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Health of Transgender Adults, 2020

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B.S. Political Science

Pre-Medicine

Portland State University Honors College Thesis

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Introduction

Transgender and gender diverse people experience significant social and cultural discrimination resulting in worse mental, physical health, higher odds of disability, and chronic health conditions (Vermeir et al., 2018) (J. M. Downing & Przedworski, 2018) Structural discrimination leaves transgender and gender diverse (TGD) individuals with both a high need for medical care and with very low odds of being able to access respectful and informed care (Janeway & Coil, 2020) (Witten, 2014) (Kronk et al., 2022). TGD populations have the highest prevalence of uninsurance compared to cisgender men and women (J. Downing et al., 2022). Uninsurance among TGD populations remains the highest compared to cisgender individuals when comparing those under the 250% federal poverty line and those who are Medicare-eligible. Uninsured and underinsured populations have higher mortality rates in the United States (Wilper et al., 2009)(Turunen & Hiilamo, 2014)(Bielenberg et al., 2020). TGD populations, having the highest rates of uninsurance, underinsurance, and mental and chronic health conditions are expected to have similarly high rates of hospitalization for chronic health conditions (Swartz et al., 2021) (Bindman et al., 1995; Larkin et al., 2005). The intersection of oppression that TGD populations face is also seen in the lack of population based research investigating the health care needs of the TGD community (Kress et al., 2021). A significant majority of the current evidence base is the result of community and clinical studies, narrowing research around those accessing gender specific health care and small communities who are in the position to be publicly “out” as transgender and gender diverse (Samuels et al., 2018) “Health of Transgender Adults in the U.S., 2014-2016” by Jae Downing, M.D. produced a snapshot of the demographics and medical experiences of TGD populations. Importantly this study divided TGD respondents into male-to-female, female-to-male, and gender non-conforming identities allowing for analysis of the specific experiences of these three populations in relation to both cisgender females and cisgender males. Few studies delineate between members of the transgender community, a significant oversight of the impact of cis-sexism, misogyny, and patriarchy on TGD populations (Cicero et al., 2020). This study seeks to update the existing evidence base through a population-based analysis of the chronic conditions, disabilities, and health care access and utilization of transgender and gender diverse individuals in 2020. As the current research shows that TGD individuals are more likely to have chronic health conditions, disabilities, detrimental mental health conditions, and difficulty accessing health care, I hypothesize that these findings will be reflected in 2020 across TGD identities.

Methods

The Behavior Risk Factor Surveillance system is an annual survey conducted by the CDC over the telephone in all 50 states as well as Puerto Rico, Guam, and the U.S. Virgin Islands. Survey responses are weighted by calculating a stratum weight by dividing the number of available phone numbers by the number of selected phones numbers in each geographic stratum. Final design weight is calculated by dividing the strata weight by the number of phones within the household and multiplied by the number of adults in the household. (*Behavioral Risk Factor Surveillance System Overview*, n.d.)

Study sample

Those who are institutionalized are not included in the survey. States have optional modules that they can choose to add onto the base questions required by the BRFSS. Transgender and gender diverse identities are only recorded by states that choose to use the Sexual Orientation and Gender Identity (SOGI) module. In 2020 SOGI module questions were asked by 33 states and Guam. Alaska, Arkansas, California, Colorado, Connecticut, Georgia, Guam, Hawaii, Idaho, Illinois, Indiana, Iowa, Kansas, Louisiana, Mass, Michigan, Minnesota, Montana, New Jersey, New Mexico, New York, North Carolina, Ohio, Oklahoma, Rhode Island, South Carolina, Texas, Utah, Vermont, Virginia, Washington, West Virginia, and Wisconsin were the states and territory that used the

SOGI module in 2020. The weighted percent of state respondents who reported being transgender or gender non-conforming in each state can be found on Table 1.

Measures

Respondents are considered TGD based on their response to the question “*Do you consider yourself to be transgender?*” if they answered yes, the follow up “*Do you consider yourself to male-to-female, female-to-male, or gender non-conforming?*” was asked. Respondents were categorized into male-to-female, female-to-male, gender non-conforming, and cisgender. Cisgender participants were then grouped into cisgender female and cisgender male based on their response to the question “*Are you male or female?*”. Demographic questions included age (18-24, 25-34, 35-44, 45-54, 55-64, and 65+), race/ethnicity (white, black, indigenous/Alaskan native, Asian American, native Hawaiian/pacific islander, other, multiracial, and Hispanic/Latinx), education level (less than high school, high school graduate, some college or technical school, and graduated college or technical school), income (<\$15,000, \$15,000-\$25,000, \$35,000-\$45,000, and \$50,000+), employment status (unemployed, employed, not looking for work, retired, and unable to work), health insurance status (uninsured or insured), marital status (divorced/widowed/separated), sexual orientation (straight/heterosexual, lesbian/gay, bisexual, and other sexual orientation), homeownership (did not own a home or did own a home) and presence of children in the household (at least one child in the household or no children in the household).

