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The Intersection of Transgender and Gender-Diverse Identity and Neurodiversity Among College Students: An Exploration of Minority Stress

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Abstract

Drawing on minority stress and intersectionality theory frameworks, this study used latent profile analysis to examine how distal (gender-related discrimination, gender-related rejection, neurodiverse discrimination) and proximal (internalized transphobia, stigma consciousness) stressors clustered together to form distinct patterns of identity-based stress among 190 transgender and gender-diverse (TGD) undergraduate students who are neurodiverse (ND). Four distinct profiles emerged: low stress (Profile 1, $n = 59$), high gender-related discrimination (Profile 2, $n = 56$), high

Published in *Psychology of Sexual Orientation and Gender Diversity*, 2022
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doi:10.1037/sgd0000603

Submitted July 11, 2021; revised July 26, 2022; accepted July 27, 2022.

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stress (Profile 3, $n = 43$), and high stigma consciousness (Profile 4, $n = 32$). Profile membership was associated with ND diagnosis, gender identity, race, and income. Multinomial logistic regression found that psychological distress, college self-efficacy, and GPA predicted profile membership. The implications of study findings for existing theory and clinical practice are discussed.

Public Significance Statement

This study investigated differences in identity-based stress experiences among TGD undergraduate students who are ND, identifying distinct patterns that grouped individuals together on the basis of these experiences. Demographically, we identified differences among the groups, and largely found that the risk of membership in the high minority stress groups was higher for worse levels of psychological distress and lower for better academic outcomes.

Keywords: transgender, gender diverse, neurodiversity, minority stress, latent profile analysis

College and university campuses are more demographically diverse than ever (Grawe, 2018), including increasing numbers of individuals who are transgender and gender diverse (TGD) and/or neurodiverse (The National Center for Education Statistics, 2019). In light of these demographic shifts, college and university administrators, support personnel, and mental health professionals must know how to best meet the needs of these diverse student populations. Throughout this article, we use the less stigmatizing term neurodiverse (ND) as an umbrella term to include individuals with neurocognitive, behavioral, and/or learning differences that exist within populations. For the present study, we specifically examine the experiences of individuals who have been diagnosed with a learning disability (LD; e.g., dyslexia, dyscalculia) and/or a neurodevelopmental disorder (e.g., autism spectrum disorder [ASD] and attention-deficit hyperactivity disorder [ADHD]).

Within institutions of higher education, TGD and/or ND individuals are marginalized in ways that significantly impact their social, emotional, and academic well-being and outcomes over the course of their education. For example, compared with their cisgender counterparts, TGD individuals face added challenges when navigating their place in society, including cisgenderism, cultural marginalization, self-stigma, as well as prejudice, discrimination, and victimization (Norton & Herek, 2012). These persistent challenges and forms of oppression

are ubiquitous in college and university settings, too (Messman & Leslie, 2019). Similarly, students with disabilities experience heightened levels of negative mental health outcomes, less academic success, and bias and stigma from instructors and peers (Dowrick et al., 2005; McLeod et al., 2019; Nevill & White, 2011; Rao, 2004; Sasson et al., 2017).

Although gender identity and neurodiversity are not mutually exclusive, TGD and ND individuals are often treated as separate populations, with little attention paid to understanding how multiple forms of marginalization (i.e., ableism and transphobia) may intersect to shape individuals' experiences on campus. Indeed, research suggests that neurodiversity exists in greater proportions within TGD populations compared with cisgender populations (Thrower et al., 2020). A recent review of five large, non-clinic studies found that TGD adults were 3.8 to 12 times more likely to have a diagnosis of autism, 1.8 to 7.3 times as likely to have a diagnosis of ADHD, and 3 times as likely to have a diagnosis of an LD compared with cisgender men and women (Warrier et al., 2020). Therefore, this study examines the intersections of marginalization among TGD undergraduate students who are ND and how variation in marginalization experiences relates to mental health and academic outcomes.

Theoretical Frameworks

Two theoretical frameworks that provide researchers with a foundation for understanding the complex lived experience of individuals with marginalized identities are minority stress theory (MST; Brooks, 1981; Meyer, 1995, 2003) and intersectionality theory (Crenshaw, 1991; Hill Collins, 1990). Minority stress theory asserts that people who are members of one or more marginalized groups experience psychological distress due to chronic, prolonged exposure to oppression. Identity-based oppression manifests in ways external, or distal, to the self, such as experiences of prejudice and discrimination, and internal, or proximal, to the self (Meyer, 2003). Proximal stress includes the internalization of stigma and other negative attitudes, anticipation or expectation of identity-based stress, and stress associated with disclosing identity to others. Internalized stigma and stigma consciousness, or the degree to which a person

expects to be negatively perceived on the basis of their identity (Pinnel, 1999), are two potent, proximal stressors that have been shown to contribute to adverse mental health among TGD individuals (Bockting et al., 2013). More recently, research has also investigated protective factors that ameliorate risk for adverse mental health in the context of identity-based stigma. Resilience, or the degree to which an individual feels able to overcome adversities, has been found to buffer the harmful effects of minority stress on TGD mental health and to contribute to psychological well-being (Matsuno & Israel, 2018; Puckett et al., 2019).

Although MST was first conceptualized and its tenets empirically tested among lesbian, gay, and bisexual (LGB) populations, it has since been adapted and applied to understanding mental health disparities among other minoritized populations, including people of color (POC; Alamilla et al., 2010; Wei et al., 2011), TGD individuals (Tebbe & Moradi, 2016; Testa et al., 2015), and economically disenfranchised (Gamarel et al., 2012) communities. MST has also been employed to examine oppression among ND populations, with research finding that minority stress among individuals with learning disabilities and autism is associated with psychological distress (Botha & Frost, 2020) and anxiety symptomology (Geiger & Brewster, 2018).

A related framework, but one that rejects a unitary analysis of categories, intersectionality theory maintains that it is imperative to consider and explicate the unique experiences associated with marginalization and privilege on the basis of multiple markers of social categories and identities, such as race and gender (Crenshaw, 1991; Hill Collins, 1990). Experiencing these intersecting forms of oppression (e.g., racism *and* sexism; cisgenderism *and* ableism) can contribute to disproportionately higher rates of negative mental health outcomes within multiply marginalized communities (Rosenthal, 2016). For example, recent research with people minoritized on the basis of sexual orientation and race found unique, additive, and interactive associations between multiple forms of oppression and psychological distress (Szymanski & Meyer, 2008; Szymanski & Sung, 2010; Velez et al., 2015).

