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Intricate Realities: Mental Health among Trans, Nonbinary, and Gender Diverse College Students

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Abstract: The rates of depression, anxiety, and suicidal ideation have all increased among U.S. college students. The utilization of mental health services has also risen. Transgender/gender diverse (TGD) young people experience high rates of mental health concerns. Little is known regarding TGD students needing mental health services, if they are accessing them, and the differences in who accesses these services. This pilot study (N = 121), conducted online from 2021 to 2022, explores the mental health of the TGD students and the mental health services at a Midwest public university. Of the total sample, 68.1% described their mental health as being fair or poor. Disabled students were significantly more likely to self-report a negative mental health status (76.7%) than their non-disabled peers (58.9%). Nonbinary individuals were also significantly more likely to indicate negative mental health (79.5%) than their binary counterparts (47.6%). Notably, 6.6% of students with current depression diagnoses, 7.1% with current anxiety diagnoses, 11.8% with recent thoughts of NSSI, and 3.3% with recent suicide attempts had not accessed mental health services. This study indicates the need for more accessible TGD affirming mental health care for TGD students, and opportunities for innovation with interventions to better support TGD college and university students.

Keywords: transgender; gender diverse; nonbinary; mental health; young adults; college students

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1. Introduction

The college years can be a difficult and complicated period. Many students have left their parents' homes for the first time; others may still be living at home while navigating increased responsibilities and expectations as they begin taking steps towards adulthood. Some of these students will decide college is not for them; others will leave the academy with a two or four year degree; some will continue on to postgraduate studies.

For many students, the academic environment may be a jarring change from their past experiences. Students are asked to think about their future from very early on, and in an increasingly uncertain world, facing the transition to college and thinking about what comes next can be daunting—potentially increasingly so in recent years. Indeed, between 2020 and 2021, more than 60% of U.S. college students met the criteria for one or more mental health problems, an increase of 50% from 2013 [1].

This paper focuses on transgender and gender diverse [TGD] students. The language around gender identity is constantly evolving, and different people may choose different terms. In this paper, we use *transgender and gender diverse*, abbreviated as TGD, to describe the whole set of students who identify as a gender other than the one they were assigned at birth. When speaking about these students' peers whose gender does align with their

sex assigned at birth, we use the term *cisgender* or *cis*. We may also speak about the social structures that privilege cisgender people as the social norm, using the term *cisnormativity*, and the structures that similarly privilege both cisgender and heterosexual people at once, using the term *cisheteronormativity*. We use the terms *binary trans*, *binary trans people*, or *binary transgender people* to describe transgender women and men whose gender aligns with a binary identity other than the one they were assigned at birth. We use *nonbinary* as a collective term when discussing students whose gender does not align with either male/masculine or female/feminine. Speaking collectively about all students who hold LGBTQIA2S+ identities, we use the phrase *sexual and gender minorities*, abbreviated as SGM. Wherever possible, we use the specific identities endorsed by the participants.

To date, there has been relatively little research into the health and mental health of transgender and gender diverse (TGD) students in undergraduate or graduate programs, although recent population research indicates that as many as 5% of people in this age range identify as a gender other than the one they were assigned at birth [2]. What work there is regarding this group of students suggests that they are at a higher risk of mental health issues than their cisgender peers [3,4]. This increased risk may be related to limited or inconsistent efforts at support and inclusion across different academic institutions and disciplines. The evidence suggests that two-year and religiously-affiliated institutions may lag behind others in creating supportive environments for trans students [5], and one study noted that only about ⅕ of schools of pharmacy offer information for LGBTQ students [6].

More is known about the mental health of TGD young people outside of the university setting. In a review of 44 articles investigating risk and resiliency in TGD young adults, Takersley and colleagues identified common risk factors for mental health issues, including prior experiences of abuse or discrimination, social isolation, and low self-esteem [7]. The factors related to mental health resilience and resistance included parent connectedness, social support, school safety and belonging, and being able to use their chosen name [7].

It is important to emphasize that TGD populations are not monolithic [8]. Among TGD high school students, nonbinary individuals experience higher rates of mental health concerns than do binary transgender people, as do those with marginalized sexual identities (e.g., students are not heterosexual) [9]. Nonbinary students have reported struggling to balance educating others about gender diversity and advocating for their identities with concerns about excess scrutiny; they particularly report valuing connections with other nonbinary individuals both on- and offline [10]. In college, nonbinary students face higher rates of harassment, sexual assault, and mental health issues than their cisgender and binary trans peers [11].