Five chronic conditions were included: myocardial infarction or coronary heart disease (MI/CHD), asthma, arthritis, diabetes, and depression. Surveyors asked “*Has a doctor, nurse, or other health professional ever told you that you had any of the following? For each, tell me “Yes”, “No”, or you’re “Not sure”- (Ever told) you had a heart attack, also called a myocardial infarction? (Ever told) (you had) angina or coronary heart disease? (Ever told) (you had) asthma? (Ever told) (you had) some form of arthritis, rheumatoid arthritis, gout, lupus, or fibromyalgia? (Arthritis diagnoses include: rheumatism, polymyalgia rheumatica; osteoarthritis (not osteoporosis); tendonitis, bursitis, bunion, tennis elbow; carpal tunnel syndrome, tarsal tunnel syndrome; joint infection, etc.) (Ever told) (you had) a depressive disorder (including depression, major depression, dysthymia, or minor depression)?*”. A status of multiple chronic conditions was included (>1 chronic conditions)

Health related quality of life measurements were calculated with the questions “*Would you say that in general your health is:*”, “*Now thinking about your physical health, which includes physical illness and injury, for how many days during the past 30 days was your physical health not good?*”, “*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?*”, “*During the past 30 days, for about how many days did poor physical or mental health keep you from doing your usual activities, such as self-care, work, or recreation?*”, and “*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?*”. Resulting categories included are poor/fair health, poor physical health (more than 14 days where physical health was not good), consistent limitations (more than 14 days where poor physical or mental health kept you from usual activities), and mental distress (more than 14 days where mental health was not good).

Disabilities included mobility (“*Do you have serious difficulty walking or climbing stairs?*”, cognitive disabilities (“*Because of a physical, mental, or emotional condition, do you have serious difficulty concentrating, remembering, or making decisions?*”), independence, (“*Because of a physical, mental, or emotional condition, do you have difficulty doing errands alone such as visiting a doctor’s office or shopping?*”) and multiple disabilities (>1 of previous disabilities included).

Table 1: Percent of respondents who identified as transgender and gender diverse in each state where the SOGI module was used.

State	Transgender and Gender Diverse Respondents % (n)
Alaska	0.43 (15)
Arkansas	0.36 (18)
California	0.38 (14)
Colorado	0.42 (40)
Connecticut	0.4 (35)
Georgia	0.51 (43)
Hawaii	0.63 (48)
Idaho	0.54 (28)
Illinois	0.42 (13)
Indiana	0.33 (27)
Iowa	0.29 (27)
Kansas	0.41 (38)
Louisiana	0.4 (18)
Massachusetts	0.52 (31)
Michigan	0.3 (20)
Minnesota	0.44 (60)
Montana	0.4 (23)
New Jersey	0.47 (51)
New Mexico	0.39 (26)
New York	0.4 (55)
North Carolina	0.34 (16)
Ohio	0.4 (49)
Oklahoma	0.44 (19)
Rhode Island	0.46 (24)
South Carolina	0.34 (11)
Texas	0.46 (44)
Utah	0.51 (54)
Vermont	0.41 (26)
Virginia	0.33 (26)
Washington	0.53 (64)
West Virginia	0.27 (15)
Wisconsin	0.55 (24)
Guam	0.75 (15)
Total	100

Health care access and utilization was measured through the respondent's engagement with primary care providers "Do you have one person you think of as your personal doctor or health care provider? (If No, ask 'Is there more than one or is there no person who you think of as your personal doctor or health care provider?)" dental care (>1 year "Including all types of dentists, such as orthodontists, oral surgeons, and all other dental specialists, as well as dental hygienists, how long has it been since you last visited a dentist or a dental clinic for any reason?", lack of health care due to cost ("Was there a time in the past 12 months when you needed to see a doctor but could not because of cost?"), primary care visits "About how long has it been since you last visited a doctor for a routine checkup? [A routine checkup is a general physical exam, not an exam for a specific injury, illness, or condition.]", and prior testing for HIV "Including fluid testing from your mouth, but not including tests you may have had for blood donation, have you ever been tested for H.I.V?".