Minority Stress Among TGD and ND College Students

At this time, research on the intersectional lived experiences of TGD individuals with ND identities is scant, particularly within higher education. While some research has examined the narratives of sexual and gender minorities with intellectual disabilities (e.g., Wilson et al., 2018), most research on the intersection of TGD identity and neurodiversity has focused on etiology and prevalence (Warrier et al., 2020). What has been garnered from the small body of literature that has focused on TGD student populations is that discrimination, harassment, lack of visibility/representation, and marginalization are ubiquitous within institutions of higher education (Finger, 2010; Rankin et al., 2010). For example, a large survey that assessed the experiences and perceptions of lesbian, gay, bisexual, transgender, and queer (LGBTQ) college students found that TGD students were much more likely to experience harassment and consider leaving the institution in which they were enrolled when compared with their cisgender contemporaries (Messman & Leslie, 2019). Moreover, when compared with their cisgender peers, TGD college students reported greater suicidal ideation, psychological distress, physical violence, negative mental health symptoms (e.g., anxiety, suicide, depression), and lower perceptions of safety (Messman & Leslie, 2019). Additionally, TGD college students have reported that staff and faculty are often uneducated about gender-diverse issues and that campuses lack TGD-specific programming (McKinney, 2005).

Likewise, the college experience has been shown to be aversive for students with disabilities and neurodevelopmental disorders. For example, alongside experiences of disability bias and stigma from instructors, advisors, and fellow peers (Dowrick et al., 2005; Nevill & White, 2011; Rao, 2004; Sasson et al., 2017), students with autism and ADHD report higher levels of negative mental health (i.e., depressive symptoms), emotional instability, academic concerns, and lower academic achievement compared to those without (Blase et al., 2009; George & Stokes, 2018; McLeod et al., 2019).

Present Study

The present study extends the extant literature by considering and examining minority stress experiences, resilience, and mental health and academic outcomes among TGD undergraduate students who are ND. Exploring and understanding intersectional oppression requires innovative analytical methods to capture the nuances of discrimination and stigma. Latent profile analysis (LPA), a type of mixture modeling, is a person-centered approach that affords researchers the ability to examine how multiple systems of oppression are distinctively experienced by individuals with intersecting, marginalized identities (Bauer et al., 2022; Frankfurt et al., 2016). Moreover, LPA allows researchers to also identify covariates that may predict group/profile membership and then consider potential differential outcomes across groups/profiles (Jason & Glenwick, 2016). Latent profile analysis is particularly promising for research that focuses on intersecting oppression, as it allows for the exploration of nuances in the heterogeneity of marginalization experiences. As such, latent profile analysis can be used to identify distinct typologies of individuals who may experience different levels and forms of oppression across multiple factors (Bouguila & Fan, 2020; Garnett et al., 2014). Additionally, multinomial logistic regression allows for an understanding of how important outcomes are associated with increased risk of profile membership. Informed by minority stress and intersectionality theories, the present study investigates patterns of distal (i.e., gender-related discrimination, gender-related rejection, neurodiverse discrimination) and proximal (i.e., internalized transphobia, stigma consciousness) stressors, and examines how these patterns in turn are associated with resilience, mental health (i.e., psychological distress), and academic outcomes (i.e., college self-efficacy, grade point average [GPA]).

The following research questions were explored for the present study: (a) What are the emergent patterns of distal and proximal stressors among TGD undergraduate students who are ND? (b) Who comprises the emergent profiles (e.g., What is the demographic composition of each profile)? and (c) How do mental health, academic outcomes, and resilience predict profile membership? Based on prior literature, we expect within-group variability in the pattern and level of marginalization to occur, such that distinct profiles will emerge

along differing levels of TGD and ND minority stress. Although our aim to identify who comprises these distinct profiles is exploratory, we generally expect the risk of belonging to profiles that have heightened patterns of TGD and/or ND stress will be higher for greater levels of psychological distress and lower for greater levels of resilience and academic outcomes (i.e., college self-efficacy, GPA).

Method

Participants

Participants ($N = 190$) were undergraduate students who were TGD, had a diagnosed neurodevelopmental disorder and/or LD, and were currently enrolled in a college/university within the United States. Responding to closed and open-ended questions, participants grouped themselves into different categories for age, diagnosis, gender identity, race, sexual orientation, income, and GPA. The demographic questions used for this study were modeled and adapted from previous research studies that have been conducted with TGD and ND communities. Regarding race and ethnicity, participants in the present study identified as White ($n = 101$; 53.2%), Hispanic/Latinx ($n = 42$, 22.1%), and Black/African American ($n = 21$, 11%). Regarding diagnosis, participants had a neurodevelopmental disorder ($n = 88$, 46.3%), learning disability ($n = 41$, 21.6%), and both a neurodevelopmental disorder and a learning disability ($n = 61$, 32.1%). Regarding gender identity, participants identified as transgender men ($n = 49$, 25.8%), transgender women ($n = 40$, 21.1%), trans ($n = 15$, 7.9%), gender nonconforming ($n = 6$, 3.2%), genderqueer ($n = 44$, 23.2%), and nonbinary ($n = 36$, 18.9%). Participants identified which age group to which they belonged (18–21; 22–25; 26+). See **Table 1** for a complete overview of all demographic information.