Over the past three years, the COVID-19 pandemic has had huge and unforeseen impacts on the experiences of all college and university students (and everyone else, for that matter). For TGD students, COVID has led to a loss of protective social connectedness, and some have had to return to living with unsupportive families [12]. However, some studies have found that as compared to their cisgender LGBQ peers, TGD college students reported less anxiety during the pandemic than before, potentially because the switch to more online interaction reduced their experiences of stress related to navigating a cisnormative world [13]. This trend may also be related to the increased utilization of online social connection for some TGD students, particularly those with nonbinary gender identities [10].

The divergent experiences and mental health outcomes of TGD students and their cisgender peers, as well as the discrepancies between nonbinary and binary transgender students, may be understood through different theoretical lenses. In this paper, we draw on previous work extending minority stress theory to transgender people [14] and to nonbinary people particularly [11]. Minority stress models hold that those who have marginalized identities often experience a higher risk of negative health and mental health outcomes due to the specific stress of navigating a world that is hostile to them, leading to directly stressful events such as harassment as well as increased stress due to the need to maintain vigilance about safety and risk, and stress related specifically to internalized negative attitudes [15].

Prior work has established the increased risk of both overt discrimination, harassment, and assault for TGD and particularly nonbinary students; these students' risks of poor mental health outcomes can easily be conceptualized through a minority stress model [11,14].

In order to understand the ways in which minority stress is undergirded, we must also look at how TGD individuals experience oppression from a larger theoretical perspective. To this end, we also draw on social dominance theory [16,17]. Social dominance theory holds that stable societies enforce hierarchies of power through three systems: an age system, in which adults have power over children; a gender system, in which men have disproportionate power as compared to women; and an 'arbitrary set' system, in which, across cultures, different socially-constructed groups are elevated or devalued based on features such as racialization, physical or cognitive ability, sexual orientation, etc. [16]. The age and gender systems are viewed as universal, existing across cultures, whereas the arbitrary set system is dependent on historical and cultural context; TGD students would, then, be viewed primarily through the lens of this arbitrary set system, rather than the gender system, although for binary trans people the gender system could certainly come into play. Social dominance theory also recognizes that people in groups with greater social power and status also tend to have a higher degree of social dominance orientation (SDO)—that is, they more highly endorse the existing system of stratified social power from which they benefit [16]. Social dominance theory has been applied to heterosexism and homophobic attitudes and the strategies queer people use to navigate and resist these forces [18,19], and can logically be extended to the experiences of TGD students in navigating a cisnormative educational experience.

While minority stress models may accurately capture the difficulties that marginalized people face in navigating a society that is hostile and oppressive toward them, and social dominance theory explains how this oppression is operationalized, neither theory speaks to the strengths that individuals bring to bear in living their lives with resilience and resistance. TGD people often have had to become resilient in the face of such oppressive structures and interactions [20], yet perhaps more importantly, many TGD individuals, especially young TGD people, live their authentic lives as a form of resistance to these structures and beliefs [21]. We believe we cannot only speak to the negative impacts of minority stress without also emphasizing the beautiful, creative, and full lives lived by so many TGD people as a foil to these harms [22].

To our knowledge, no previous work has focused exclusively on the overall health and wellbeing of TGD students specifically. Some work has focused on the needs of SGM students across schools [23], or explored SGM students as subsets of national samples [3,4], but these do not always investigate TGD student outcomes. Moreover, despite the great differences in risk and experience between TGD and cisgender sexual minority students (see Atteberry-Ash and colleagues [24]), some research into college student mental health continues to treat "LGBT" students as a single group, at times even claiming to speak to this entire diverse set of students without actually including any TGD participants [25]. The present work draws on data gathered only from students who endorsed a gender identity that differed from their sex assigned at birth, and provides new insights into the diversity of experiences among TGD students, particularly the differences between nonbinary and binary transgender students. As such, this work begins—but only just begins—to fill a critical gap in the literature.