Statistical Analysis

Stata 17 was used to conduct all statistical analysis. Demographic characteristics of the states and territory that used the SOGI module and those that did not was conducted to ensure the validity and applicability of the results (Table 2). Despite SOGI questions not being asked in non-SOGI states, transgender and gender diverse individuals exist without being counted. Respondents in SOGI states were older (4% more 65+), had a larger Black population (9.15% to 6.87%), had less graduates of college or technical school (37.53% -39.52%), had lower income (9.35%-7.69%: <\$15,000, 16.24%-14.58%: \$15,000-\$25,000, 50.46%- 54.66%: \$50,000), were statistically similar in employment, health insurance status, and marital status (within 2%), were more likely to be a homeowner (72.12%-69.31%), and were less likely to have at least one child in the household (24.87%-27.44%). Using survey weights the estimated distribution of demographic characteristics, chronic health conditions, health related quality of life indicators, disabilities, and health care access and utilization were calculated through two-way tabulation. Frequency distribution and count are reported in Table 3. Adjusted odds of each TGD category (male-to-female, female-to-male, gender non-conforming) with reference to cisgender females and cisgender males was calculated through logistic regression using survey weights and adjusting for age, race/ethnicity, marital status, education level, and insurance status.

Results

States that employed the SOGI module produced 261,664 survey responses. Respondents in SOGI states were older (4% more 65+), had a larger Black population (9.15% to 6.87%), had less graduates of college or technical school (37.53% -39.52%), had lower income (9.35%-7.69%: <\$15,000, 16.24%-14.58%: \$15,000-\$25,000, 50.46%- 54.66%: \$50,000), were statistically similar in employment, health insurance status, and marital status (within 2%), were more likely to be a homeowner (72.12%-69.31%), and were less likely to have at least one child in the household (24.87%-27.44%) (Table 2).

Table 2. Demographic characteristics of respondents in SOGI and Non-SOGI states, 2020

Characteristics	SOGI (%) n=261,664	Non-SOGI (%) n= 140,294
Age		
18-24	5.82	6.68
25-34	10.29	11.44
35-44	12.18	13.33
45-54	14.79	15.78
55-64	19.53	19.37
65+	37.39	33.39
Race-ethnicity grouping		
White	75.61	75.13
Black	9.15	6.87
Indigenous/Alaskan native	1.94	1.62
Asian American	1.25	3.3
Native Hawaiian/Pacific islander	0.13	0.72
Other	0.72	0.92
Multiracial	1.51	2.44
Hispanic/Latinx	9.69	9
Level of completed education		
Less than high school	6.88	6.39
Graduated High School	27.53	26.36
Some college	28.06	27.73
Graduated college or technical school	37.53	39.52
Income categories		
<\$15	9.35	7.69
\$15,000-\$25,000	16.24	14.58
25,000-35,000	10.24	9.5
35,000-45,000	13.71	13.57
50,000+	50.46	54.66
Employment		
Unemployed	5.38	6.31
Employed	49.23	51.72
Not looking for work	6.72	7.21
Retired	31.99	28.44
Unable to work	6.67	6.31
Insurance		
Uninsured	8.54	8.49
Insured	91.46	91.51
Marital status		
Divorced/widowed/separated	27.21	25.37
Married/partnered	55.12	56.31
Never married	17.67	18.32
Homeowner	72.12	69.31

At least one child in the household

24.87

27.44

Table 3: Demographic Characteristics of Transgender and Cisgender Adults, BRFSS 2020