Procedure

Participants were recruited through announcements on campus-specific email listservs, postings to social media platforms and discussion forums (e.g., Facebook, Reddit). Recruitment materials outlined

Table 1 Participant Demographics

<i>Variable</i>	<i>%</i>	<i>N</i>
Age		
18–21	70	133
22–25	22.6	43
26+	7.4	14
Diagnosis		
Neurodevelopmental disorder	46.3	88
Learning disability	21.6	41
Both	32.1	61
Gender identity		
Transgender men	25.8	49
Transgender women	21.1	40
Trans	7.9	15
Gender nonconforming	3.2	6
Genderqueer	23.2	44
Nonbinary	18.9	36
Race		
White	53.2	101
Hispanic/Latinx	22.1	42
Black/African-American	11	21
Hawaiian/Pacific Islander	1.1	2
Asian/Asian-American	4.7	9
American Indian/Native	1.6	3
Mixed	4.7	9
Other	1.6	3
Sexual orientation		
Gay	11.6	22
Lesbian	20.5	39
Bisexual	15.8	30
Queer	10	19
Questioning	17.4	33
Asexual	17.14	33
Pansexual	3.2	6
Heterosexual	4.2	8
Income		
\$0 to \$24,999	51.6	98
\$25,000 to \$74,999	13.2	25
\$75,000 or more	35.3	67
GPA		
2.0 or lower	6.8	13
2.1 to 2.5	8.9	17
2.6 to 3.0	30.5	58
3.1 to 3.5	14.2	27
3.6 to 4.0	39.5	75

inclusion criteria and provided examples of various types of neurodiversity (i.e., learning disabilities, neurodevelopmental disorders). After answering standard screening questions, participants completed an online survey via Qualtrics. Participants were entered into a lottery for one of 10, \$25 e-gift cards. Two-hundred participants began the survey, but seven completed less than half of the survey measures, and three provided responses to survey questions that were identified as outliers (i.e., inconsistent or extreme responses). There were not missing data for any of the variables used in the present research. This study was approved by the Institutional Review Board at the University of Nebraska- Lincoln.

Measures

Demographic Questions

Participants identified their age, diagnosis, gender identity, etc., by responding to open-ended questions that gave them the opportunity to select the best-fitting identity label(s) or option(s) for themselves. Sample demographic questions are “What is your gender identity” and “What is your race/ethnicity?” Participants were also asked to self-report their diagnosis (i.e., neurodevelopmental disorder, learning disability, or both).

Gender-Related Discrimination, Gender-Related Rejection, and Internalized Transphobia

Three subscales of the Gender Minority Stress and Resilience Measure (GMSRM; Testa et al., 2015) were used in the present study: the five-item gender-related discrimination (GRD) subscale, the six-item gender-related rejection (GRR) subscale, and the eight-item internalized transphobia (IT) subscale. Sample items for the three subscales respectively are: “Because of my gender identity or expression, I have had difficulty finding a bathroom to use when I am out in public”; “I have been rejected at school or work because of my gender identity or expression”; and “When I think of my gender identity or expression, I feel depressed.” GRD and GRR items were rated using the following options: *never*; *yes, before age 18*; *yes, after age 18*; and *yes, in*

the past year, recoded as 0 for *never* and 1 for any other response. IT scores were rated on a 4-point Likert-type scale, from 1 = *strongly disagree* to 4 = *strongly agree*. Regarding convergent validity, The GRD, GRR, and IT have been positively associated with perceived general life stress among TGD adults (Testa et al., 2015). The GRD, GRR, and IT subscales have demonstrated internal reliability, yielding Cronbach alphas of .61, .71, and .91, respectively, in a sample of TGD adults (Testa et al., 2015). In the present study, Cronbach's alphas were .81, .80, and .91, respectively.

ND Discrimination

The Learning Disability/Difficulty Perceived Discrimination Scale (LD-DPDS) is a 17-item scale that assesses experiences of discrimination (Geiger & Brewster, 2018). For the purposes of this study, the LDDPDS, renamed ND discrimination (NDD), was adapted to be more broadly inclusive of individuals who are neurodiverse. Prior to administration, the adapted scale was reviewed by an expert in ADHD. For example, the phrase *learning disability* was replaced with *learning disability and/or neurodevelopmental disorder* for all items. A sample item on the modified version is "People have talked down to me because I have a learning disability and/or neurodevelopmental disorder." Items are rated on a 6-point scale, from 1 = *this has never happened to me* to 6 = *this has happened to me almost all of the time (more than 70% of the time)*. The scale demonstrated convergent and concurrent validity via observed associations with awareness of stigmatization and collective self-esteem in a sample of adults with learning disabilities or ADHD (Geiger & Brewster, 2018). The original LDDPDS scale showed good internal reliability, yielding a Cronbach's alpha of .92 in a sample of adults with learning disabilities (Geiger & Brewster, 2018). In the present study, Cronbach's alpha was .94.

Stigma Consciousness

The Stigma Consciousness Questionnaire (SCQ) is a 10-item measure that assesses perceived and actual experiences of stereotyping on behalf of those who are targets of stereotypes. Two adapted versions of the SCQ were used for the purpose of this study: (a) Pinel's (1999) SCQ

for gay men and lesbian women and (b) Daley and Rappolt-Schlichtmann's (2018) adaptation, the Stigma Consciousness Questionnaire-Learning Disability (SCQLD). The SCQ for gay men and women was modified by replacing the word *homosexuals* with the phrase *transgender and gender-diverse people*, renamed TGD Stigma Consciousness (TGDSC). Additionally, the phrase *sexual preference* and *homophobic* were replaced with *gender identity* and *transphobic*. Finally, the words *heterosexual* and *heterosexuals* were replaced with *cisgender* or *cisgender people*. A sample item on the modified version of the SCQ is "I never worry that my behaviors will be viewed as stereotypical of TGD people." Items were rated on a 7-point Likert scale, from 1 = *strongly disagree* to 7 = *strongly agree*. The original SCQ demonstrated positive correlations with overall self-consciousness as well as private and public self-consciousnesses (Pinel, 1999). The original SCQ demonstrated good internal reliability, yielding a Cronbach's alpha of .81 in a sample of gay and lesbian adults (Pinel, 1999). In the present study, Cronbach's alpha was .91.

The SCQ-LD is a 12-item measure that was adapted from the original SCQ to account for adolescents with LDs (Daley & Rappolt-Schlichtmann, 2018). The SCQ-LD was adapted by replacing *learning disability/learning disabilities* with *neurodevelopmental disorder and/or learning disability/neurodevelopmental disorders and/or learning disabilities* and renamed ND Stigma Consciousness (NDSC). Additionally, the word *kid(s)* was replaced with *people*. A sample item is "Most people have negative views about people with neurodevelopmental disorders and/or learning disabilities." Items are rated on a 4-point scale, from 1 = *strongly disagree* to 4 = *strongly agree*. The SCQ-LD was positively correlated with self-consciousness and negatively correlated with self-perception. The SCQ-LD demonstrated good internal consistency, yielding a Cronbach's alphas of .82 in a sample of adolescents with learning disabilities (Daley & Rappolt-Schlichtmann, 2018). In the present study, Cronbach's alpha was .87.