2. Materials and Methods

The study used an electronic survey hosted through a secure University of Michigan Qualtrics account to gather data about TGD undergraduate and graduate students. The items for the survey were initially designed by one of the PIs, Shanna Kattari (a nonbinary social work scholar), members of the university health services team who co-created this project, and staff at both the campus LGBTQ center and the campus counseling program. These items were then shared with focus groups of TGD students (both undergraduate and graduate students) whose feedback was integrated. The final survey included both

quantitative closed items and several open-ended qualitative questions focusing on health, mental health, COVID impact, access to trans affirming providers, sexual health practices, support networks, self-care, and embodied experiences. For some demographic questions (e.g., gender identity), participants were given open-ended spaces to define their identities as well as closed "select the best fit" items.

We want to note that our study team was predominantly white, with one Latinx individual. Four of us, including the first two authors, are trans, nonbinary, and/or genderqueer, with a variety of sexual orientations. The initial team was made up of researchers, therapists, healthcare professionals, members of the campus LGBTQ center, members of the campus counseling center, and a PhD student (with some of us holding multiple roles!). We ran focus groups with TGD undergraduate and graduate students to obtain feedback on the wording of the study, the study's goals, and how it should be framed, and made significant changes to our plans based on this feedback.

The survey was available electronically from October 2021 to January 2022, and took approximately 30 minutes to complete. All of the respondents received a $10 Amazon e-gift card; the information for the gift card distribution was collected in a separate secure Qualtrics survey to ensure that no identifying information could be linked to participant responses. Prior to the distribution, the survey was deemed exempt from review by the University of Michigan Institutional Review Board. We were unable to obtain administrative permission to contact the entire student body, but were allowed to distribute the survey to a random selection of 2500 students from across campus. Because we were not able to reach out to all students, we also recruited a convenience sample by working with campus LGBTQ+ organizations, who shared it with their membership and networks.

Following data collection, we explored the differing access to health and mental health care services between TGD students of different gender identities, and conducted a number of categorical analyses to explore the relative likelihoods of various health and mental health outcomes among the different groups. We examined the differences in the likelihood of experiencing poor mental health outcomes including diagnoses of depression and anxiety; thoughts and actions of non-suicidal self-injury (NSSI); suicidal ideation; and possible suicide attempts between those students who had and had not ever accessed mental health care. Additionally, we explored differences in the likelihood of a positive or negative subjective mental health rating between students with and without a disability; undergraduates and graduate students; binary transgender and nonbinary students; and students who had and had not ever accessed mental health care.

3. Results

3.1. Demographics

A primary aim of this study was to simply learn more about the students who identify as TGD at the University of Michigan; the participants' demographics are presented in Table 1. After excluding obviously fake responses (e.g., a response which filled out the open-ended space for gender identity as "sneedgender;" sexual orientation as "sneedsexual;" and spirituality as "sneedist") and those who completed less than 50% of the survey, 121 students participated, ranging in age from 17 to 35 (M = 21.95, SD = 3.73). In 2021, total enrollment at the University of Michigan was 47,659 students [26]; approximately 0.25% of the student body participated. Given recent findings from the PEW research center that approximately 1.6% of all adults in the United States are transgender or nonbinary [27], this indicates that approximately one-sixth of the TGD students on campus participated in our survey. Students who identified as women (n = 7) or trans women/transfeminine (n = 11) were the smallest gender subgroup, with 18 respondents making up 15% of the sample, followed by men (n = 11) and trans men/transmasculine students (n = 15); these 26 participants were about 21.7% of the sample.

Table 1. Participant demographics among full sample and different gender identities [1].

