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Invalidation and Mental Health among Nonbinary Individuals

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Abstract

This study examines the experience of a unique minority stressor, gender identity invalidation (henceforth referred to as invalidation), which is defined as the refusal to accept someone's gender identity as real or valid, among transgender and nonbinary (TNB) individuals. Data are drawn from a large and diverse sample of TNB adults who participated in a quantitative survey concerning transgender identity, minority stress, and mental health ($N = 302$). Invalidation was assessed using a novel 17-item scale that ascertains the extent to which respondents experienced invalidation across different social contexts. On average, TNB adults in this sample report low levels of invalidation, although a minority experience it at relatively high levels. Experiences of invalidation were significantly higher among nonbinary participants when compared with their binary trans peers. A series of multivariate regression models that control for sociodemographic factors (sex assigned at birth, race/ethnicity, education, age, and income) and well-established indicators of minority stress (felt stigma, enacted stigma) suggest that nonbinary gender identity is independently associated with poor mental health (assessed with the Global Severity Index), and that this association is mediated by invalidation. These findings suggest that invalidation, which is largely unexamined in existing research, merits greater attention as a particularly salient minority stressor influencing mental health among gender diverse populations, nonbinary populations in particular.

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Keywords

transgender; nonbinary; minority stress; mental health; invalidation

Transgender and nonbinary (TNB) individuals experience significantly higher rates of mental health problems in comparison to their cisgender peers (Connolly et al., 2016; Valentine & Shipherd, 2018). TNB is used as an umbrella term to describe individuals whose gender identity does not align with their gender assigned at birth. Binary transgender people are those who identify within the existing binary gender options of (transgender) man or (transgender) woman. Gender nonbinary individuals include those who do not identify exclusively as male or female, alternate between or outside male or female identities, experience being male or female at separate times, or reject a gender identity altogether (Chew et al., 2020; Matsuno & Budge, 2017). Studies of TNB populations show that significant percentages (between 31% and 41%) identify as nonbinary (Clark et al., 2018; James et al., 2016; Wilson & Meyer, 2021).

Although there is little research addressing the mental health of nonbinary individuals, emerging studies suggest they have significantly worse mental health outcomes than cisgender individuals (Aparicio-García et al., 2018; Chew et al., 2020; Matsuno & Budge, 2017). Moreover, while few studies have examined mental health differences across TNB gender identity subgroups, a small body of research suggests that nonbinary individuals may be more likely to experience a subset of mental health diagnoses than binary trans individuals, including depression, anxiety, and suicidal ideation (Aparicio-Garcia, 2018; Cheung, 2020; Lefevor et al., 2019; Newcomb et al., 2020; Thorne et al., 2018). For example, a recent study of a community sample of transgender, nonbinary, and cisgender individuals (N= 29,988) found that relative to cisgender and transgender participants, nonbinary participants were at elevated risk for depression, anxiety, and dual mental health-substance use disorder (Stanton et al., 2021). Other studies have confirmed similar findings: Compared to binary trans individuals, nonbinary individuals appear to experience higher rates of depression (Cheung et al., 2020; Lefevor et al., 2019; Thorne et al., 2018; Newcomb et al., 2020), anxiety (Cheung et al., 2020; Lefevor et al., 2019; Thorne et al., 2018;), psychological distress (James et al., 2016; Lefevor et al., 2019; Reisner et al., 2019), non-suicidal self-injury (Clark et al, 2018; dickey et al., 2015; Lefevor et al., 2019; Veale et al., 2017a), suicidal ideation (Aparicio-Garcia et al., 2018; Newcomb et al., 2020), and eating disorders (Goldberg et al., 2019; Lefevor et al., 2019).

Mental health disparities among TNB populations are commonly attributed to their exposure to gender-based minority stress. Minority stress theory posits that sexual and gender minorities experience unique stressors that increase their risk for poor mental health outcomes (Brooks, 1981; Hendricks & Testa, 2012; Meyer, 2003). Minority stressors include both distal and proximal stressors in relation to one’s sense of self, which range from discrimination-related events and experiences (e.g., bullying and victimization) to internalized cognitive processes (e.g., anticipated stigma, concealment of one’s identity, and self-stigma; Meyer, 2003). The minority stress model has been expanded to include specific gender-based stressors experienced by TNB populations (Hendricks & Testa, 2012; Testa

et al., 2015). For example, “non-affirmation of gender identity” has been identified as a minority stressor that occurs when one’s gender identity is not recognized and affirmed by others (Testa et al., 2015). Experiences of gender-based minority stress are well documented among TNB populations, including nonbinary individuals (Poquiz et al., 2021; Sterzing et al., 2019), and numerous studies have demonstrated strong correlations between gender-based minority stress and adverse mental health outcomes for both binary and nonbinary trans individuals (Bockting et al., 2013; Clements-Nolle et al., 2006; Jackman et al., 2018; Tebbe & Moradi, 2016; Valente et al., 2020; Veale et al., 2017b). Recently, scholars have argued that nonbinary individuals may experience unique gender-based minority stressors that are distinct from those experienced by binary trans individuals (Lefevor et al., 2019; Matsuno & Budge, 2017). These unique stressors are theorized to stem from the relative lack of societal recognition and understanding of nonbinary gender identities, which can render nonbinary individuals more likely to be misperceived and misgendered. In addition, many social and structural forces continue to reinforce the gender binary in settings such as schools, public restrooms, and healthcare facilities, leading to the invisibility and erasure of nonbinary identities.