Characteristics	Male-To-Female	Female-To-Male	Gender Non-Conforming	Cisgender Male	Cisgender Female
Total, n (%)	372 (0.16)	367 (0.15)	278 (0.12)	107,916 (45.55)	127,971 (54.02)
Age					
18-24	19.09	20.44	30.22	7.44	5.28
25-34	16.13	17.71	20.14	11.47	9.94
35-44	14.25	11.17	16.91	13.4	12.92
45-54	11.29	13.35	10.07	15.88	15.54
55-64	14.52	12.81	6.83	20.14	19.61
65+	24.73	24.52	15.83	31.67	36.69
Race/ethnicity					
White	63.26	63.79	64.29	75.59	75.23
Black	6.35	6.13	4.89	6.03	7.37
Indigenous/Alaskan native	2.21	1.95	2.63	1.6	1.63
Asian American	3.87	6.41	3.76	3.42	2.96
Native Hawaiian/Pacific islander	1.93	3.06	1.13	0.73	0.74
Other	1.38	0.56	1.13	1	0.79
Multiracial	4.97	3.9	9.77	2.52	2.38
Hispanic/Latinx	16.02	14.21	12.41	9.1	8.89
Education					
Less than high school	16.58	10.74	13.36	6.64	6.1
Graduated High School	36.41	33.33	31.77	27.91	25.38
Some college	26.9	27.82	28.16	26.45	29.31
Graduated college or Technical school	20.11	28.1	26.71	39	39.21
Income					
<\$15,000	18.37	15.96	9.81	6.26	8.9
\$15,000-\$25,000	26.53	25.89	27.57	12.52	16.34
25,000-35,000	13.61	12.77	9.35	8.68	10.39
35,000-45,000	9.86	10.99	13.08	13.33	13.99
50,000+	31.63	34.4	40.19	59.21	50.37
Employment Status					
Unemployed	11.78	12.98	16.42	6.47	6.08
Employed	46.3	45.58	44.89	57.71	45.51
Not looking for work	9.04	11.33	13.87	3.05	10.4
Retired	19.18	17.68	15.69	27.22	30.9
Unable to work	13.7	12.43	9.12	5.55	7.1
Insurance					
Uninsured	12.88	14.6	14.6	9.87	7.01
Insured	87.12	85.4	85.4	90.13	92.99
Marital Status					
Divorced/widowed/ separated	27.12	21.64	17.58	19.39 3	31.29
Married/partnered	36.71	42.19	40.29	60.12	53.37
Never married	36.16	36.16	42.12	20.49	15.33
Sexual Orientation					
Straight/heterosexual	40.91	56.9	29.3	95.11	94.26
Lesbian/Gay	15.91	12.96	8.06	2.12	1.29
Bisexual	15.91	12.96	21.98	1.58	3.05
Other sexual orientation	27.2	17.18	40.66	1.19	1.39
Homeowner	44.74	46.98	34.66	70.03	70.99
At least one child in the household	20.92	24.51	24.26	26.24	28.39

TGD respondents were overall younger than cisgender respondents, with 19.09%, 20.44% and 30.22% of TGD respondents being 18-24 years old. GNC respondents were the youngest, 50% being below 35 years old. TGD respondents were overall less white than cisgender respondents, with 63.26%, 63.79%, and 64.29% being white in comparison to 75.59% and 75.23% of the cisgender respondents being white. Male-to-Female respondents were the majority of the Hispanic/Latinx respondents with 16.02%. TGD respondents had completed less education than cisgender applicants, with 16.58%, 10.74% and 13.36% of TGD respondents having completed less than high school in comparison to 6.64% and 6.1% of cisgender respondents having completed less than high school. Cisgender female applicants were the majority in having completed college or technical school with 39.21%. Overall, TGD respondents had a lower income than cisgender respondents, with 18.37%, 15.96% and 9.81% making below \$15,000 compared to 6.26% and 8.9% of cisgender respondents making below \$15,000. Out of the TGD respondents, gender non-conforming respondents had the highest income with 40.19% making over \$50,000. There were higher levels of unemployment among the TGD respondents than the cisgender respondents. TGD respondents had 11.78%, 12.98% and 16.42% unemployment while the cisgender respondents had 6.47% and 6.08% unemployment. TGD respondents also had higher numbers of people who were unable to work with 13.7%, 12.43%, and 9.12% compared to 5.55% and 7.1% of cisgender respondents.

While the majority of respondents were insured, TGD respondents were less likely to be insured compared to cisgender respondents. 12.88%, 14.6% and 14.6% of TGD respondents were uninsured compared to 9.87% and 7.01% of cisgender respondents. Cisgender female respondents were the most likely to be divorced, widowed, or separated with 31.29%. Both Male-to-Female and Female-to-Male responders with 27.12% and 21.64% were more likely to be divorced, widowed, or separated than cisgender males with 12.39%. Cisgender respondents were more likely to be married/partnered with 60.12% and 53.37% in comparison to the TGD respondents' 36.71%, 42.19% and 40.29%. Cisgender respondents were more likely to be straight/heterosexual, with 95.11% and 94.26% in comparison to TGD respondents with 40.91%, 56.9% and 29.3%. Gender non-conforming people were the smallest percentage of the straight/heterosexual respondents with 29.3% and were the highest percentage of other/unlisted sexual orientation with 40.66%. TGD respondents were less likely to own a home, with 44.74%, 46.98% and 34.66% owning homes in comparison to the 70.03% and 70.99% of cisgender respondents. Male-to-Female respondents were the least likely to have at least one child in the home with 20.92%, while gender non-conforming respondents were the least likely to own a home with 34.66% (Table 3).