Demographic Characteristics	Full Sample *n* = 121	Woman/Trans Woman/ Transfeminine *n* = 18 (15%)	Man/Trans Man/ Transmasculine *n* = 26 (22%)	Nonbinary/ Gender Queer/Agender *n* = 76 (63%)
Race	(*n* = 120)	(*n* = 18)	(*n* = 26)	(*n* = 75)
American Indian/Native American/ Alaska Native/First Nations	1 (0.8%)	0 (0%)	0 (0%)	1 (1.3%)
Asian/Asian American	14 (11.7%)	1 (5.6%)	1 (3.8%)	12 (16%)
Black/African American	7 (5.8%)	3 (16.7%)	2 (7.7%)	1 (1.3%)
Latinx/Chicanx/Hispanic	5 (4.2%)	0 (0%)	3 (11.5%)	2 (2.7%)
Middle Eastern/North African	4 (3.3%)	2 (11.1%)	1 (3.8%)	1 (1.3%)
Multiracial/Biracial	12 (10%)	3 (16.7%)	3 (11.5%)	6 (8%)
White	77 (64.2%)	9 (50%)	16 (61.5%)	52 (69.3%)
Sexual Orientation	(*n* = 120)	(*n* = 18)	(*n* = 25)	(*n* = 76)
Asexual/Demisexual/Greysexual	9 (7.5%)	1 (5.6%)	2 (8%)	5 (6.6%)
Bisexual	38 (31.7%)	7 (38.9%)	7 (28%)	24 (31.6%)
Gay/Lesbian	24 (20%)	2 (11.1%)	8 (32%)	14 (18.4%)
Heterosexual/Straight	2 (1.7%)	1 (5.6%)	1 (4%)	0 (0%)
Pansexual/Omnisexual	13 (10.8%)	2 (11.1%)	0 (0%)	11 (14.5%)
Queer	34 (28.3%)	5 (27.8%)	7 (28%)	22 (28.9%)
Student Status	(*n* = 121)	(*n* = 18)	(*n* = 26)	(*n* = 76)
Undergrad	81 (67%)	12 (66.7%)	19 (73.1%)	49 (64.5%)
Master's Student	18 (14.9%)	2 (11.1%)	4 (15.4%)	12 (15.8%)
Law Student	1 (0.8%)	0 (0%)	0 (0%)	1 (1.3%)
Doctoral Student	10 (8.3%)	3 (16.7%)	3 (11.5%)	4 (5.3%)
Dentistry Student	1 (0.8%)	0 (0%)	0 (0%)	1 (1.3%)
Pharmacy Student	3 (2.5%)	1 (5.6%)	0 (0%)	2 (2.6%)
Nursing Student	3 (2.5%)	0 (0%)	0 (0%)	3 (3.9%)
Medical Student	4 (3.3%)	0 (0%)	0 (0%)	4 (5.3%)

[1] Due to rounding, percentages may not total to 100.

Somewhat surprisingly, by far the largest group of respondents identified as nonbinary, genderqueer, or agender, with 76 students (75 nonbinary or genderqueer, 1 agender) representing 63.3% of the sample. The participants reported a wide range of sexual orientations, with no one sexuality describing a majority of the respondents. Bisexual students were the largest group, with 38 participants making up 31.7% of the students that provided sexuality information, followed by 34 students, or 28.3% of the respondents, who identified as queer, and 13 students, or 10.8%, who identified as pan- or omnisexual. Notably, only 2 respondents out of the 120 who provided their sexuality, or 1.7%, identified as heterosexual or straight—rather fewer than the 9 students, or 7.5%, who identified as being on the asexual spectrum (asexual, demisexual or greysexual). More than half of the sample (51.2%) reported that they had a disability (see Table 2), which is close to twice as high as the rate of disability in the general population, about 26% [28].

While the majority of the students that provided racial/ethnic identity information (77, or 64.2%) identified as white, our sample included respondents from a large variety of racial backgrounds; Asian/Asian American students were the next largest group, with 14 respondents making up 11.7% of the responses, followed by multi- or biracial students, 12 of whom made up 10% of the responding students. The majority of the respondents were undergraduates, with 81 students making up 67% of the responses, but post-secondary students of all gender identities also participated; notably, doctoral students, of whom 10 made up 8.3% of the sample, and masters students, of whom 18 made up 14.9% of the full sample, were present among the respondents from each gender identity group. Nonbinary students also responded from dentistry, pharmacy, nursing, and medicine, and one trans feminine participant reported that she was a pharmacy student.

3.2. Analyses

Given that these unique data come from a pilot sample of trans and gender diverse students, we used Fisher's exact test rather than Chi-Square tests of independence to explore the differences between the groups. Fisher's exact test leads to somewhat conservative (i.e., skewed high) *p*-value estimations, but is robust to comparisons in which the minimum expected value in some cells may be lower than five [29], which was particularly valuable for our relatively small and diverse sample. Due to the exploratory nature of this work, we conducted a number of tests to explore the differences among the groups; we have therefore reported both the raw significance estimates produced by our Fisher's exact tests as well as the significance estimation after conducting a Bonferroni correction on all of the significant values in the tables.