Moreover, others have documented unique forms of minority stress experienced by nonbinary individuals. These include feelings of invisibility and erasure (Cosgrove, 2021; Taylor et al., 2019); anticipatory stress related to gender identity disclosure and having to explain or defend one’s gender identity to others (Darwin, 2017; Goldberg et al., 2019); feelings of exclusion or alienation within binary-trans dominated spaces (Bradford et al., 2019; Goldberg et al., 2019); experiences of health care providers failing to acknowledge or understand one’s nonbinary gender identity (Goldberg et al., 2019; Lykens et al., 2018); and challenges conceptualizing one’s gender due to the absence of nonbinary role models or media representation (Cosgrove, 2021; Fiani & Han, 2018).

In line with these findings, one recent qualitative study identified a novel form of minority stress experienced among nonbinary adolescents that was termed “identity invalidation” (Johnson et al., 2020). Identity invalidation is defined as the refusal to accept someone’s identity as “real” or “valid.” Johnson and colleagues (2020) contend that experiences of invalidation are conceptually distinct from experiences of “non-affirmation,” as introduced above (Testa et al., 2015). With invalidation, the a priori legitimacy of a nonbinary individual’s identity is called into question and frequently dismissed as not credible (e.g., perceived to be fabricated or “fake”). This is in contrast to non-affirmation of binary-identified trans individuals, where an individual’s gender identity has a recognized place in the binary, but others question that individual’s right to claim that identity. In other words, others questioning one’s right to claim a gender identity that is widely known to exist (non-affirming), is distinct from others questioning whether one's gender identity exists (invalidation). Invalidation is also conceptually distinct from the related minority stressor, misgendering (McLemore, 2018), which refers solely to the misclassification of gender identity. However, we recognize there is some conceptual overlap between the two constructs, depending on one’s intent. For example, one could misclassify someone’s gender identity (misgender) without communicating that their gender identity is neither valid nor real (invalidation).

Although individuals who identify within the TNB umbrella may all have non-affirming and invalidating experiences, Johnson et al. (2020) found that invalidation experiences were pervasive among nonbinary adolescents, and they occurred across multiple social contexts. Non-binary participants reported that they experienced invalidation not just from cisgender individuals, but also from binary-identified trans individuals, who often questioned their identities as "not authentically trans" or "not trans enough." Participants reported that invalidation experiences contributed to negative affective and cognitive processes, including confusion, self-doubt, rumination, and internalized shame. Participants also reported that the culmination of invalidation experiences negatively affected their mental health, and contributed to outcomes such as depression, anxiety, self-harm, and suicidal ideation.

These findings suggest that invalidation may represent a unique minority stressor affecting TNB populations, with particular mental health implications for nonbinary individuals. Therefore, we sought to create a quantitative scale for the purposes of exploring gender identity invalidation and its relationship to mental health outcomes across larger samples of TNB individuals. To our knowledge, no existing scales have been developed that examine this novel construct of gender identity invalidation. Although we are aware of an existing scale was developed by Franco and O'Brien (2018) to measure experiences of racial identity invalidation among Multiracial individuals, we did not identify any scales that measure gender identity invalidation experiences among TNB individuals.

This paper has two aims: First, we introduce a novel invalidation scale and examine its reliability and correlates by testing it among a diverse quantitative sample of 302 TNB adults. Second, we examine the potential role of invalidation in minority stress processes affecting the mental health of TNB populations. We hypothesize that nonbinary individuals experience higher levels of invalidation than binary trans individuals (Hypothesis 1). Second, we hypothesize that nonbinary identity is associated with poor mental health (Hypothesis 2), after controlling for established minority stressors (Hypothesis 3). Finally, as illustrated in Figure 1, we hypothesize that invalidation is associated with poorer mental health (Hypothesis 4), and that experiences of invalidation mediate the relationship between nonbinary gender identity and poor mental health, net the effects for established minority stressors (Hypothesis 5), helping to explain why nonbinary populations appear to be particularly vulnerable to mental health risks caused by exposure to gender minority stress.

Method

Scale development

Items for the Gender Identity Invalidation scale were drawn from a qualitative study designed to explore minority stress and psychosocial resources among trans and nonbinary adolescents. The recruitment methodology for that study has been described elsewhere (Johnson et al., 2020) and included 24 in-depth interviews (utilizing visual participatory methods) with nonbinary adolescents. Interview transcripts were analyzed with qualitative analysis software Dedoose Version 8.0.35 (2018) using an inductive thematic approach (Pope et al., 2000). The study findings revealed that invalidation experiences were frequently described by nonbinary adolescent participants as they occurred across multiple social contexts, including interpersonal, community, institutional, and media. The key findings

from each of those contexts were used to create survey questions that would serve as scale items by the first two authors.

In order to assess for content validity, the initial survey questions were tested using an iterative process involving face-to-face cognitive interviews wherein participants shared their thoughts with a trained researcher as they responded to each question (Willis, 2005). Three members of the Project AFFIRM trans advisory board in each of the three Project AFFIRM study sites (see study description below) participated in these cognitive interviews (n = 9). Of the 9 advisory board members interviewed, 5 identified as people of color and 3 identified as nonbinary. The first author and two Project AFFIRM staff members conducted the cognitive interviews; all were trained in a standardized cognitive interview protocol. During each cognitive interview, the interviewer provided the board member with an overview of the cognitive testing procedures. Participants were first asked to read through the survey questions and document all instances where they felt the wording was ambiguous. The participants then read each noted question aloud and discussed their interpretations of it with the interviewer. The interviewers solicited feedback regarding the wording, meaning, appropriateness, and utility of each question and the response choices. The cognitive interviews were audio-recorded, and all nine recordings were reviewed collaboratively by the first two authors of this paper. All problematic items were revised to improve question clarity. Seventeen survey questions were finalized to be combined into a single scale measure.

