs, limited insurance coverage, and reduced appointment availability were among the main reasons with forgoing care. Another study examined health status differences in a large disability cohort and reported that, among the healthcare barriers experienced by people with disabilities, inadequate access to mental health services significantly differed between SGM and non-SGM people with disabilities.¹¹ Financial strains and healthcare access may negatively affect the ability of SGM people with disabilities to manage their mental health symptoms. These findings align with a non-SGM sample, in which access to healthcare emerged as a critical factor influencing both physical and mental health outcomes.²⁸ It is imperative for future work to consider upstream effects of poorer mental health outcomes and evaluate how healthcare access may affect those symptoms. Moreover, access to healthcare services, specifically mental health support, should be a priority for public health systems that want to tailor messaging about mental health symptom screenings for the SGM community to include the SGM disability community.

We observed 2-6 times greater odds of having a mean PHQ-9 or GAD-7 score ≥ 10 across all disability groups, indicating likely clinical significance of at least moderate depression (PHQ-9) or anxiety (GAD-7).¹⁹ This may be explained by homonegative, cisnormative, and ableist microaggressions experienced by SGM people with disabilities, which have been linked to higher depressive symptoms, feelings of not belonging, and absent social support systems.³² Higher mean anxiety and depression scores may be explained, in part, by the interplay between disability identity and societal discrimination (*i.e.*, homophobia, transphobia) faced by SGM people.^{33,34} Dinwoodie *et al.* and Dispenza *et al.* explored phenomena about how SGM people with disabilities perceive their health and identities. Participants in both studies reported not being accepted in disability communities or in SGM communities, which may affect anxiety,

depression, and loneliness.^{33,34} There should be a prioritization of creating inclusive public health campaigns that address depression and anxiety symptoms for the SGM community living with disabilities. The creation of these campaigns can help educate people in the SGM community about disability health, uplift and increase the visibility of the SGM disability community in being recognized as a priority group, that is being considered by public health programming. Further, other studies noted how difficult navigating social groups and participating in them can be for people in the SGM community who live with a disability.^{12,27,35} For example, ableist and exclusionary attitudes have been reported to increase the risks associated with poorer mental health.^{12,35} For these reasons, examining the effects of social support systems of SGM people with disabilities and their proximities to poorer health is needed with future research. Leveraging support tools for these communities could lead to better mental and emotional health, having significant public health implications.

Our study's findings draw upon the theoretical constructs the minority stress model that describes the potential factors (*e.g.*, stigma-related stress, social rejection, discrimination, concealment) related to mental health conditions such as anxiety or depression.⁹ Specifically, sexual minority people experience higher prevalence of mental health issues because they often experience higher rates of stress in their environment. Our study revealed intragroup differences in the broader context of both sexual minority people and gender minority people, adding another layer of consideration with respect to gender minority people and those with disabilities to the minority stress model. Drawing from studies that assessed the phenomena with disability and SGM identities,^{33,34} our results highlight the additive layer of disability status playing a role in worsening mental health. Further, our study adds to the work done by Mereish and Poteat in which feelings of shame, lack of connectedness/community, poor relationships, and loneliness

were factors that mediated levels of psychological and physical distress in sexual minority people.³⁶ Similarly, SGM people with disabilities may experience those same stressors (if not more) adding to the burden of mental health symptoms (such as anxiety or depression).

Strengths/Limitations

There are several strengths in our study. First, we investigated the mental health symptoms of commonly occurring mental health disorders (*i.e.*, anxiety, depression) among a large cohort of SGM people with and without disabilities. Second, study participants were diverse on a variety of sociodemographic characteristics – including sexual orientation, gender identity, and geographical location – which allowed us to better understand these health outcomes across a diverse sample. Third, our categorization of disability into four groups (*i.e.*, physical, mental, intellectual/developmental/neurodivergent, and other) allowed for a greater understanding of the disparities affecting specific disability populations, thereby allowing for more targeted approaches to improving mental health symptoms.

There are some limitations. First, we acknowledge that our disability categorization may not properly characterize complex disability types (as we discussed in Lamba *et al.*⁶). Second, we did not control for mental health diagnoses, which may predispose participants to have higher anxiety and/or depression symptoms. We previously reported that our sample had up to 4 times the odds of being denied or given lower quality mental health care compared to SGM people without disabilities.⁶ These findings may support the elevated levels of mental health symptoms in this study, as access to those services was impeded. There are likely other needs, beyond just access to mental health care, that might not have been met which may play a role in the differences seen and possible avenues for intervention that were not assessed. Third, the study sample was predominantly White, which could limit the ability to understand differences with a

more diverse study sample. Additionally, The PRIDE Study is not a nationally representative sample, potentially limiting the generalizability of the results. Fourth, the data collection period included the beginning of the COVID-19 pandemic, which may have played a role in the higher mean anxiety and depression scores, as reported elsewhere.²⁰ Fifth, we did not adjust for access to mental health services, which may influence the mental health symptoms that we observed since access may play a role in mental health management. Sixth, SGM people with disabilities were more likely to be non-cisgender (*i.e.*, transgender and gender diverse); future research may examine differences in anxiety and depressive symptoms by gender identity to better understand the role that transphobia has on these conditions.