Compared to cisgender males, MTF (male to female transgender people) had higher odds of being diagnosed with multiple conditions (AOR 1.942%, 1.294,2.916); compared to cisgender females, MTF people had higher odds of being diagnosed with multiple conditions (AOR 1.576%, 1.050,2.365); compared to cisgender males, FTM (female to male transgender people) had higher odds of being diagnosed with multiple conditions (AOR 1.946%, 1.277,2.963); compared to cisgender females, FTM people had higher odds of being diagnosed with multiple conditions (AOR 1.577%, 1.036,2.402); compared to cisgender males, GNC (gender non-conforming people) had higher odds of being diagnosed with multiple conditions (AOR 3.407%, 2.233,5.199); compared to cisgender females, GNC people had higher odds of being diagnosed with multiple conditions (AOR 2.734%, 1.792,4.170). Compared to cisgender males, MTF people had higher odds of being diagnosed with MI/CHD (AOR 1.942%, CL 1.294,2.916); compared to cisgender females, MTF people had higher odds of being diagnosed with MI/CHD (AOR 2.574%, CL 1.804,3.673); compared to cisgender females, FTM people had higher odds of being diagnosed with MI/CHD (AOR 1.892%, CL 1.264,2.832); compared to cisgender females, GNC people had higher odds of MI/CHD (AOR 2.073%, CL 1.205,3.564). Compared to cisgender males, FTM people had higher odds of being diagnosed with asthma (AOR 1.597%, 1.235,2.064); compared to cisgender females, FTM people had higher odds of being diagnosed with asthma (AOR 1.312%, 1.014,1.696); compared to cisgender males, GNC people had higher odds of being diagnosed with asthma (AOR 1.742%,

1.304,2.327); compared to cisgender females, GNC people had higher odds of being diagnosed with asthma (AOR1.422%, 1.064,1.900). Compared to cisgender females, MTF people had higher odds of being diagnosed with arthritis (AOR0.693%, 0.523,0.917); compared to cisgender males, FTM people had higher odds of being diagnosed with arthritis (AOR1.373%, 1.055,1.786); compared to cisgender males, GNC people had higher odds of being diagnosed with arthritis (AOR1.411%, 1.010,1.971). Compared to cisgender males, MTF people had higher odds of being diagnosed with depression (AOR2.725%, 2.194,3.386); compared to cisgender females, MTF people had higher odds of being diagnosed with depression (AOR2.003%, 1.612,2.490); compared to cisgender males, FTM people had higher odds of being diagnosed with depression (AOR2.626%, 2.116,3.258); compared to cisgender females, FTM people had higher odds of being diagnosed with depression (AOR1.930%, 1.554,2.395); compared to cisgender males, GNC people had higher odds of being diagnosed with depression (AOR3.412%, 2.660,4.377); compared to cisgender females, GNC people had higher odds of being diagnosed with depression (AOR2.483%, 1.935,3.186).

Compared to cisgender males, MTF people had higher odds of having poor/fair health (AOR1.5105, 1.158,1.970); compared to cisgender females, MTF people had higher odds of having poor/fair health (AOR1.445%, 1.108,1.886); compared to cisgender males, FTM people had higher odds of having poor/fair health (AOR1.565%, 1.192,2.055); compared to cisgender females, FTM people had higher odds of having poor/fair health (AOR1.498%, 1.140,1.967); compared to cisgender males, GNC people have higher odds of having poor/fair health (AOR2.650%, 1.974,3.557); compared to cisgender females, GNC people have higher odds of having poor/fair health (AOR2.531%, 1.885,3.398). Compared to cisgender males, MTF people had higher odds of having poor physical health (AOR1.708%, 1.278,2.284); compared to cisgender females, MTF people had higher odds of having poor physical health (AOR1.566%, 1.171,2.095); compared to cisgender males, FTM people had higher odds of having poor physical health (AOR2.101%, 1.590,2.777); compared to cisgender females, FTM people had higher odds of having poor physical health (AOR1.925%, 1.456,2.544); compared to cisgender males, GNC people had higher odds of having poor physical health (AOR1.972%, 1.394,2.789); compared to cisgender females, GNC people had higher odds of having poor physical health (AOR1.801%, 1.273,2.548). Compared to cisgender males, MTF people had higher odds of having limitations (AOR2.317%, 1.760,3.051), compared to cisgender females, MTF people had higher odds of having limitations (AOR2.014%, 1.530,2.652); compared to cisgender males, FTM people had higher odds of having limitations (AOR1.895%, 1.404,2.557); compared to cisgender females, FTM people had higher odds of having limitations (AOR1.646%, 1.219,2.223); compared to cisgender males, GNC people had higher odds of having limitations (AOR3.774%, 2.831,5.030); compared to cisgender females, GNC people had higher odds of having limitations (AOR3.263%, 2.448,4.350). Compared to cisgender males, MTF people had higher odds of experiencing mental distress (AOR2.322%, 1.828,2.949); compared to cisgender females, MTF people had higher odds of experiencing mental distress (AOR1.805%, 1.420,2.294); compared to cisgender males, FTM people had higher odds of experiencing mental distress (AOR2.064%, 1.616,2.636); compared to cisgender females, FTM people had higher odds of experiencing mental distress (AOR1.605%, 1.256,2.051); compared to cisgender males, GNC people had higher odds of experiencing mental distress (AOR3.055%, 2.355,3.964); compared to cisgender females, GNC people had higher odds of experiencing mental distress (AOR2.361%, 1.818,3.065).