Participant Recruitment and Eligibility

The data for this paper were drawn from the Project AFFIRM study. Project AFFIRM is a large-scale, multimethod, and multisite study of transgender identity development, stress, and resilience across the life span, based in three metropolitan areas of the United States: New York City, San Francisco, and Atlanta. Project AFFIRM participants were recruited for the Project AFFIRM study through purposeful, venue-based sampling across a variety of settings (online and offline) frequented by the target population. To be eligible, participants had to meet the following criteria: A) Be age 16 or above B) Identify with a gender that differs from their sex assigned at birth C) speak English or Spanish and D) live in one of the three study areas. After participants were recruited and screened, quota sampling was used to select and enroll participants stratified by the following categories: sex assigned at birth, age group (16–20, 21–24, 25–39, 40–59, 60 and older), type of recruitment venue, and geographical area. We took care to maximize ethnic/racial diversity across the three study sites.

Data Collection

Three rounds of quantitative data were collected, beginning in 2016/17 for the baseline assessment, and again at 1- and 2- year follow-up. Trained study staff conducted structured, face-to-face interviews in English or Spanish, entering responses via laptop or tablet directly into a web-based database. Interviews were conducted in a private room at the participating research centers and took about 90 minutes to complete. Participants were compensated $40 at baseline, $45 at 1-year follow-up, and $55 at 2-year follow-up for their time and travel expenses. They received an additional $25 bonus for completing all three interviews.

Study procedures were approved by the Institutional Review Board of the New York State Psychiatric Institute/Columbia Psychiatry. The final sample of the third study phase consisted of 302 TNB participants. Of the 302, 5 participants were missing income data, and thus were excluded from the analyses that included this variable. Data for the analyses presented in this paper were collected between October 2018 and April 2019, during the 2-year follow up when invalidation was assessed for the first time as detailed below.

Measures

Demographics were assessed with seven single-item questions adapted from the 2010 U.S. Census. Race and ethnicity were combined into a 5-category variable for descriptive purposes. Since nearly half were in the "White, non-Hispanic" group a dichotomous variable (1=White, non-Hispanic, 0=all others) was calculated for regression analyses. Education was measured using a 5-category response scale. Income was measured using a 14-point scale ranging from 0=No income to 13=$150,000 or more. Gender was assessed using three questions, two about current gender identity and the third about sex assigned at birth. Participants were first asked an open-ended question about how they currently describe their gender identity. They were then asked to select one of the following seven categories that best fits their self-described gender identity: male, female, transwoman, transman, nonbinary, gender queer, or another gender. Participants who selected male, female, transwoman, or transman were classified as binary, while those who selected nonbinary, gender queer, or another gender were classified as nonbinary (nonbinary=1, binary=0). Birth sex was coded 1 if female, 2 if male.

Invalidation experiences were assessed using the novel 17 item Gender Identity Invalidation scale, introduced above. The scale aimed to ascertain the extent to which participants experienced invalidation within different social contexts. Using a 5-point Likert scale ranging from "not at all true to "completely true," participants were asked to respond to how true the statements were in their current lives. Values of 0-4 were assigned to each item. Items 1-8 assessed the presence of *invalidation* experiences while items 9-17 assessed the presence of *validation* experiences, and thus the latter were reverse scored prior to scale calculation so that higher scores indicate higher levels of gender identity invalidation. Examples of statements assessing invalidation within interpersonal contexts include: "People let you know (through their words or actions) that they think your gender identity is not valid or real." Statements assessing community-level invalidation include: "People and places that are widely regarded as 'trans affirming' truly understand people with my gender identity." Statements assessing institutional invalidation include: "The medical intake forms at the facilities where I seek health care recognize my gender identity." The entire scale is included in Supplemental Material A. A principal components unrestricted factor analysis with varimax rotation was conducted with the 17 invalidation scale items. The factor analysis resulted in 4 factors with an eigenvalue > 1.00. The first factor contained 7 items with a theme of interpersonal invalidation. The remaining 3 factors were comprised of 5, 3, and 2 items and were a mix of invalidation types. Reliability analysis showed the 17 items had an alpha of 0.857, demonstrating high internal consistency. Given the mixed content of these smaller factors, and a very high alpha for the total score (alpha = .857) a decision was made to conduct the analyses using the total unidimensional invalidation scale,

rather than multiple smaller scales. We recognize that the EFA and the Cronbach's alpha do not indicate that the scale is inherently unidimensional. However, since each of the factors represent subcomponents of invalidation, and because the full scale demonstrated strong internal reliability, we decided to utilize the full composite score in order to capture a proxy of invalidation broadly defined.

We anticipated that gender identity invalidation would account for a significant amount of variance above and beyond the variance accounted for by established measures of minority stress. Therefore, we included two well-established indicators of minority stress (e.g., enacted stigma and felt stigma) in order to assess for construct and convergent validity and to estimate the amount of variance independently accounted for by gender identity invalidation after taking these measures of minority stress into account.

We assessed enacted stigma (e.g., external discrimination against individuals with socially stigmatized identities; Meyer, 2003) using the Everyday Discrimination Scale adapted from Williams, Yu, Jackson, and Anderson (Meyer et al., 2008; Williams et al., 1997). The measure consisted of 11 items that assessed the frequency of participant's experiences with various forms of discrimination because of their transgender identity or gender presentation, for example, "You are threatened or harassed." Those who answered "often" or "sometimes" from a 4-point response scale were asked a follow-up question regarding the reasons for their experiences. Each experience that was attributed to "my gender" was summed for a count variable ranging from 0 to 10. Internal consistency (Cronbach's alpha) for this scale was 0.798.