Resilience

The Brief Resilience Scale (BRS) is a six-item measure that assesses an individual's ability to persevere through or recover from difficult life events. A sample item from the BRS is "I tend to bounce back quickly

after hard times.” Items are rated on a 5- point Likert scale, from 1 = *strongly disagree* to 5 = *strongly agree*. Item scores are totaled with higher scores indicating greater resilience. The BRS was positively associated with resilience measures, purpose of life, social support, and optimism, while negatively associated with self-blame, pessimism, alexithymia, and behavioral disengagement in samples of undergraduate students and rehabilitation patients (Smith et al., 2008). The BRS has demonstrated good internal consistency, yielding a Cronbach’s alpha of .92 in a sample of TGD individuals (Bariola et al., 2015). In the present study, Cronbach’s alpha was .69.

Psychological Distress

The Kessler Psychological Distress Scale (K10; Kessler et al., 2002) is a unidimensional 10-item scale that measures an individual’s general psychological distress over the last 30 days. A sample item is “In the past 4 weeks, about how often did you feel so nervous that nothing could calm you down?” The K10 is rated on a 5-point scale, from 1 = *none of the time* to 5 = *all of the time*. Item scores are totaled, with higher scores indicating higher psychological distress. Convergent validity of the K10 has been demonstrated with other measures of psychological and mental distress (e.g., General Health Questionnaire; Andrews & Slade, 2001; Cornelius et al., 2013). The K10 has been showed to be good internal consistency, yielding a Cronbach’s alpha of .93 in a nationally representative sample of adults (Kessler et al., 2002). In the present study, Cronbach’s alpha was .90.

College Self-Efficacy

The College Self-Efficacy Inventory (CSEI; Solberg et al., 1993) is a widely used 19-item measure of college students’ self-efficacy, consisting of three subscales: course efficacy, roommate efficacy, and social efficacy. A sample item from the inventory is “ask a question in class.” Responses are measured on a 10-point Likert scale from 0 = *not at all confident* to 9 = *extremely confident*. The CSEI has been positively correlated with psychological distress, multicultural stress, social support, and acculturation in a sample of undergraduate students (Solberg et al., 1993). The CSEI has demonstrated good internal

consistency, with a Cronbach's alpha of .93 among a sample of Hispanic college students (Solberg et al., 1993). In the present study, Cronbach's alpha was .91.

Grade Point Average

GPA was measured by self-report and treated as an ordinal variable. Because data were collected while students were enrolled in courses, we asked participants to select the interval that best represents their current GPA: 1 = *under 2.0*; 2 = 2.1–2.5; 3 = 2.6–3.0; 4 = 3.1–3.5; 5 = 3.6–4.0. GPA is the most commonly used measure of academic success (York et al., 2015). Results from a meta-analysis have demonstrated the accuracy of self-reported GPAs among college students (Kuncel et al., 2005).

Results

Prior to analyses, test assumptions (distributive normality, multilinearity, multivariate normality) and descriptive statistics were examined for all study variables. We report descriptive statistics and bivariate correlations (Pearson's r for continuous variables and Kendall's Tau for GPA as an ordinal variable) for all study variables in **Table 2**. The distal (i.e., gender-related discrimination, gender-related rejection, and neurodiverse discrimination) and proximal (i.e., internalized transphobia, TGD stigma consciousness, and ND stigma consciousness) stress variables were positively associated with one another, with medium to large effect sizes (see Ellis, 2010), ranging from $r = .42$ to $.64$. The proximal and distal stress variables were positively associated with psychological distress and negatively associated with college self-efficacy with medium to large effect sizes ranging from $r = .34$ to $.67$. The proximal and distal stress variables were negatively associated with GPA with moderate to strong effect sizes ranging from $s = -.28$ to $-.44$.

Table 2 Bivariate Correlations Among All Study Variables

Variable	1	2	3	4	5	6	7	8	9	10
1. GR discrimination	—									
2. GR rejection	.64**	—								
3. Internalized transphobia	.54**	.53**	—							
4. ND discrimination	.46**	.53**	.52**	—						
5. TGD stigma consciousness	.47**	.54**	.38**	.51**	—					
6. ND stigma consciousness	.42**	.47**	.36**	.72**	.75**	—				
7. Resilience	.03	.00	.00	.05	-.14*	-.10	—			
8. Psychological distress	.43**	.51**	.39**	.61**	.61**	.67**	-.04	—		
9. College self-efficacy	-.34**	-.43**	-.46**	-.51**	-.55**	-.57**	.26*	-.54**	—	
10. GPA	-.40**	-.37**	-.44**	-.32**	-.33**	-.28**	.08	-.21**	.25*	—
M	0.61	0.64	1.98	3.00	4.52	2.63	3.12	26.98	104.55	3.71
SD	0.48	0.47	1.27	1.36	1.72	0.81	1.21	7.17	26.54	1.26
Cronbach α	0.81	0.80	0.91	0.94	0.91	0.87	0.69	0.90	0.91	

GR = gender-related; ND = neurodiverse; TGD = transgender and gender-diverse; GPA = grade point average; Kendall's Tau correlation coefficients were used for GPA.

* $p < .5$; ** $p < .01$

Latent Profile Analysis

LPA was conducted in Mplus (Version 8.7) to identify distinct, emergent profiles of the proximal and distal stress variables. Variable-specific assumptions (e.g., local independence, distribution normality) for LPA were met according to (Nylund et al., 2007). Negative log likelihood (-2LL), Akaike information criteria (AIC), Bayesian information criteria (BIC), sample size adjusted Bayesian information criteria (SABIC), entropy, Lo-Mendell-Rubin adjusted likelihood ration test (LMRT), and the bootstrapped likelihood ration test (BLRT) were used to assess each model. Lower values of the -2LL, AIC, BIC, and SABIC indices indicate better model fit. Higher entropy values indicate better separation and differentiation between profiles. The LMRT and BLRT are used to assess and compare improved model fit between neighboring models in order to determine if an addition class is warranted. A robust maximum likelihood estimator (MLE) and full information maximum likelihood (FIML) were used during model fit to generate unbiased parameter estimates. Due to a lack of previous literature on this population and its exploratory nature, we did not hypothesize a specific number of profiles and instead conducted tests of model fit until criteria failed to improve.