Table 4: Adjusted Odds of Chronic Conditions, Health Measures, Disabilities, and Health Care Access of Transgender and Cisgender Individuals, 2020

Variable	Male-to-Female		Female-to- Male		Gender Non-Conforming	
	Ref: Cisgender male, AOR (95%)	Ref: Cisgender female, AOR (95%)	Ref: Cisgender male, AOR (95%)	Ref: Cisgender female, AOR (95%)	Ref: Cisgender male, AOR (95%)	Ref: Cisgender female, AOR (95%)
Chronic Conditions						
Multiple Conditions	1.942** [1.294,2.916]	1.576* [1.050,2.365]	1.946** [1.277,2.963]	1.577* [1.036,2.402]	3.407*** [2.233,5.199]	2.734*** [1.792,4.170]
MI/CHD	1.822*** [1.279,2.594]	2.574*** [1.804,3.673]	1.336 [0.895,1.996]	1.892** [1.264,2.832]	1.449 [0.845,2.484]	2.073** [1.205,3.564]
Asthma	1.244 [0.942,1.642]	1.021 [0.773,1.348]	1.597*** [1.235,2.064]	1.312* [1.014,1.696]	1.742*** [1.304,2.327]	1.422* [1.064,1.900]
Arthritis	0.822 [0.621,1.089]	0.693* [0.523,0.917]	1.373* [1.055,1.786]	1.154 [0.888,1.501]	1.411* [1.010,1.971]	1.183 [0.847,1.652]
Diabetes	1.205 [0.536,2.709]	1.221 [0.543,2.746]	0.756 [0.389,1.471]	0.766 [0.394,1.491]	0.862 [0.354,2.097]	0.873 [0.359,2.126]
Depression	2.725*** [2.194,3.386]	2.003*** [1.612,2.490]	2.626*** [2.116,3.258]	1.930*** [1.554,2.395]	3.412*** [2.660,4.377]	2.483*** [1.935,3.186]
HRQOL-4						
Poor/Fair Health	1.510** [1.158,1.970]	1.445** [1.108,1.886]	1.565** [1.192,2.055]	1.498** [1.140,1.967]	2.650*** [1.974,3.557]	2.531*** [1.885,3.398]
Poor Physical Health	1.708*** [1.278,2.284]	1.566** [1.171,2.095]	2.101*** [1.590,2.777]	1.925*** [1.456,2.544]	1.972*** [1.394,2.789]	1.801*** [1.273,2.548]
Limitations	2.317*** [1.760,3.051]	2.014*** [1.530,2.652]	1.895*** [1.404,2.557]	1.646** [1.219,2.223]	3.774*** [2.831,5.030]	3.263*** [2.448,4.350]
Mental Distress	2.322*** [1.828,2.949]	1.805*** [1.420,2.294]	2.064*** [1.616,2.636]	1.605*** [1.256,2.051]	3.055*** [2.355,3.964]	2.361*** [1.818,3.065]
Disabilities						
Mobility	1.554** [1.152,2.097]	1.342 [0.995,1.810]	1.900*** [1.407,2.566]	1.641** [1.216,2.215]	2.343*** [1.624,3.379]	2.013*** [1.397,2.902]
Cognition	3.363*** [2.652,4.266]	2.921*** [2.302,3.707]	2.596*** [2.008,3.357]	2.255*** [1.743,2.917]	3.636*** [2.763,4.784]	3.146*** [2.390,4.141]
Independent	2.098*** [1.537,2.864]	1.636** [1.199,2.233]	3.031*** [2.277,4.035]	2.361*** [1.774,3.144]	4.687*** [3.459,6.352]	3.614*** [2.667,4.896]
Multiple Disabilities	2.454*** [1.967,3.061]	2.101*** [1.684,2.621]	2.307*** [1.848,2.880]	1.976*** [1.583,2.467]	3.347*** [2.591,4.325]	2.851*** [2.207,3.684]
Health Care Access						
No Primary Care Provider	1.175 [0.886,1.558]	0.834 [0.629,1.106]	1.181 [0.893,1.562]	0.839 [0.635,1.110]	0.994 [0.742,1.331]	0.705* [0.526,0.944]
No Dental Visit	1.449** [1.161,1.809]	1.628*** [1.304,2.033]	1.383** [1.106,1.730]	1.555*** [1.243,1.944]	1.636*** [1.262,2.121]	1.845*** [1.423,2.393]
No Visit Because of Cost	1.879*** [1.405,2.514]	1.645*** [1.229,2.202]	2.341*** [1.781,3.077]	2.051*** [1.559,2.698]	2.706*** [2.008,3.645]	2.363*** [1.753,3.187]
No Primary Care Visit	0.559*** [0.424,0.738]	0.832 [0.630,1.099]	0.857 [0.668,1.100]	1.276 [0.994,1.638]	0.818 [0.619,1.081]	1.217 [0.921,1.609]
Never Tested for HIV	0.690** [0.550,0.866]	0.716** [0.570,0.898]	0.852 [0.674,1.078]	0.884 [0.699,1.117]	0.979 [0.749,1.280]	1.015 [0.777,1.327]