Conclusion

We found that disability status among SGM people was associated with significantly higher mean anxiety and depression symptom scores. Depressive symptom scores across all four disability types were significantly higher as compared to SGM people without disabilities and were above the accepted cutoff score suggesting moderate depression. These findings are a critical step in identifying differences in mental health status among those with disabilities in the SGM community. While we did not examine how healthcare access may have impacted mental health symptoms, future investigations may warrant analyzing these differences by access to healthcare measures. Additionally, new research should elucidate the upstream factors affecting mental health status, which may be areas for targeted interventions and future public health policy to improve the catalog of mental health tools for this unique population. Overall, our study provides a steppingstone for further work to advance the limited knowledge about SGM people living with disabilities.

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Table 1: Sociodemographic Characteristics Between Sexual and Gender Minority Adults in The PRIDE Study by Disability Status: United States, 2019-2020

Sociodemographic Characteristics	Any disability N=1,540	No disability N=3,421
	N (%)	N (%)
Age (years) [median, IQR]	29.8, 17.1	32.1, 17.6
Gender Identity*		
Agender only	14 (0.9)	15 (0.44)
Cisgender Man only	82 (5.3)	479 (14.0)
Cisgender Woman only	201 (13.0)	670 (19.6)
Genderqueer only	28 (1.8)	34 (1.0)
Man only	100 (6.5)	375 (11.0)
Non-Binary only	102 (6.6)	121 (3.5)
Questioning only	7 (0.5)	7 (0.2)
Transgender Man only	67 (4.4)	136 (4.0)
Transgender Woman only	40 (2.6)	72 (2.1)
Two-Spirit only	1 (0.06)	0 (0.0)
Woman only	90 (5.8)	237 (7.0)
Another Gender Identity only	15 (1.0)	12 (0.4)
Multiple selections	793 (51.5)	1,263 (36.9)
Non-Cisgender Status		
Cisgender	450 (29.6)	1,720 (50.7)
Non-cisgender	1,073 (70.4)	1,672 (49.3)
Missing	17	29
Sexual Orientation*		
Asexual only	40 (2.6)	80 (2.3)
Bisexual only	134 (8.7)	350 (10.3)
Gay only	200 (13.0)	859 (25.2)
Lesbian only	125 (8.1)	409 (12.0)
Pansexual only	55 (3.6)	86 (2.5)
Queer only	133 (8.7)	249 (7.3)
Questioning only	9 (0.6)	6 (0.2)
Same-Gender Loving only	0 (0.0)	5 (0.2)
Straight only	14 (0.9)	30 (0.9)
Two-Spirit only	2 (0.1)	0 (0.0)
Another Sexual Orientation only	10 (0.7)	11 (0.3)
Multiple selections	815 (53.0)	1,331 (39.0)

Missing	3	5
Income		
\$0	178 (11.8)	185 (5.5)
\$1 - \$20,000	631 (41.7)	775 (23.1)
\$20,001 - \$40,000	307 (20.3)	702 (21.0)
\$40,001 - \$60,000	199 (13.1)	554 (16.5)
\$60,001 - \$80,000	89 (5.9)	385 (11.5)
\$80,001 - \$100,000	38 (2.5)	240 (7.2)
\$100,001 or more	72 (4.7)	515 (15.2)
Missing	26	65
Education		
High school or less	141 (9.2)	191 (5.7)
Some college	403 (26.4)	491 (14.5)
2-year college degree	87 (5.7)	115 (3.4)
4-year college degree	492 (32.2)	1,185 (34.9)
Graduate school or higher	405 (26.5)	1,410 (41.5)
Missing	12	29
Race/Ethnicity*		
American Indian or Alaska Native only	7 (0.5)	7 (0.2)
Asian only	23 (1.51)	97 (2.9)
Black or African American only	32 (2.1)	64 (1.9)
Hispanic only	28 (1.8)	84 (2.5)
Middle Eastern or North African only	3 (0.2)	12 (0.36)
Native Hawaiian or other Pacific Islander only	0 (0.0)	0 (0.0)
White only	1,205 (79.1)	2,786 (82.9)
Another Race only	12 (0.8)	11 (0.3)
Multiple Selections	212 (13.9)	300 (8.9)
Missing	18	60
Employment Status		
No	604 (39.5)	635 (18.7)
Yes	925 (60.5)	2,758 (81.3)
Missing	11	28
US Census Region		
Northeast (Region 1)	293 (19.2)	704 (20.8)
Midwest (Region 2)	335 (22.0)	660 (19.5)
South (Region 3)	396 (26.0)	886 (26.1)
West (Region 4)	501 (32.9)	1,132 (33.4)
Other (US Possessions, Military Overseas)	0 (0.0)	9 (0.3)
Rural-Urban Commuting Area (RUCA)		
RUCA 1-3 (Metropolitan)	1,415 (93.0)	3,144 (93.1)
RUCA 4-6 (Micropolitan)	68 (4.5)	161 (4.77)
RUCA 7-9 (Small town)	24 (1.6)	36 (1.07)
RUCA 10 (Rural)	15 (1.0)	35 (1.04)