We assessed felt stigma (e.g., expectations of rejection or discrimination due to one's social identity; Meyer, 2003) using the 10-item adaptation of the Stigma Consciousness Scale (Pinel, 1999), which has been used in multiple studies to assess stigma related to one's gender identity (Bockting et al., 2013; Jackman et al., 2018). Respondents indicated to what extent they agreed with statements such as, "Most people have a lot more transphobic thoughts than they actually express" and "Most people have a problem viewing transgender people as equals." Possible responses ranged from strongly agree to strongly disagree on a 7-point Likert scale, with higher scores indicating higher levels of felt stigma. Mean scores were calculated, reversing some items so that high scores indicate higher levels of felt stigma. Internal consistency reliability for this scale was 0.801.

Mental Health was assessed with the 18-item short-form of the Brief Symptom Inventory (BSI-18; Derogatis, 2000). The BSI-18 contains 6-item subscales for depression, anxiety, and somatization (i.e., symptoms of cardiovascular, gastrointestinal, and other physiological systems observed in presentations of anxiety and depression). For each item, respondents indicated on a 5-point Likert scale how much a particular symptom had distressed or bothered them during the past 7 days: (0) not at all, (1) a little bit, (2) moderately, (3) quite a bit, and (4) extremely. Example items are "feeling hopeless about the future" (depression), "feeling tense or keyed up" (anxiety), and "nausea or upset stomach" (somatization). We used the total scale score, the Global Severity Index (GSI), as our measure of mental health; higher scores indicate worse mental health. Internal consistency for the GSI was 0.921.

Analysis

Descriptive statistics were calculated for demographic and analysis variables. Then, in order to explore correlates of the newly developed Gender Identity Invalidation scale and to assess for construct and convergent validity unadjusted and adjusted (i.e., with all variables in the model) regressions were run predicting invalidation by nonbinary identity, demographics, minority stress, and mental health. To assess measurement invariance between the binary and nonbinary groups, we performed a chi-square difference test comparing a model in which factor loadings were allowed to vary across groups to a model in which factor loadings were constrained to be the same across groups. No significant difference was found between models ($\Delta\chi^2 = 21.6$, $df = 16$, $p = 0.16$); this suggests that the constrained model fits the data equally well and provides evidence for invariance.

Next, a regression to demonstrate the association between nonbinary identity and mental health was conducted, adjusting for age, sex assigned at birth, race/ethnicity, education, and income. Following that, additional regressions were run to determine whether the association between mental health and nonbinary identity was mediated by gender identity invalidation (Figure 1). To do this, we used an approach recommended by MacKinnon et al. (2002) after a review of several alternative methods. With this approach, to establish mediation two associations are required. First, that X (nonbinary identification) is a significant predictor of M (gender identity invalidation). Second, that M (gender identity invalidation) is a significant predictor of Y (GSI), adjusting for X (nonbinary identification). Finally, two additional measures of minority stress (felt stigma and enacted stigma) were added to the final model to determine how they affected the mediating role of gender identity invalidation. All analyses were adjusted for age, sex assigned at birth, race/ethnicity, education, and income, as these variables are also relevant to people's experiences of minority stress and mental health.

Results

Participant Characteristics

Sociodemographic characteristics for the total sample are shown in Table 1. The 2-year follow-up sample used for this analysis consisted of 302 TNB participants; 215 (71%) identified as binary-trans, and 87 (29%) identified as nonbinary. Participants' age ranged from 18 to 89 years old ($M = 36.9$, $SD = 13.4$). The sample was diverse in terms of race/ethnicity: 126 (42%) of the participants were White, non-Hispanic, 82 (27%) were Hispanic/Latinx, 39 (13%) were African American/Black, 18 (6%) were Asian/Middle Eastern/African/Indian, non-Hispanic, and 37 (12%) were multi-Racial, non-Hispanic. The majority (249, 83%) completed at least some college. Median annual income was approximately $25,000.

Participants reported a mean score of 2.08 for enacted stigma (SD = 2.36) and a mean score of 4.78 for felt stigma (SD = 1.01). Participants reported high levels of mental health symptomology, with 28% reporting clinical levels of somatization, 31% reporting clinical levels of depression, 34% reporting clinical levels of anxiety, and 35% reporting clinical levels of GSI. In terms of invalidation experiences, the overall mean score for the total

sample 1.39 (SD = 0.67). However, the mean invalidation score for nonbinary participants was 1.82 (SD = 0.70, not displayed in table) which was higher than the mean score for binary-trans participants (1.22; SD = 0.58).

Table 2 shows unadjusted and adjusted regression results predicting the invalidation score by nonbinary identity, demographics, minority stress, and mental health. As hypothesized, higher invalidation scores were found in participants with nonbinary identity, in both unadjusted and adjusted analyses (Hypothesis 1). In addition, in unadjusted results, higher invalidation scores were significantly associated with younger age, female birth sex, and lower income. Higher invalidation scores were also associated with higher felt and enacted stigma, demonstrating convergent validity of the invalidation scale. Age and income became non-significant after adjusting for the other variables in the model. Higher invalidation was associated with less education in the adjusted model.

Table 3 shows the results from the regression analyses that tested the association between nonbinary identity and mental health, adjusting for age, sex assigned at birth, race/ethnicity, education, and income. Participants with a nonbinary identity had poorer mental health scores after adjusting for demographic variables (Hypothesis 2) and controlling for established measures of minority stress (Hypothesis 3).

Mediation Analyses

Having established an association between nonbinary identity and poorer mental health, Table 4 shows results from 2 regression analyses testing whether invalidation is a mediator of that association. Both criteria are met: 1) X (Nonbinary Identity) predicts M (Gender Identity Invalidation); $\beta = 0.33$, $p < .001$, and 2) M (Gender Identity Invalidation) predicts Y (Global Severity Index) adjusting for X (Nonbinary Identity); $\beta = 0.42$, $p < .001$. Taken together, these results support the hypotheses presented in Figure 1, that invalidation is a predictor of poor mental health (Hypothesis 4), and that invalidation is a mediator of the association between nonbinary identity and poorer mental health (Hypothesis 5). These results also support criterion validity of the invalidation scale. As a measure of effect size, we calculated the change in the regression coefficient for nonbinary identity after adding invalidation to the regression model predicting GSI. The unadjusted regression coefficient changed from 3.89 to −0.03, a 101% reduction.