Exponentiated coefficients; 95% confidence intervals in brackets, * p<0.05, ** p<0.01, *** p<0.001

Compared to cisgender males, MTF people had higher odds of having disabilities related to mobility (AOR1.554%, 1.152,2.097); compared to cisgender males, FTM people had higher odds of having disabilities related to mobility (AOR1.900%, 1.407,2.566); compared to cisgender females, FTM people had higher odds of having disabilities related to mobility (AOR1.641%, 1.216,2.215); compared to cisgender males, GNC people had higher odds of having disabilities related to mobility (AOR2.343%, 1.624,3.379); compared to cisgender females, GNC people had higher odds of having disabilities related to mobility (AOR2.013%, 1.397,2.902). Compared to cisgender males, MTF people had higher odds of having cognitive disabilities (AOR3.363%, 2.652,4.266); compared to cisgender females, MTF people had higher odds of having cognitive disabilities (AOR2.921%, 2.302,3.707); compared to cisgender males, FTM people had higher odds of having cognitive disabilities (AOR2.596%, 2.008,3.357); compared to cisgender females, FTM people had higher odds of having cognitive disabilities (AOR2.255%, 1.743,2.971); compared to cisgender males, GNC people had higher odds of having cognitive disabilities (AOR3.636%, 2.763,4.784); compared to cisgender females, GNC people had higher odds of having cognitive disabilities (AOR3.146%, 2.390,4.141). Compared to cisgender males, MTF people had higher odds of needing daily assistance (AOR2.098%, 1.537,2.864); compared to cisgender females, MTF people had higher odds of needing daily assistance (AOR1.636%, 1.199,2.233); compared to cisgender males, FTM people had higher odds of needing daily assistance (AOR3.031%, 2.277,4.035); compared to cisgender females, FTM people had higher odds of needing daily assistance (AOR2.361%, 1.774,3.144); compared to cisgender men, GNC people had higher odds of needing daily assistance (AOR4.687%, 3.459,6.352); compared to cisgender females, GNC people had higher odds of needing daily assistance (AOR3.614%, 2.667,4.896). Compared to cisgender males, MTF people had higher odds of having multiple disabilities (AOR2.454%, 1.967,3.061); compared to cisgender females, MTF people had higher odds of having multiple disabilities (AOR2.101%, 1.684,2.621); compared to cisgender males, FTM people had higher odds of having multiple disabilities (AOR2.307%, 1.848,2.880); compared to cisgender females, FTM people had higher odds of having multiple disabilities (AOR1.976%, 1.583,2.467); compared to cisgender males, GNC people had higher odds of having multiple disabilities (AOR3.347%, 2.591,4.325); compared to cisgender females, GNC people had higher odds of having multiple disabilities (AOR2.851%, 2.207,3.684).