Table 3 Latent Profile Analysis Fit Indices

Profiles	-2LL	AIC	BIC	SABIC	Entropy	LMRT p-value	BLRT p-value	BIC Chg.
1	-3576.95	7177.90	7216.86	7178.85	—	—	—	—
2	-3334.21	6706.42	6768.12	6707.93	0.917	<.001	<.0001	448.745
3	-3289.41	6630.83	6715.25	6632.89	0.883	.479	<.0001	52.869
4	-3226.29	6518.58	6625.73	6521.20	0.93	.1845	<.0001	89.515
5	-3191.12	6462.25	6592.13	6465.43	0.944	.2424	<.0001	33.603
6	-3162.79	6419.59	6572.20	6423.32	0.954	.2485	<.0001	19.934
7	-3137.81	6383.62	6558.96	6387.91	0.962	.2859	<.0001	13.24
8	-3125.56	6373.13	6571.20	6377.98	0.731	.2667	.5499	12.24

Solution in **bold** is selected model. -2LL = negative log likelihood; AIC = Akaike information criteria; BIC = Bayesian information criteria; SABIC = sample size adjusted Bayesian information criteria; LMRT = Lo-Mendell-Rubin adjusted likelihood ration test; BLRT = bootstrapped likelihood ration test; BIC Chg. = change in Bayesian information criteria.

We fitted a one-profile model and then sequentially increased the number of profiles by one and, subsequently, evaluated whether adding a profile resulted in a superior solution. The LPA fit indices were examined for the one-profile through the eight-profile model (see **Table 3**). The -2LL, AIC, BIC, and SABIC decrease in value with each additional profile model. However, these indices decelerated significantly after the four-profile model. Entropy, an estimate of how distinct groups are from each other, was also higher for the four-profile model than the two- or three-profile model. However, there was divergence in statistical significance of the LMR and BLT for the four-profile model. In a simulation study, the BLRT was shown to outperform the LMRT (Nylund et al., 2007). Additionally, in cases where the significance of the LMR and BLRT diverge, Muthén and Muthén (2009) suggest examining changes in BIC. Change in BIC was greater from the three-profile model to the four-profile model than between any other profiles. Finally, the five- to seven-profile models resulted in profile counts that were too small to meaningfully interpret. Together, taking into account the fit indices, parsimony, interpretability, and significance tests, the four-profile solution was determined to be the best model. Thus, we used the four-profile model for interpretation and follow-up statistical analyses.

Standardized values (z-scores) were used to plot profile scores to better depict relative scores across study variables (see **Figure 1**; see online supplemental materials for further descriptive information). A label was assigned to each profile by a distinguishing characteristic

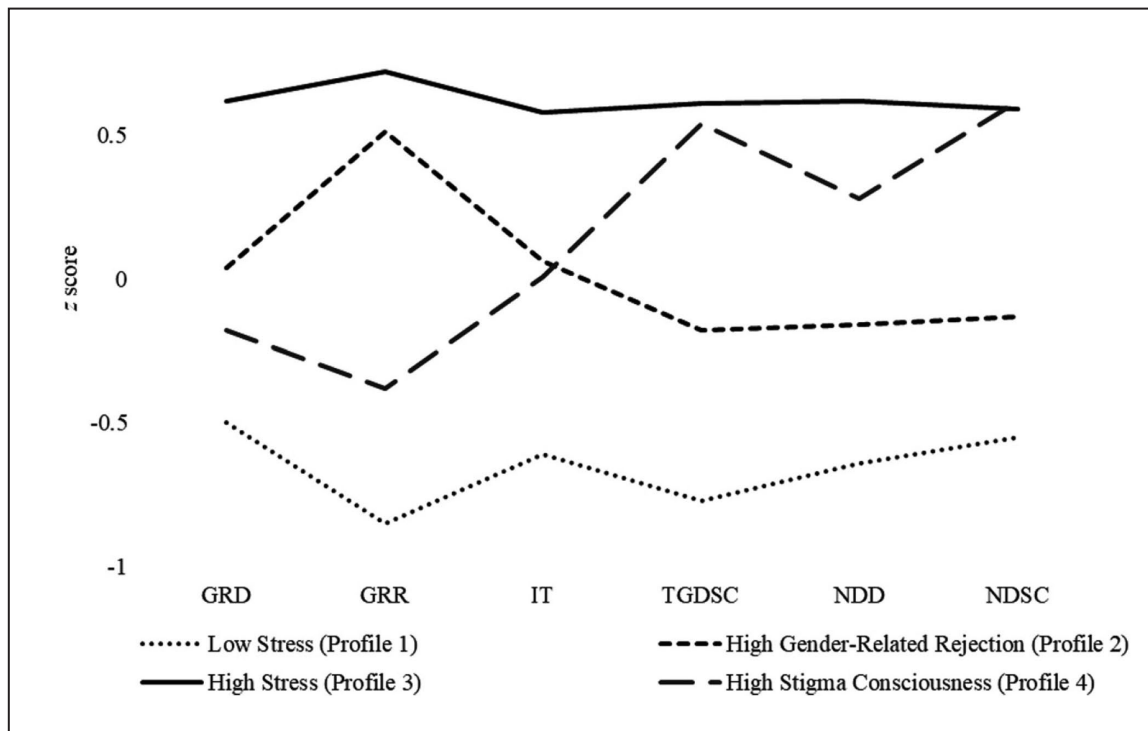


Figure 1 Z-Scores of Proximal and Distal Stress Variables by Profile Membership. Note: GRD = gender-related discrimination subscale; GRR = gender-related rejection subscale; IT = internalized transphobia subscale; NDD = neurodiverse discrimination; TGDC = TGD stigma consciousness; NDSC = ND stigma consciousness. Z scores were calculated using the profile means, sample means, and sample standard deviations.

in the pattern of distal and proximal stress variable scores. Profile 1, which represented 31.05% ($n = 59$) of the sample, was labeled low stress given the pattern of lower values across all of the distal and proximal variables. Profile 2, which represented 29.48% ($n = 56$) of the sample, was labeled high gender-related rejection given its higher score on that variable relative to the other profiles combined with an invariable lower pattern of values across the other proximal and distal variables. Profile 3, which represented 22.63% ($n = 43$) of the sample, was labeled high stress given the pattern of unwavering, higher scores across all the proximal and distal variables relative to other profiles. Finally, Profile 4, which represented 16.84% ($n = 32$) of the sample, was labeled high stigma consciousness given the higher scores on the TGD and ND stigma consciousness variables relative to the other profiles.