One final regression analysis was conducted to see if the association between invalidation and GSI was maintained after adding other measures of minority stress to the model (Hypothesis 5). As shown in Table 5, invalidation remained significantly associated with GSI ($\beta = 0.22$, $p = .003$), even after adjusting for felt and enacted stigma.

Discussion

This study aimed to build upon previous qualitative research of invalidation experiences with nonbinary individuals by introducing a novel scale of gender identity invalidation and testing its reliability and correlates. We created a 17-item scale and tested it among a diverse sample of 302 TNB individuals. Our findings demonstrate that this novel scale demonstrated high internal consistency. Importantly, we found that nonbinary adults in

our sample experienced higher rates of invalidation than binary-trans adults, and that their invalidation experiences were associated with worse mental health. In addition, we found that invalidation experiences mediated the relationship between nonbinary gender identity and poor mental health, even after controlling for demographics and other established minority stressors (felt stigma and enacted stigma). These findings offer strong support that gender identity invalidation is a unique minority stressor with significant implications for mental health outcomes in TNB populations, particularly among nonbinary individuals.

Although binary-trans participants in this study did report experiences of invalidation (ranging from 0.0 – 2.76), when controlling for other demographic variables, only nonbinary gender identity remained significant in predicting invalidation. These findings offer empirical support that invalidation – the experience of others refusing to accept someone's identity as "real or valid" – is a particularly salient stressor for nonbinary individuals. This is consistent with previous qualitative work (Johnson et al., 2020), in which nonbinary adolescents reported myriad forms of invalidation experiences across multiple social contexts. Other work examining the experiences of nonbinary individuals confirmed similar findings (Bradford et al., 2019; Cosgrove, 2021; Goldberg et al., 2019; Lefevor et al., 2019;). Scholars have theorized that these pervasive invalidation experiences among nonbinary individuals likely stem from the social invisibility and lack of general understanding of nonbinary gender identities (Lefevor et al., 2019; Matsuno & Budge, 2017). Despite a recent shift in cultural awareness of nonbinary identities over the past decade, the findings from the current study suggest that TNB populations -- and nonbinary populations in particular -- experience invalidation, with subsequent negative ramifications on their mental health.

It is also important to note that in addition to more frequent experiences of invalidation, nonbinary individuals likely experience different types of invalidation than binary-trans individuals do. For example, earlier qualitative work by Johnson et al. (2020) found that nonbinary participants reported feeling invalidated within both cisgender communities and trans communities. Participants in this study reported that they often felt invalidated by binary-trans individuals for not being "authentically trans," particularly if they had not sought gender affirming medical treatment or if others perceived their gender presentation to be congruent with their gender assigned at birth. Other qualitative work of nonbinary populations has confirmed similar findings (Chang & Chung, 2015; Nadal et al., 2012; Pulice-Farrow et al., 2017). For example, Pulice-Farrow et al.'s 2017 study of transgender microaggressions found that while binary-trans individuals often experienced microaggressions related to whether they are a "real man" or a "real woman," nonbinary participants often reported microaggressions related to whether they are "truly trans." It is likely that experiencing more frequent invalidation as well as invalidation from both cis and trans communities could have compounding negative effects on the mental health of nonbinary individuals. Future qualitative research should examine differences in invalidation experienced by binary-trans vs. nonbinary trans individuals (both terms of frequency and content of invalidation), as well as the implications for these differences on mental health outcomes.

In addition to invalidation, our findings also confirm that felt stigma and enacted stigma were significantly correlated with poorer mental health. This is consistent with the Minority Stress Theory as these are widely studied minority stressors. Moreover, these findings echo empirical research on minority stress and mental health outcomes in trans and nonbinary individuals (Meyer, 2013; Bockting et al., 2013; Tan et al., 2021; Veale et al., 2017b). However, even when controlling for both these variables, invalidation was still a significant predictor of poor mental health outcomes. This supports our hypothesis -- invalidation appears to be a unique minority stressor, one that can be examined alongside established minority stressors. Thus, while previous studies validated the importance of considering "non-affirmation" as a unique minority stressor for TNB populations, this study offers invalidation as an additional minority stressor for future research.

In all our analyses we also controlled for sociodemographic variables. Income was the only sociodemographic variable found to be significant within one of our regression models predicting poor mental health (Table 3). This suggests that lower socioeconomic status may be a risk factor for mental health, consistent with other studies among trans and nonbinary populations (Adams & Vincent, 2019; Burgwal et al., 2019; Seelman et al., 2017). Of note, the previous qualitative work on invalidation (Johnson et al., 2020) that was used as a basis to develop this invalidation scale was focused on adolescents, which gave us cause to believe that younger age might be an additional predicating factor for invalidation. For example, adolescent participants in that previous study reported that some of their invalidation experiences were related to others' perceptions that their gender identities were merely be a "phase" and/or related to adolescent experimentation. However, the findings from the current study did not support this; age was not a significant predictor of invalidation nor of poor mental health within the mediation models. Future longitudinal research should explore differences in age-related invalidation in greater detail, particularly as it relates to developmental trajectories of nonbinary individuals across multiple life stages.