Missing	18	45
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Note: all $p < 0.001$, except for US Census Region $p = 0.0705$ and RUCA $p = 0.4816$.

* Gender identity, sexual orientation, and race/ethnicity questions allowed multiple selections.

Abbreviations: IQR = interquartile range; RUCA = rural–urban commuting area

Note: Reprinted with permission from Lamba et al.⁶

Table 2: Sociodemographic Characteristics of Sexual and Gender Minority Adults by Disability Category in The PRIDE Study, 2019-2020.

	Physical Disability	Mental Disability	Intellectual/Developmental/Neurodivergent Disability	Other Disability
	N (%)	N (%)	N (%)	N (%)
Total (n)	941	1,237	555	98
Age (years) [Median, IQR]	32.07, 22.2	28.74, 14.4	28.0, 14.2	30.7, 22.4
Gender Identity				
Agender only	12 (1.3)	11 (0.9)	6 (1.1)	1 (1.0)
Cisgender Man only	48 (5.1)	50 (4.0)	23 (4.1)	3 (3.1)
Cisgender Woman only	102 (10.8)	154 (12.5)	53 (9.6)	11 (11.2)
Genderqueer only	20 (2.1)	24 (1.9)	8 (1.4)	2 (2.0)
Man only	75 (8.0)	62 (5.0)	26 (4.7)	3 (3.0)
Non-Binary only	61 (6.5)	94 (7.6)	36 (6.5)	2 (2.0)
Questioning only	6 (0.6)	7 (0.6)	3 (0.5)	1 (1.0)
Transgender Man only	44 (4.7)	49 (4.0)	27 (4.9)	3 (3.1)
Transgender Woman only	23 (2.4)	37 (3.0)	11 (2.0)	3 (3.1)
Two-Spirit only	1 (0.1)	1 (0.1)		
Woman only	62 (6.6)	60 (4.9)	22 (4.0)	8 (8.2)
Another Gender Identity only	12 (1.3)	12 (1.0)	8 (1.4)	1 (1.)
Multiple selections	475 (50.5)	676 (54.7)	332 (59.8)	60 (61.2)
Missing	0	0	0	0
Sexual Orientation				
Asexual only	25 (2.7)	31 (2.5)	21 (3.8)	3 (3.1)
Bisexual only	73 (7.8)	107 (8.7)	50 (9.0)	7 (7.1)
Gay only	141 (15.0)	133 (10.8)	49 (8.8)	6 (6.1)
Lesbian only	75 (8.0)	82 (6.6)	35 (6.3)	13 (13.3)
Pansexual only	30 (3.2)	50 (4.0)	15 (2.7)	2 (2.0)
Queer only	81 (8.7)	115 (9.3)	33 (6.0)	10 (10.2)
Questioning only	5 (0.5)	6 (0.5)	7 (1.3)	
Same-Gender Loving only	0 (0)	0 (0)	0 (0)	0 (0)
Straight only	9 (1.0)	8 (0.7)	6 (1.1)	1 (1.0)
Two-Spirit only	2 (0.2)	1 (0.1)	1 (0.2)	0 (0)
Another Sexual Orientation only	4 (0.4)	9 (0.7)	5 (0.9)	1 (1.0)
Multiple selections	494 (52.6)	692 (56.1)	332 (59.9)	55 (56.1)
Missing	2	3	1	0
Race/Ethnicity				
American Indian or Alaska Native only	7 (0.8)	5 (0.4)	3 (0.6)	1 (1.0)
Asian only	14 (1.5)	21 (1.7)	10 (1.8)	2 (2.1)
Black or African-American only	19 (2.0)	20 (1.6)	11 (2.0)	1 (1.0)
Hispanic only	14 (1.5)	23 (1.9)	10 (1.8)	0 (0)
Middle Eastern or North African only	3 (0.3)	3 (0.3)	1 (0.2)	0 (0)
Native Hawaiian or other Pacific Islander only	0 (0)	0 (0)	0 (0)	0 (0)
White only	732 (78.9)	969 (79.2)	439 (79.8)	74 (76.3)
Another Race only	10 (1.1)	9 (0.7)	3 (0.6)	2 (2.1)
Multiple selections	129 (13.9)	174 (14.2)	73 (13.3)	17 (17.5)
Missing	13	13	5	1
Income				
\$0	115 (12.4)	153 (12.6)	65 (12.0)	14 (14.6)
\$1 - \$20,000	381 (41.2)	540 (44.4)	251 (46.6)	41 (42.7)
\$20,001 - \$40,000	178 (19.3)	249 (18.9)	112 (20.6)	17 (17.7)
\$40,001 - \$60,000	117 (12.6)	151 (12.4)	62 (10.4)	11(11.5)
\$60,001 - \$80,000	62 (6.7)	61 (5.0)	24 (4.4)	6 (6.3)