The resulting profiles in our model appeared to generally differentiate varying degrees of proximal and distal stress. To assess mean differences between profiles in the variables that were used to generate the profiles, we conducted analyses of variances (ANOVAs). Significant ($ps < .01$) differences emerged among the profiles between gender-related discrimination, $F(3, 186) = 67.57$; gender-related rejection, $F(3, 186) = 491.01$; ND discrimination, $F(3, 186) = 81.893$; internalized transphobia, $F(3, 186) = 38.437$; TGD stigma consciousness, $F(3, 186) = 112.02$; and ND stigma consciousnesses, $F(3, 186) = 116.55$. Tukey's post hoc tests were conducted to examine mean differences across the profiles. All Tukey's post hoc tests between the proximal and distal stress variables and the profiles were significant ($ps < .05$) with a medium effect size (Cohen, 1992) with a few exceptions. First, mean differences between the high gender-related rejection profile (Profile 2) and the high stigma consciousness (Profile 4) for internalized transphobia and gender-related discrimination were not significant ($p > .5$). Second, the mean differences between the high stress profile (Profile 3) and the high stigma consciousness (Profile 4) for TGD stigma consciousness and ND stigma consciousness were not significant ($p > .5$). See online supplemental materials for additional detail.

Demographic Covariates and Group Composition

Chi-square analyses were conducted in *SPSS* (Version 28) to examine the association of various demographic variables with profile membership. First, the link between diagnosis (i.e., neurodevelopmental disorder, learning disability, or both) and profile membership was significant, $\chi^2(6, n = 190) = 67.14, p < .001$ with a moderate effect size, Cramer's $V = .42$ (Cohen, 1988). Participants primarily had both a neurodevelopmental disorder and learning disability ($n = 41, 69\%$) in the low stress profile (Profile 1), a neurodevelopmental disorder ($n = 40, 71\%$) in the high gender-related rejection profile (Profile 2), and a neurodevelopmental disorder ($n = 21, 66\%$) in the high stigma consciousness profile (Profile 4). Participants had a relatively even distribution across diagnosis categories in the high stress profile (Profile 3).

Next, the link between gender identity (e.g., all gender identity categories) and profile membership was also significant, $\chi^2(15, n = 190) = 124.90, p < .001$ with a strong effect size, Cramer's $V = .81$

(Cohen, 1988). Specifically, participants were primarily genderqueer in the low stress profile (Profile 1) ($n = 41$, 69%), and transgender men ($n = 25$, 45%) and transgender women ($n = 17$, 30%) in the high gender-related rejection profile (Profile 2). Participants in Profiles 3 and 4 were evenly distributed across different gender identities. The link between race and profile membership was also significant, $\chi^2(21, n = 190) = 181.27, p < .001$ with a strong effect size, Cramer's $V = .97$ (Cohen, 1988). Participants were almost entirely White in the low stress profile (Profile 1; $n = 53$, 90%) and Profile 4 ($n = 26$, 81%). Participants in the high gender-related rejection profile (Profile 2) were primarily Latinx/Hispanic ($n = 37$, 66%). Participants in the high stress profile (Profile 3) were primarily Asian or Asian American ($n = 9$, 21%), Black or African American ($n = 15$, 35%), Hawaiian/Pacific Islander ($n = 2$, 5%), American Indian/ Native ($n = 3$, 7%), and Mixed ($n = 3$, 7%).

Finally, the link between income and profile membership was also significant, $\chi^2(21, n = 190) = 79.14, p < .001$ with a strong effect size, Cramer's $V = .85$ (Cohen, 1988). Most of the participants in low stress profile (Profile 1) had higher incomes (\$75,000 or more, $n = 42$, 71%), while participants in the high gender-related rejection profile (Profile 2) had lower incomes (\$0 to \$24,999, $n = 50$, 89%). Participants in Profiles 3 and 4 had incomes relatively evenly distributed between all income categories. No links with profile membership were found for sexual orientation, $\chi^2(21, N = 190) = 34.98, p > .05$, age, $\chi^2(21, N = 190) = 29.981, p > .05$, or sex assigned at birth $\chi^2(6, N = 190) = 5.253, p > .05$.

Multinomial Logistic Regression

Multinomial logistic regression was used in *Stata* to address the third research question regarding differences among the emergent profiles on outcomes of psychological distress, college self-efficacy, resilience, and GPA on the likelihood of profile membership. Specifically, multinomial logistic regression was conducted to regress all outcome variables (i.e., psychological distress, resilience, college self-efficacy, and GPA) on profile membership. The model demonstrated good fit: negative log likelihood ratio (-162.66), chi-square (191.28), $p < .001$. Relative risk ratios (RRR) are presented in **Table 4**.

Table 4 Multinomial Logistic Regression Model Estimating the Relative Risk Ratios of Profile Membership Based on Outcome Variables

Variables	High gender-related rejection (Profile 2; n = 56)				High stress (Profile 3; n = 43)				High stigma consciousness (Profile 4; n = 32)			
	RRR	SE	Z	[95% CI]	RRR	SE	Z	[95% CI]	RRR	SE	Z	[95% CI]
Psychological distress	1.54	0.11	5.83	[1.33, 1.78]	1.24	0.07	3.78	[1.11, 1.40]	1.33	0.09	4.23	[1.16, 1.52]
Resilience	0.85	0.15	-0.84	[0.59, 1.22]	0.90	0.13	-0.66	[0.68, 1.20]	0.70	0.13	-1.82	[0.48, 1.02]
College self-efficacy	0.93	0.01	-3.94	[0.90, 0.96]	0.97	0.01	-2.24	[0.95, 0.99]	0.94	0.01	-3.80	[0.91, 0.97]
GPA	0.20	0.06	-4.93	[0.11, 0.39]	0.43	0.10	-3.35	[0.27, 0.70]	0.41	0.12	-2.91	[0.22, 0.75]

Note: Profile 1 is the reference category. **Bold** indicates statistical significance ($p < .01$). RRR = relative risk ratio; CI = confidence interval.