Finally, while our findings highlighted the impact of invalidation on mental health outcomes of nonbinary individuals, we note that invalidation can also be a salient construct affecting other domains of one's identity. For example, scholars have shown similarly deleterious effects of invalidation in the domain of sexual orientation (e.g., bisexual individuals; Feinstein et al., 2019). A study by Feinstein et al. (2019) documents frequent experiences of invalidation among bisexual+ individuals, with notable parallels to the experiences of gender identity invalidation among TGNB individuals. Specifically, bisexual+ participants perceived that other people invalidated them due to a belief that bisexuality is not a possible or legitimate sexual orientation, or because they viewed them as "confused" or "faking" their bisexuality. Other research has demonstrated that, similar to nonbinary individuals, bisexual people also frequently report being invalidated by gay and lesbian communities (for not being "queer enough") as well as by heterosexual communities (Elia, 2014; Flanders et al., 2017; Hertlein et al., 2016; McLean, 2008; Ross et al., 2010). Feinstein et al. (2019) contend that identity invalidation is a particularly relevant construct for individuals with "border identities," or those with identities that challenge social binaries, due to pervasive societal beliefs that view identities as binary. Thus, although this current study focuses on the experiences of gender identity invalidation among TNB populations, our findings add support to the growing body of research on identity invalidation in general. Relatedly,

existing research suggests that nonbinary individuals are also likely to identify as plurisexual (e.g., bisexual, pansexual, queer; Kuper et al., 2012), pointing to an additional identity intersectionality that merits further investigation.

Limitations and Future Directions

This study had several limitations. First, the analysis was cross-sectional, and we therefore cannot assess directionality or causality between invalidation and mental health outcomes. In addition, using mediation analysis with cross-sectional data to examine longitudinal behavioral processes may be prone to biases in estimation of effect size (O'Laughlin et al., 2018). Future longitudinal research should be conducted to explore the influence of invalidation on mental health pathways of TNB populations, as well as assess how invalidation experiences affect individuals across the life course. It should also be noted that invalidation experiences may occur more frequently during specific periods of time associated with key experiences or changes in a person's life, as well as during periods of significant social change (Barrett & Barbee 2022), which may not be adequately captured through cross-sectional data. In addition, the data for this study were collected between 2018-2019, and we have subsequently seen significant social, political, and cultural shifts that likely affected the frequency, types, and impact of invalidation experiences for TNB individuals. A life course approach could allow for a deeper exploration of invalidation experiences that unfold in TNB peoples' lives over time, and within different social and historical contexts (Thomeer et al., 2022).

Second, while we found that the Invalidation scale demonstrated sound psychometric properties, this was the first study to empirically test this novel instrument; more research is needed with larger and more diverse samples to provide further evidence of validity and utility of this measure. Importantly, while all our participants identified as part of the larger trans community, a recent population-based study found that the majority of nonbinary individuals do not identify as trans (Wilson & Meyer, 2021). Future research should be conducted with both trans and cisgender identified nonbinary individuals, in order to explore differences of invalidation between these groups. Furthermore, it is also important to note that the distinction between nonbinary trans and binary-trans is in itself a false binary (Darwin, 2020; Pearce et al., 2019). Previous research has documented that sizable percentages of trans men and trans women also simultaneously identify as nonbinary, in addition to using other gender identity labels (Galupo et al., 2017; James et al., 2016). While we first asked our study participants to describe their gender identity through an open-ended question, the closed-ended question in the survey required participants to select the one gender identity category that best describes their identity. We likely underestimated the sample of nonbinary participants by not counting those who would have selected both binary and nonbinary categories if they had been given the option to do so. Future research should examine invalidation experiences using more expansive gender identity options (Suen et al., 2020).

Third, during the scale creation process we only observed metric invariance when we assessed for measurement invariance between the binary and nonbinary groups; we did not find evidence for scalar invariance. As past work has argued that this type of partial

invariance is sufficient to make meaningful comparisons across groups (Steenkamp & Baumgartner; 1998) we decided to include this comparison in our study. However, future research using the invalidation scale should further explore its characteristics among heterogeneous populations.

Fourth, this paper is based on data with participants who had a mean age of 36.94, and few study participants were under the age of 21. Future studies should be conducted with samples that include larger numbers of both adolescents and young adults to explore whether and how age affects the manifestation of invalidation. Given that identity formation is a central developmental task during adolescence (Erikson, 1968), it is likely that invalidation experiences might be more stressful for adolescents than they are for older individuals. Furthermore, population research among TNB individuals suggests that nonbinary individuals tend to be younger in age. For example, a recent population-based survey of LGBTQ+ individuals in the United States found that the majority of nonbinary adults are under the age of 29 (Wilson & Meyer, 2021). Similarly, a 2022 survey of LGBTQ Youth (N= 33,993) in the United States found that 37% of total participants ages 14-24 identified as nonbinary (The Trevor Project, 2022). These data suggest that a deeper exploration of the mental health implications of invalidation experienced during adolescence and emerging adulthood is warranted.

Fifth, we did not examine how the effects of invalidation might potentially be moderated by psychosocial resources and other protective factors. Previous research has found that family acceptance (Gower et al., 2018; Veale et al., 2017b), transgender pride (Valente et al., 2022), and social support from other trans people (Carter et al., 2019) can moderate the effects of distal minority stressors (such as enacted stigma and gender-based discrimination) on mental health outcomes among TNB populations. Future research should examine the relationship between such protective factors and invalidation and the subsequent effects on mental health outcomes among nonbinary populations.

Finally, while we did not find race/ethnicity to be a significant predictor of invalidation, we did not test for the interaction between race/ethnicity, gender identity and invalidation, and the effects of those interactions on mental health outcomes, as this was beyond the scope of this study. Previous research has shown that TNB individuals of color face unique challenges at the intersection of their gender identity and race (Cyrus, 2017; Nicolazzo, 2016; Singh, 2013), which may have significant consequences for their mental health. Future research should explore how other axes of oppression (e.g., racism and heteronormativity) affect invalidation experiences of TNB individuals with multiple marginalized identities and their mental health outcomes.