After exploring the broad demographics, we examined how the full sample and the respondents from differing gender identities described their health, mental health, and access to healthcare; these are reported in Table 2—the percentages given are of the portion of the sample responding to each item. While nearly all of the students reported having health insurance, only about two-thirds reported having a primary care physician; of these, most reported that their PCP was not affiliated with University Health Services (UHS). Trans women/transfeminine students were the most likely to have a PCP, with only two students (11.1%) reporting that they did not; nonbinary/genderqueer students were the least likely, with 27 respondents (37% of the responding students in this group) reporting that they did not have a PCP. We conducted 2 × 3 or 3 × 3 Fisher's exact tests to explore the differences between each group of students (women/trans, women/transfeminine; men/trans men, trans masculine; and nonbinary/genderqueer/agender) in current PCP access, current health insurance, current and past use of mental health care, and disability status. Of these, only disability status was significant, $p < 0.05$. Notably, while this result suggests a significant difference in the experience of disability between these groups of students, cross tables greater than 2 × 2 are omnibus tests. Because Fisher's exact test relies on repeated sampling rather than exact counts, standardized residuals cannot be used to further identify where these differences may lie. Additionally, this result did not remain significant after adjusting for multiple tests.

Table 2. Participant Health and Mental Health [1].

	Full Sample N = 121	**Woman/Trans Woman/Trans Feminine *n* = 18 (15%)**	**Man/Trans Man/Trans Masculine *n* = 26 (22%)**	**Nonbinary/Gender Queer/Agender *n* = 76 (63%)**
Current PCP	(*n* = 117)	(*n* = 18)	(*n* = 25)	(*n* = 73)
Yes, at USH	22 (18.8%)	5 (27.8%)	5 (20%)	12 (16.4%)
Yes, not at UHS	54 (46.2%)	11 (61.1%)	9 (36%)	34 (46.6%)
No	41 (35%)	2 (11.1%)	11 (44%)	27 (37%)
Health Insurance	(*n* = 116)	(*n* = 17)	(*n* = 25)	(*n* = 73)
Yes	114 (98.3%)	16 (94.1%)	24 (96%)	73 (100%)
No	2 (1.7%)	1 (5.9%)	1 (4%)	0 (0%)
Mental Health Care	(*n* = 116)	(*n* = 17)	(*n* = 25)	(*n* = 73)
Yes, currently	56 (48.3%)	9 (52.9%)	9 (36%)	38 (52.1%)
No, but I have in the past	42 (36.2%)	6 (35.3%)	11 (44%)	25 (34.2%)
No, never	18 (15.5%)	2 (11.8%)	5 (20%)	10 (13.7%)
Disability Status *	(*n* = 121)	(*n* = 18)	(*n* = 26)	(*n* = 76)
Have disability	62 (51.2%)	7 (38.9%)	9 (34.6%)	46 (60.5%)
No disability	59 (48.8%)	11 (61.1%)	17 (65.4%)	30 (39.5%)
Mental Health Rating	(*n* = 116)	(*n* = 17)	(*n* = 25)	(*n* = 73)
Poor	23 (19.8%)	2 (11.8%)	4 (16%)	16 (21.9%)
Fair	56 (48.3%)	5 (29.4%)	9 (36%)	42 (57.5%)
Good	25 (21.6%)	6 (35.3%)	9 (36%)	10 (13.7%)
Very Good	10 (8.6%)	4 (23.5%)	2 (8%)	4 (5.5%)
Excellent	2 (1.7%)	0 (0%)	1 (4%)	1 (1.4%)

[1] Due to rounding and missing data, percentages may not total to 100. *p* values are indicated by asterisk as follows: * $p < 0.05$.

Most of the students rated their own mental health as "fair" (48.3%) or "poor" (19.8%), and only two students in the entire sample (1.7% of the respondents) reported feeling that their mental health was "excellent". Moreover, there were clear differences in mental health ratings among the different gender student groups: the majority of the trans women/trans feminine respondents reported that their mental health was "good" (35.3%) or "very good" (23.5%), whereas a majority of the nonbinary/genderqueer students reported their mental health as "poor" (21.9%) or "fair" (57.5%), with less than 20% of these students reporting that their mental health was "good", "very good", or "excellent". The trans men/trans masculine respondents' mental health ratings fell between the two groups, with the majority of these students reporting their mental health as either "fair" (36%) or "good" (36%). Given the high percentage of negative mental health ratings, paired with the very good healthcare coverage in our sample (114 students representing 98.3% of the students responding to the question, a stark contrast to other TGD samples [30]), it is perhaps not surprising that the students were also very likely to be receiving mental health care, with 48.3% of the respondents reporting that they were currently accessing these services. It should be noted that due to the nature of our small sample, we were unable to assess these differences for statistical significance.