Compared to cisgender females, GNC people had higher odds of not having a primary care provider (AOR0.705%, 0.526,0.944). Compared to cisgender males, MTF people had higher odds of having no dental visit in the prior year (AOR1.449%, 1.161,1.809); compared to cisgender females, MTF people had higher odds of having no dental visit in the prior year (AOR1.628%, 1.304,2.033); compared to cisgender males, FTM people had higher odds of having no dental visit in the prior year (AOR1.383%, 1.106,1.730); compared to cisgender females, FTM people had higher odds of having no dental visit in the prior year (AOR1.555%, 1.243,1.944); compared to cisgender males, GNC people had higher odds of having no dental visit in the prior year (AOR1.636%, 1.262,2.121); compared to cisgender females, GNC people had higher odds of having no dental visit in the prior year (AOR1.845%, 1.423,2.393). Compared to cisgender males, MTF people had higher odds of being unable to pay for necessary care (AOR1.879%, 1.405,2.514); compared to cisgender females, MTF people had higher odds of being unable to pay for necessary care (AOR1.645%, 1.229,2.202); compared to cisgender males, FTM people had higher odds of being unable to pay for necessary care (AOR2.341%, 1.781,3.077); compared to cisgender females, FTM people had higher odds of being unable to pay for necessary care (AOR2.051%, 1.559,2.698); compared to cisgender males, GNC people had higher odds of being unable to pay for necessary care (AOR2.706%, 2.008,3.645); compared to cisgender females, GNC people had higher odds of being unable to pay for necessary care (AOR2.363%, 1.753,3.187). Compared to cisgender males, MTF people had higher odds of not getting routine checkups (AOR0.559%, 0.424,0.738). Compared to cisgender males, MTF people had never been tested for HIV (AOR 0.690%, 0.550,0.866); compared to cisgender females, MTF people had never been tested for HIV (AOR0.716%, 0.570,0.898).

Discussion

Transgender and gender diverse individuals experience disproportionate barriers to health care as well as a disproportionate number of health care needs. The author's hypothesis that TGD populations are more likely to have chronic health conditions, disabilities, detrimental mental health conditions, and difficulty accessing health care is supported in the analysis of survey responses to the 2020 Behavioral Risk Factor Surveillance System. Compared to cisgender males and females, TGD individuals had higher odds of being diagnosed with multiple conditions, with GNC having the highest odds when compared with cisgender females (AOR 2.734%, 1.792, 4.170). TGD individuals were more likely to have poor health, mental health, and experience limitations (more than 14 days where poor physical or mental health kept them from usual activities). Here gender non-conforming people experienced the highest discrepancy, AOR 3.774% and AOR 3.263%, compared to cisgender males and females, respectively. Cognitive disabilities were found to be consistently prevalent among the TGD community across all comparisons. As cognitive disabilities encompass positive responses to the question "*Because of a physical, mental, or emotional condition, do you have serious difficulty concentrating, remembering, or making decisions?*", this result provides an interesting opportunity for additional investigation. Due to the high prevalence of ADHD among the TGD community, delineation of "cognitive" disabilities is needed (Thrower et al., 2020). Notably, while no significant difference in access to primary care providers was seen between gender identity groups, the most prevalent disparity between TGD and cisgender references is seen in lack of access to medical care due to cost.

Limitations

Importantly, while this effort was able to account for nation-wide sample of TGD individuals, the question base does not allow for specific research questions to be answered about the health and health care experiences of TGD populations. Additionally, many transgender and gender diverse individuals are simply missing from the data set as 12 states and two territories do not collect SOGI data. Additionally, even within states that ask SOGI questions, systemic injustices and social stigmatization are likely to leave TGD individual, particularly black trans and gender diverse people hesitant to report their gender identity to a surveyor (Kennel et al., 2019; Larkin et al., 2005; National Research Council (US) Panel on DHHS Collection of Race and Ethnic Data, 2004; Samuels et al., 2018; Vermeir et al., 2018). Justified mistrust of the medical field due to consistent medical apartheid leaves the impetus on health care and government officials to invest in the care of those victimized by systemic oppression. Inadequate data collection leaves major gaps in identifying the needs of TGD individuals within the healthcare setting (Deutsch & Buchholz, 2015; Kress et al., 2021; Kronk et al., 2022) One such gap is a complete lack of data collection on TGD populations, eliminating the possibility to identify health disparities in emergency services. NEMSIS, the National Emergency Medical Services Information System, collects patient care information on EMS activations will not start collecting data on TGD populations until 2023. As the health conditions prevalent amongst TGD individuals are known to lead to activating EMS and hospitalization, updating the evidence base for TGD populations is critical in the effort to identify the specific needs of TGD populations in the EMS environment is a critical first step (Bindman et al., 1995; *Emergency Department Visits for Ambulatory Care Sensitive Conditions: Insights Into Preventable Hospitalizations*, n.d.).

Conflicts of Interest

The author reports no conflicts of interest.

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