Clinical and Research Implications

Findings from this study suggest that gender identity invalidation should be understood as a pernicious minority stressor for TNB individuals, particularly those who are nonbinary, and clinicians may find it useful to assess for invalidation experiences in their practice (Matsuno, 2019). They may also want to consider incorporating the concept of invalidation into evidence-based gender affirming interventions that target minority stress among LBGTQ+ populations (Austin & Craig, 2015; Lange, 2020; Pachankis et al., 2022; Rider et al.,

2019; Sloan et al., 2017). For example, clinicians can utilize cognitive behavioral therapy (CBT) techniques to help clients identify maladaptive thoughts and beliefs resulting from invalidation experiences and assist them in externalizing the sources of these negative messages, as well as in developing effective coping strategies to manage negative feelings resulting from invalidation experiences (Pachankis et al., 2014). They may also help clients to recognize instances where they may be engaging in self-invalidation and help them to engage in self-validation and self-compassion practices (Sloan et al., 2017). They may additionally consider ways to encourage clients to seek validating relationships, empowering resources, and safe spaces in their communities. Finally, clinicians can help clients better navigate the relationships and settings where they may be most likely to experience invalidation and support them to advocate for themselves.

In addition, these findings could help clinicians to be more aware of the potential role that they and the institutions they work for may play in contributing to invalidating experiences for nonbinary clients. More comprehensive training on gender affirming care should be provided to individual providers, and healthcare organizations should take stock of how their institutional policies may contribute to invalidation. Healthcare organizations could promote nonbinary visibility within their practice settings by utilizing gender inclusive medical intake forms and paperwork, instructing providers/health care staff to routinely ask for patients' affirmed names, gender, and pronouns, and implementing gender neutral restrooms. In addition, education about invalidation and its effect on people's well-being could be incorporated into school systems and public communication campaigns. Critically, clinicians and institutions can engage in advocacy work that targets policies and practices that promote invalidation on a structural level, including anti-trans legislation and policies limiting gender affirming health care.

These findings also have several research implications. This is the first study to quantitatively examine the effects of invalidation, a previously unexamined minority stress construct, on mental health among TNB individuals. Future research could extend our study findings and examine the effects of invalidation on other health outcomes for TNB populations, including other indicators of mental health as well as physical health. Additionally, deeper understandings of how experiences of invalidation can diminish well-being raises the challenge for researchers to simultaneously examine how different psychosocial resources (e.g., social support and coping strategies) may help to buffer or protect against the harmful effects of invalidation. Moreover, as a relatively novel minority stress construct, future research may usefully examine the unique role that invalidation may play in critical minority stress processes as they unfold over time. For example, Meyer (2003) distinguishes among well-established minority stress constructs in terms of whether they are relatively more distal or more proximal to one's sense of self, with experiences of enacted stigma or discrimination viewed as more distal, and the internalization of stigma viewed as more proximal. We suspect that invalidation, as a form of discrimination that directly threatens individuals' sense of identity, of who they see themselves to be, may be an example of a minority stressor that bridges this distinction, and thus may relate to other stressors in important ways.

Finally, the present study highlights the fact that within TNB populations, nonbinary persons are especially likely to experience invalidation (Figure 1). Thus, this research illustrates how assessing a novel minority stressor alongside the more widely known minority stress constructs can contribute to better understandings of how differences in mental health may emerge across sub-populations within the larger sexual and gender minority population.

Conclusion

Our findings suggest that gender identity invalidation is a unique minority stressor with significant implications for mental health among nonbinary populations. We found that invalidation was more common among nonbinary participants as compared to binary trans participants in our sample. Consistent with minority stress theory, higher rates of invalidation were associated with poorer mental health, and invalidation mediated the relationship between nonbinary gender identity and poor mental health. Findings from our study can help clinicians and researchers to assess for this minority stressor and explore it as a target of treatment with TNB people.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Acknowledgments

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Public Significance Statement:

This study examined invalidation and its relationship to mental health among a diverse sample of transgender and nonbinary (TNB) adults. Experiences of invalidation were found to be significantly higher among nonbinary adults when compared with their binary trans peers. In addition, nonbinary gender identity was found to be independently associated with poorer mental health, and this association was mediated by invalidation, suggesting that invalidation may be a particularly salient minority stressor for nonbinary individuals. Findings from our study can help clinicians and researchers assess for this minority stressor and explore it as a target of treatment with TNB people.

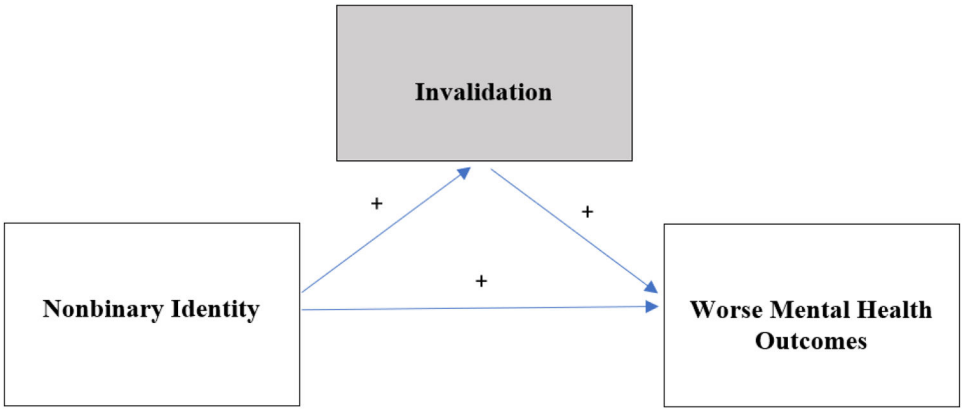

Figure 1.
Nonbinary Identity, Invalidation, and Mental Health among Gender Minority Populations