We explored the differences between diagnoses of depression and anxiety, as well as the experiences of thoughts about non-suicidal self-injury (NSSI), acts of self-injury, thoughts of suicide, and potentially lethal self-injurious acts (possible suicide attempts) among the students who had accessed mental health care in their life and those who never had (see Table 3). Students with a diagnosis of depression were significantly more likely to have accessed mental health care than not, $p < 0.001$, with an estimated odds ratio of 8.2, suggesting that those students with depression diagnoses were about eight times as likely to have accessed mental health care than never to have done so. The difference in anxiety disorders was slightly greater, with students who had received diagnoses of anxiety having about 9.5 times the odds of having accessed mental health care than not, $p < 0.0001$.

Table 3. Mental health care utilization among students with mental health diagnoses and related experiences [1,2].

	Depression *** ++	Anxiety *** ++	NSSI Thoughts *	NSSI Actions	Suicidal Thoughts	Possible Suicide Attempt *
Has not accessed MH care	6.6%	7.1%	11.8%	12.9%	15.1%	3.3%
Has accessed MH care	93.4%	92.9%	88.2%	87.1%	84.9%	96.7%

[1] p values are indicated by asterisk as follows: * $p < 0.05$, *** $p < 0.001$; Bonferroni-adjusted p values are indicated by crosses as follows: ++ $p < 0.01$. [2] Due to rounding, percentages may not total to 100.

Notably, other than with receiving specific diagnoses, which require a professional opinion, the differences in the lifetime usage of mental health care were smaller and less significant among students with mental-health-related symptoms and experiences. The differences in mental health care usage among the students with thoughts of NSSI were less dramatic, with an estimated odds ratio of 3.2, $p < 0.05$. The difference in mental health care access among the students with possible suicide attempts between those who had and had not accessed mental health care was also significant; those who had done so had an estimated seven times odds of engaging in potentially lethal self-harm than those who had not, $p < 0.05$.

The differences in active non-suicidal self-injury or thoughts of suicide were not significant, $p = 0.43$ and 0.75, respectively, indicating that the students who had these experiences were not significantly more likely to have previously or currently accessed mental health care; put another way, the students who did not and had never had mental health care were not significantly *less* likely to have thoughts of suicide or engage in NSSI. This suggests that there may be a significant number of students in our population who might benefit from mental health care, but have not tried to access these services.

We next explored how the different groups of students had rated their own mental health. To minimize cell-size issues, we dichotomized the mental health ratings as either negative (subjective mental health ratings of *poor* or *fair*) or positive (subjective mental health ratings of *good*, *very good*, or *excellent*). We also dichotomized the groups of students, exploring the differences between those who did and those who did not report having a disability, undergraduate and graduate students, students with binary transgender identities and those with nonbinary (including agender or genderqueer) identities, and those who had vs. those who had not accessed mental health care. Again, we utilized Fisher's exact test to ensure our analyses would be robust in the cases where, despite dichotomization, our minimum expected value was less than five. These comparisons are displayed in Table 4.

Table 4. Mental health ratings by student disability status, student status, gender identity, and mental health care [1,2].

		Disability Status *		Student Status		Gender Identity *** ++		Mental Health Care	
		Dis-abled	Not Disabled	Graduate Student	Undergrad Student	Binary Trans-gender	Non-binary	Has accessed MH Care	Has not accessed MH Care
Mental Health Rating	Negative	76.7%	58.9%	67.6%	68.4%	47.6%	79.5%	70.4%	55.6%
	Positive	23.3%	41.1%	32.4%	31.6%	52.4%	20.5%	44.4%	29.6%

[1] p values are indicated by asterisk as follows: * $p < 0.05$, *** $p < 0.001$; Bonferroni-adjusted p values are indicated by crosses as follows: ++ $p < 0.01$. [2] Due to rounding, percentages may not total to 100.