The low stress profile (Profile 1), marked by the lowest levels of minority stress, was positioned as the reference group for the model. For each one-unit increase in the variable of focus (e.g., psychological distress), the RRR statistic represents a corresponding percentage of lower or higher likelihood for belonging to that profile compared with Profile 1. The RRR is a relative measure of effect size. According to Olivier et al. (2017), RRRs of 1.22, 1.86, and 3.00 correspond to small, medium, and large effect sizes, respectively. However, guidelines for interpreting size of effect of RRRs under one do not currently exist. Regarding psychological distress, a one unit increase in psychological distress was significantly associated with a 54% greater likelihood of belonging to the high gender-related rejection profile (Profile 2), 24% greater likelihood of belonging to the high stress profile (Profile 3), and 33% greater likelihood of belonging to the high stigma consciousness profile (Profile 4). Resilience was not uniquely associated with difference in relative risk across the four profiles. Regarding college self-efficacy, a one unit increase in college self-efficacy was significantly associated with a 7% lower likelihood of being in the high gender-related rejection profile (Profile 2), 3% lower likelihood of being in the high stress profile (Profile 3), and 6% lower likelihood of being in the high stigma consciousness profile (Profile 4). Lastly, a one unit increase in GPA was significantly associated with a 80% lower likelihood of being in the high gender-related rejection profile (Profile 2), 57% lower likelihood of being in the high stress profile (Profile 3), and 59% lower likelihood of being in the high stigma consciousness profile (Profile 4).

Discussion

This study adds to a growing body of research that moves beyond framing “dysfunction” and “struggle” as an individual problem to contextualizing disparities in academic and mental health outcomes among undergraduate students who experience multiple forms of marginalization. To date, empirical studies have not yet considered experiences and potential patterns of minority stress among TGD undergraduate students with ND identities. The present study aimed to address this gap by using a person-centered statistical approach (e.g., LPA) to identify distinct within-group patterns of oppression based on distal (i.e., gender-related discrimination, gender-related rejection, ND discrimination) and proximal (i.e., internalized transphobia, stigma consciousness) stressors. The study then examined the demographic composition of the emergent profiles and conducted analyses to determine the predictive likelihood of psychological distress, self-efficacy, GPA, and resilience by profile membership to evaluate outcomes and risks.

LPA revealed four distinct profiles based on participants’ experiences of oppression across axes of gender and neurodiversity. While the results parallel and reconfirm prior research exploring minority stress among individuals who are TGD (Testa et al., 2015) or ND (Geiger & Brewster, 2018), they also offer a more dynamic understanding of how multiple forms of oppression (i.e., cisgenderism and ableism) converge to shape experience within the larger population of TGD college students who are neurodiverse. For example, the profile patterns suggest that differences occur within the sample in overall levels of stress (i.e., low stress [Profile 1]; high stress [Profile 3]), as well as in the types of stress that some individuals have greater exposure to, such as individuals whose experiences were marked by greater levels of gender-related rejection compared to other forms of stress (high gender-related rejection [Profile 2]), and those who reported particularly higher levels of stigma consciousness compared to other forms of stress (high stigma consciousness [Profile 4]). These findings suggest that certain patterns cannot necessarily be organized, collectively, along a linear continuum of more versus less oppression. Together, the LPA profiles highlight that examining subgroups can help to identify heterogenous nuance via patterns and constellations of oppression across multiple axes of social positioning.

The deeper implications of this study's person-centered approach rests in meaningful differentiation among the profiles. After establishing profile membership based on the pattern of minority stress experiences and their intersections through LPA, the second and third aims of our study investigated the sociodemographic composition of each profile and differences among the profiles based on academic and mental health outcomes. Participants in the in the low stress profile (Profile 1) were predominately White, genderqueer, had both a neurodevelopmental disorder and learning disability, and were from higher socioeconomic backgrounds. This is juxtaposed to the high gender-related rejection (Profile 2), and high stress (Profile 3) profiles, which comprised participants who were racially-diverse and/or who reported lower incomes. Importantly, compared to Profile 1, the risk of membership in the high minority stress profiles (i.e., Profile 2, 3, and 4) was higher for worse levels of psychological distress and lower for better academic outcomes (i.e., college self-efficacy and GPA). This is not surprising given that past research has shown that higher minority stress is associated with increased negative outcomes, such as psychological distress (Hatzenbuehler, 2009; Lea et al., 2014) and GPA (Woodford & Kulick, 2015) among LGBTQ populations.

Research has also shown that marginalization occurring at the intersection of multiple identities is associated with higher minority stress (Balsam et al., 2011; McConnell et al., 2018). This observed pattern of outcomes and profile membership may be particularly exemplary in the high stress profile (Profile 3), which had the highest concentration of students minoritized along dimensions of race and ethnicity. With students of color subjected to institutional and structural racism, racial microaggressions, and other forms of racism-based stress in higher educational settings (e.g., Robinson-Perez, 2021), it is notable that the group of individuals who reported the highest levels of TGD and ND-related minority stress (high stress [Profile 3]) was composed primarily of students of color. Although not directly assessed in this study, these results further underscore the importance of considering the ways racism intersects to further exacerbate other forms of identity-related stigma.

Although all participants reported exposure to cisgenderism and ableism, almost a third of the overall sample (those in Profile 1) experienced only a more generalized patterns of low TGD and ND-related minority stress. Participants in the low stress profile (Profile 1)

were predominately White and had higher incomes. Previous research using cluster analysis indicates that privileges such as a White racial identity and higher levels education and income are associated with lower levels of depression and anxiety (Budge et al., 2016). Additionally, qualitative research suggests that having a White racial identity comes with privileges that may contribute to decreased experiences of minority stress (e.g., rejection) among TGD individuals (Rood et al., 2016). In other words, the pattern of distal and proximal stress and demographic composition of the low stress profile (Profile 1) relative to the other profiles, but the high stress profile (Profile 3) in particular, could reflect a number of potential privileges that may buffer against minority stress. Overall, the results of this study underscore the importance of understanding that cisgenderism and ableism affect people in different ways. This study's use of a typological, person-centered approach offers a unique, nuanced perspective on within-group variation that occurs among TGD undergraduate students who are ND.

Clinical Implications

Present study findings suggest that mental health professionals need to understand the ways in which TGD undergraduate students who are ND experience marginalization and oppression through and along multiple social dimensions. The implications of our results further underscore the ways in which racial and socioeconomic privilege may differentially shape and expose one to cissexist and ableist forms of marginalization. It is critical, therefore, for mental health professionals to consider issues of equity that exist within student populations to understand how relative positions of marginalization and/or privilege may shape individuals' risk for adverse mental health and academic outcomes.