\$80,001 - \$100,000	24 (2.6)	26 (2.1)	12 (2.2)	1 (1.0)
\$100,001 or more	47 (5.0)	38 (3.1)	18 (3.3)	6 (6.3)
Missing	16	19	11	2
Education				
High school or less	86 (9.2)	119 (9.7)	61 (11.2)	8 (8.3)
Some college	241 (25.9)	349 (28.37)	159 (29.0)	28 (28.9)
2-year college degree	63 (6.7)	71 (5.8)	31 (5.7)	7 (7.2)
4-year college degree	283 (30.4)	396 (32.2)	175 (31.9)	33 (34.0)
Graduate school or higher	259 (27.8)	295 (24.0)	123 (22.5)	21 (21.7)
Missing	9	7	6	1
Employment Status				
No	422 (45.2)	500 (40.7)	201 (36.6)	50 (51.0)
Yes	511 (54.8)	730 (59.3)	349 (63.5)	48 (49.0)
Missing	8	7	5	0

Note: Participants could select multiple disability categories, hence why the N is greater than the total cohort.

Table 3: Mean Generalized Anxiety Disorder-7 and Patient Health Questionnaire-9 Scores by Disability Status and Disability Categories among Sexual and Gender Minority Adults in The PRIDE Study, 2019-2020.

	N	Mean (standard deviation)^a	N Missing
GAD-7			
No disability	3232	5.17 (4.83)	189
Any disability	1452	8.58 (5.62)	88
Physical disability	889	8.59 (5.78)	52
Mental disability	1167	9.45 (5.47)	70
Intellectual/developmental/neurodivergent disability	518	8.52 (5.49)	37
Other disability	92	9.13 (5.72)	6
PHQ-9			
No disability	3228	6.10 (5.37)	193
Any disability	1452	11.03 (6.61)	88
Physical disability	888	11.31 (6.73)	53
Mental disability	1166	12.10 (6.38)	71
Intellectual/developmental/neurodivergent disability	518	11.27 (6.63)	37
Other disability	90	12.39 (6.36)	8

^a All $p < 0.001$; Comparisons are between each disability category *versus* no disability.

Abbreviations: GAD-7, Generalized Anxiety Disorder-7; PHQ-9, Patient Health Questionnaire-9.

Table 4: Crude and Adjusted Odds Ratios for Anxiety and Depression Scores ≥ 10 by Disability Classification Among Sexual and Gender Minority Adults in The PRIDE Study, 2019-2020.

	N	cOR (95% CI)	aOR (95% CI)
GAD-7 ≥ 10			
No disability	583	1.0 (ref)	1.0 (ref)
Any disability	581	3.03 (2.64-3.48)	2.56 (2.20-2.97)
Physical disability	356	3.03 (2.58-3.57)	2.88 (2.41-3.45)
Mental disability	536	3.86 (3.34-4.47)	3.10 (2.65-3.63)
Intellectual/developmental/neurodivergent disability	201	2.88 (2.36-3.51)	2.13 (1.73-2.64)
Other disability	38	3.20 (2.09-4.89)	3.11 (1.97-4.91)
PHQ-9 ≥ 10			
No disability	736	1.0 (ref)	1.0 (ref)
Any disability	782	3.95 (3.46-4.51)	3.22 (2.79-3.71)
Physical disability	491	4.19 (3.58-4.89)	3.77 (3.17-4.49)
Mental disability	716	5.39 (4.67-6.22)	4.20 (3.59-4.90)
Intellectual/developmental/neurodivergent disability	291	4.55 (3.75-5.52)	3.33 (2.72-4.09)
Other disability	60	6.77 (4.34-10.58)	5.71 (3.57-9.12)

Abbreviations: aOR, adjusted odds ratio; CI, confidence interval; cOR, crude odds ratio; GAD-7, Generalized Anxiety Disorder-7; PHQ-9, Patient Health Questionnaire-9; ref, reference group.