There was a notable significant difference in the likelihood of positive mental health ratings between binary trans and nonbinary students, such that nonbinary students were only about 0.2 times as likely as binary trans students to rate their mental health as *good*, *very good*, or *excellent*, $p < 0.001$. There was also a significant, but not large, difference in the likelihood of a positive mental health rating between students who did and did not report being disabled, such that disabled students were estimated to have odds of rating their mental health positively only about 0.4 times as often as those who were not disabled, $p < 0.05$. There were no significant differences in the mental health ratings based on student status (graduate vs. undergraduate) or whether or not the students had previously or were currently accessing mental health care.

4. Discussion

Generally, the self-reported mental health of this population is of most concern, given that over two-thirds of these students noted that their mental health was fair or poor. Data from the Centers for Disease Control indicate that 7.3–15.8% of adults in the U.S. would say that they had poor mental health at least half of the last 30 days (12.2% in Michigan, the state where this survey took place) [31], while 19.0% of our sample currently rates their mental health as poor. Experiences of minority stress and living in a

transphobic society, especially during a year in which over 250 anti-LGBTQ and particularly anti-trans bills were introduced in state legislatures [32], may play a role in this. This is also in line with the previously discussed concept of social dominance theory, in which TGD are marginalized by cisgender individuals who are more comfortable with maintaining inequitable, ciscentric systems of power.

Of the students that had diagnosed depression, 6.6% had not accessed mental health services. There were also significant differences between those who had and had not accessed mental health services in other areas; notably, 7.1% of those with diagnosed anxiety, 11.8% of those with thoughts of NSSI, and 3.3% of those with suicide attempts had not accessed mental health care. The differences in the diagnosis of depression and anxiety were significant even after conducting a Bonferroni adjustment, which makes sense: mental health care settings are the primary places students might receive mental health diagnoses. Indeed, it is perhaps more notable that such a large percentage of students who had *not* accessed mental health care carried such diagnoses as well, perhaps from a PCP or other healthcare professional. Similarly, neither actual NSSI nor suicidal thoughts were significant in assessing who had accessed mental health care. We want to emphasize that 15.1% of the sample who had thoughts of suicide had not accessed mental health services, and we see this as a clear area for change.

These results are particularly interesting, given that all students living in-state have free access to mental health care through the campus Counseling and Psychological Services. It seems it is not cost or a lack of local providers that keep them from pursuing such care when they have a need for it, which can be common barriers to accessing care, especially for TGD individuals [33]. Lipson and colleagues note that over a similar time period (2020–2021), across a national sample of U.S. college students, over 60% met the criteria for one or more mental health issues, and 50% of the students sought treatment of some kind [1], suggesting that there may be other reasons why TGD and particularly nonbinary students are less likely to access care even when it is freely available. Further research is needed to explore whether it is a lack of availability, a lack of trans affirming providers, fear of discrimination, stigma in receiving mental health care, or other barriers that are preventing TGD students with active mental health concerns from seeking care.

Ensuring that mental health services are free (as they are at our campus), are accessible with little to no wait time, and are trans affirming is absolutely crucial in supporting TGD students. Additionally, a preliminary review of the qualitative responses regarding how students take care of their health (to be addressed in a separate paper) suggests that thinking outside the box of traditional one-on-one therapy and offering virtual wellness groups, peer (TGD) led support groups, arts/poetry and mental health programs, adult versions of play therapy and adventure therapy, etc., all may be ways to better engage this population.

The TGD community is frequently lumped together under one umbrella, despite community members and peer reviewed research telling us there are significant gender differences in accessing health services [8]. The stark differences in the mental health ratings between binary trans students and nonbinary students underscore the importance of more customized interventions that support the unique needs of each person, rather than applying a one-size-fits-all approach to everyone with a TGD identity. Moreover, despite a similar percentage reporting having a PCP and having accessed mental health care (past or current) as students of other genders, the nonbinary respondents were significantly more likely to indicate negative mental health (79.5%) than their binary trans counterparts (47.6%); this difference remained significant after a Bonferroni adjustment. These results suggest that nonbinary students may be managing a higher degree of stress related to navigating a cisnormative society, or that therapists and other healthcare providers may not be sufficiently educated in how to provide affirming care to these individuals.