A helpful tool that clinicians could use with their clients to contextualize experience along lines of social identity is Jones and McEwen's (2000) multiple identity map. Previously used with genderqueer individuals (Akinniyi & Budge, 2015), and in this intervention, clinicians work together with clients to explore experiences of marginalization and moments of resilience that relate to different aspects of identity and their intersections across time and context. Because of its ability to help clients consider the salience of their identities and how their

experiences are shaped by social dynamics and contexts, the multiple identity map can be a powerful tool for helping clients understand how experiences of marginalization occur in intersecting ways as a result of larger systems of oppression. Particularly for students who are embedded within institutions of higher education that often perpetuate ableism and cisgenderism in both explicit and implicit ways (Hutcheon & Wolbring, 2012; Siegel, 2019), the multiple identity map can help clients to understand the systems of power, privilege, and marginalization that play out in an academic environment. Crucially, this intervention also helps clients to identify the ways in which such experiences may be driving or contributing to their distress. In addition to the utility of helping clients dismantle internalized oppression and engage in critical consciousness, using the multiple identity map in session may also help clinicians listen more deeply, challenge their biases, and resist oversimplifying their clients' experiences by focusing on singular dimensions of identity.

With this study's findings regarding college self-efficacy across the emergent latent profiles, mental health professionals should be particularly attentive to exploring and assessing clients' self-efficacy and working together to increase it. An early step in therapy may be to explore the degree to which clients believe in their ability to learn and grow, particularly for contexts in which intellectual ableism is ubiquitous. Indeed, research indicates that young individuals with intellectual disabilities (IDs) tend to adopt a fixed mindset (see Dweck, 1999) rather than a growth mindset (Verberg et al., 2019). Verberg et al.'s (2019) research demonstrated that adolescents who have a growth mindset experienced fewer mental health problems and higher levels of self-esteem and empowerment. Thus, mental health professionals should leverage therapeutic efforts to challenge internalized stigma in order to deconstruct adverse narratives about ability, performance, and success.

In theory and practice, institutions of higher education that are imbued with discrimination, stigma, and bias can engender academic milieus that are harmful to the psychological well-being and academic success of TGD students who are ND. As a result, clinicians, particularly those employed in college mental health care settings, need to be actively engaged in spurring social and institutional change. Mental health professionals are in unique positions

to educate campus entities and advocate for marginalized student groups in order to help reduce discrimination, stigma, and bias on campus. For example, clinicians in college counseling centers can provide trainings to campus disability resource center staff related to providing competent and affirming services. Similarly, clinicians can partner with LGBTQ student organizations and campus services to provide education and conduct antibias workshops on ableism. Another avenue for advocacy is for clinicians to familiarize themselves with the specific campus policies that directly impact TGD undergraduate students who are ND. Clinicians should help inform students about existing policies, where to find additional supports and resources on campus, and how to navigate what oftentimes may be a confusing and complex system of student support services. Familiarizing themselves with existing policy also has obvious implications for clinicians' ability to advocate for and advance new policies that continue to keep students, staff/administrators, faculty and institutions accountable to diversity and inclusion.

Limitations and Future Directions

This study is exploratory in nature and, as such, needs to be considered in light of its limitations. First, our sample size was smaller in size for LPA. It should be noted, however, that previous research in education and psychology journals indicate that smaller samples can still produce meaningful groups using mixture modeling (Morgan, 2014). Effective sample sizes also depend on the number of indicators used (Nylund et al., 2007). Nevertheless, the small, convenience sample utilized for this study potentially limits the validity of the research. Future research should investigate whether the profile typologies found in the present study are replicated in a larger sample, providing some evidence of generalizability and external validity. Additionally, while participants in the present study were fairly demographically diverse, generalizability of study results is further limited by the use of convenience sampling for participant recruitment. In future research that employs student population sampling (e.g., all first-year students entering a specific university), including questions about gender identity and neurodiversity may help to address issues not only related to population invisibility, but also limitations associated with convenience

sampling. This research is cross-sectional and thus limits our temporal understanding and the determination of cause and effect. As such, future research could investigate the stability or fluidity of latent profile membership in a longitudinal design, track mental health and academic outcomes over time, and identify additional variables (e.g., university supports, student service resources, and community connectedness) that may act to buffer the deleterious impact of minority stress on mental health and academic success.

To decrease participant burden, we used only some subscales of the full GSMR scale. Although data analysis revealed clear patterns within the subscales that we administered, there may be other manifestations of minority stress that offer points of either further divergence or similarity across profiles. Notably, no difference among the profiles emerged regarding resilience. As a broad and somewhat nonspecific construct, it may be more fruitful and advantageous to examine constructs such as social support, community connectedness, and campus climate when considering other potential moderators of the links between profile membership and mental health and academic outcomes.

Finally, although LPA has notable advantages for exploring inter-sectional research questions, it is not without limitations. That is, the final profile solution is decided upon by the researcher in conjunction with previous research, if available. As a result, LPA's relative reliance on researcher and professional judgment and its nature as a person-centered and data-driven approach may result in findings that are less replicable (Bauer et al., 2022; Spurk et al., 2020). Because this study was the first of its kind, we used an exploratory approach by conducting iterative tests of an increasing number of profile groups until model fit and the interpretability of findings converged to form an adequate solution. Future research in this area, therefore, could instead begin by testing the fit of a four-profile solution and making modifications only as needed to first test the replicability of study findings.

Overall, findings from this study underscore the need for continued research into the experiences, mental health, and academic outcomes for TGD undergraduate students who are ND. It is notable that our use of a person-centered approach led to the identification of important within-group differences related to gender- and neurodiversity-based

minority stress experiences. Furthermore, membership in the emergent profiles was linked to other aspects of social identity, with clear clusters along dimensions of race and ethnicity, gender, and socioeconomic status within the profiles. As a result, we echo the numerous calls for future research and scholarship (e.g., Cole, 2009; Moradi & Grzanka, 2017) to continue to attend to the ways in which multiple, intersecting systems of oppression and privilege shape health disparities and issues of equity in higher education.

Supplemental materials are attached to the archive record for this paper, or online at <https://doi.org/10.1037/sgd0000603.supp>

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