Student disability status was also significant in its relationship to mental health. TGD students with disabilities were significantly more likely to self-report a negative mental health status (76.7%) than their non-disabled peers (58.9%). While some of the relationship

between disability and negative mental health ratings may be due to a portion of this sub-group having mental health concerns that they consider to be part of their disabled identity, this finding indicates that there is a need to engage with the impact of ableism and marginalization on the mental health of disabled students. We also know that disabled individuals are increasingly isolated and experiencing heightened amounts of ableism during the COVID-19 pandemic [34], on top of the of discrimination TGD disabled people generally experience [35]. The impact of the intersecting experiences of marginalization on those who have both trans and disabled identities must be acknowledged, both in future research and by the clinicians supporting the mental health of disabled trans clients. Naming and engaging the combined effects of transphobia and ableism can be vital to supporting clients. Finally, we would like to draw attention to the diversity among this sample of TGD students. Research including transgender people often treats them as a single, undifferentiated group. However, the TGD community itself is not homogenous. In our sample, 64.2% identified as white, with over one-third reporting a variety of racialized identities, reinforcing the need for health services, and especially mental health services, to be grounded in anti-racist practices. These students were also very diverse in terms of sexual orientation, including 7.5% reporting an asexual or demisexual identity. This is a meaningful sub-group, but asexuality is rarely discussed and often misunderstood [36]. We encourage the practitioners and educators working with TGD individuals to seek out information about the ace spectrum to ensure they are meeting the needs of asexual and demisexual TGD students. Notably, less than two percent of our sample identified as straight or heterosexual. This is in stark contrast to the historical assumptions made about this population, such as previous standards of care which supported only allowing medical transition for individuals transitioning into a gender that would allow them to appear heterosexual. Moreover, the low rate of heterosexual identity should serve as a warning against the tendency for researchers to treat LGBTQ populations as a single group in which individuals may hold one, but not multiple identities; our study clearly indicates that a great majority of TGD students are also, additionally, LGBQ students. These findings support the growing understanding that many younger people are more fluid in their identities than those in previous generations; they also serve as a reminder that TGD students may be experiencing minority stress based on a number of different intersecting identities, and their choices to live vibrant, varying lives represent unique acts of resistance when faced with a cisheteronormative world.

As with all research, there are limitations to this study. The most obvious of these is that the small sample size impacted our ability to run robust statistical analyses, allowing us only a bird's eye view of these experiences and individuals. For future research, a larger sample of TGD students from multiple colleges and universities, ideally a diverse set of institutions (e.g., research intensive universities, community colleges, selective liberal arts colleges, historically Black colleges and universities, predominantly Hispanic institutions, tribal colleges, etc.) from different geographic regions, would allow not only for more statistical modeling, but would also ensure that these findings are increasingly generalizable across the different sub-populations of the TGD community. These data are also cross-sectional, representing a snapshot in time; longitudinal studies would be better situated to track the shifts in the mental health of TGD students across policy changes, world events, and over time. Lastly, because we were unable to contact the entire student body, this study

is biased towards those who already had some connection to the TGD community and supports. In having to use mostly existing networks to access participants, we likely missed TGD individuals who are not as open or out about their experiences, or who may not yet be plugged into the TGD affirming groups and resources on campus. We encourage future researchers to sample as broadly as possible, and administrators to consider the need to alert all students of the opportunity to respond to future surveys of TGD experiences, as not all these individuals are connected with community groups, and some may not yet be out. These students' needs and experiences are important, and targeted sampling will likely miss them.

5. Conclusions

This pilot study indicates that the overall mental health of TGD undergraduate, graduate, and professional students needs to be better supported, given the high rate of students self-reporting fair and poor mental health, as well as individuals with mental health concerns not accessing mental health care, despite no-cost services and campus-based availability. Moreover, we cannot rely on a universal approach to supporting these students, as different facets of their identities and lived experiences present differing needs and access to mental health care is not equal among TGD students. There is a need for further research into the experiences of TGD students across different types of academic settings to better understand these students' needs and the types of interventions that may be most effective in supporting this population.

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Data Availability Statement: The dataset used in the study can be accessed upon emailing the PI at skattari@umich.edu. If the data is used for research purposes, we ask that the original study's investigators be given the option to be included in the research process and publication.

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