Table 1

Sample Description (N=302)

Variable	*N* (%)
Sex assigned at birth	
Female	152 (50%)
Male	150 (50%)
Gender Identity	
Binary	215 (71%)
Nonbinary	87 (29%)
Race/Ethnicity[1]	
White, non-Hispanic	126 (42%)
Hispanic/Latinx	82 (27%)
African-American/Black, non-Hispanic	39 (13%)
Asian/Middle Eastern/African/Indian, non-Hispanic	18 (6%)
Multiracial, non-Hispanic	37 (12%)
Education	
Less than High School	22 (7%)
High School Grad/GED	31 (10%)
Some college/trade/vocational	97 (32%)
Bachelor Degree	92 (31%)
Graduate/professional school	60 (20%)
	Mean (*SD*) Min-Max
Age	36.94 (13.44)
	18.00-89.00
Annual personal income[2]	5.60 (3.57)
	0.00-13.00
Invalidation	1.39 (0.67)
	0.00-3.88
Felt Stigma	4.78 (1.01)
	1.90-7.00
Enacted Stigma	2.08 (2.36)
	0.00-10.00
Global Severity Index raw score	16.46 (12.95)
	0.00-58.00
	***N* (%)**
Clinically Significant Range[3]	
Somatization	84 (28%)
Depression	94 (31%)
Anxiety	104 (34%)
Global Severity Index	106 (35%)

[1]This variable was dichotomized as White, non-Hispanic vs. others for regression analyses.

[2]Income measured on a 14-point scale ranging from 0=No income to 13=$150,000 or more. A value of 6 corresponds to $25,000-$29,999. Missing income data for 5 participants.

[3]For somatization, depression, and anxiety subscales, t-scores ≥ 63; for GSI, (1) GSI t-scores ≥ 63 or (2) two or more subscales (somatization, depression, anxiety) ≥ 63.

Table 2

Regression predicting Gender Identity Invalidation (N=302)

Variable	Unadjusted					Adjusted[1]				
	b (SE)	95% CI		β	p	b (SE)	95% CI		β	p
		LL	UL				LL	UL		
Intercept						0.58 (0.22)	0.16	1.01		.007
Nonbinary	0.60 (0.08)	0.44	0.75	0.40	<.001	0.35 (0.07)	0.22	0.48	0.23	<.001
Sex Assigned at Birth	−0.29 (0.08)	−0.44	−0.14	−0.21	<.001	−0.18 (0.06)	−0.31	−0.06	−0.14	.003
Age	−0.01 (0.00)	−0.02	−0.01	−0.27	<.001	−0.00 (0.00)	−0.01	0.00	−0.03	.504
White, non-Hispanic	−0.06 (0.08)	−0.21	0.10	−0.04	.478	0.05 (0.06)	−0.07	0.17	0.04	.436
Education	0.02 (0.03)	−0.05	0.09	0.03	.592	−0.06 (0.03)	−0.12	−0.00	−0.10	.045
Income	−0.03 (0.01)	−0.05	−0.01	−0.17	.003	−0.02 (0.01)	−0.03	0.00	−0.08	.092
Felt Stigma	0.38 (0.03)	0.32	0.44	0.58	<.001	0.22 (0.03)	0.15	0.29	0.32	<.001
Enacted Stigma	0.15 (0.01)	0.12	0.17	0.51	<.001	0.08 (0.01)	0.05	0.11	0.27	<.001
Global Severity Index	0.02 (0.00)	0.02	0.03	0.43	<.001	0.01 (0.00)	0.00	0.01	0.14	.003

CI = confidence interval; LL = lower limit; UL = upper limit

[1]All variables in the table are included in the adjusted regression model (*N*=297). Model adjusted R^2 = 0.51; F = 35.05, p = <.001

Table 3

Regression Predicting Global Severity Index (N=297)

Variable	b (SE)	95% CI		β	p
		LL	UL		
Intercept	16.65 (4.10)	8.59	24.71		.000
Nonbinary	3.89 (1.74)	0.47	7.32	0.14	.026
Sex assigned at birth	0.09 (1.63)	−3.12	3.29	0.00	.958
Age	−0.04 (0.06)	−0.16	0.08	−0.04	.519
White, non-Hispanic	1.17 (1.64)	−2.06	4.41	0.05	.476
Education	1.00 (0.80)	−0.57	2.57	0.09	.210
Income	−0.70 (0.24)	−1.17	−0.22	−0.19	.005

CI = confidence interval; LL = lower limit; UL = upper limit

Model adjusted R^2 = 0.04; F = 2.92, p = .009

Table 4

Two-step Mediation Regression Analyses (N=297)

Variable	b (SE)	95% CI		β	p
		LL	UL		
Step 1: X (Nonbinary) predicts M (Invalidation)					
Intercept	1.83 (0.20)	1.45	2.21		<.001
Nonbinary	0.49 (0.08)	0.33	0.66	0.33	<.001
Sex assigned at birth	−0.15 (0.08)	−0.30	−0.01	−0.11	.060
Age	−0.01 (0.00)	−0.01	−0.00	−0.14	.016
White, non-Hispanic	−0.00 (0.08)	−0.16	0.15	−0.00	.989
Education	0.02 (0.04)	−0.05	0.10	0.04	.523
Income	−0.03 (0.01)	−0.06	−0.01	−0.18	.004
Step 2: M (Invalidation) predicts Y (GSI) adjusting for X (Nonbinary)					
Intercept	2.05 (4.34)	−6.49	10.59		.636
Invalidation	7.97 (1.15)	5.72	10.23	0.42	<.001
Nonbinary	−0.03 (1.71)	−3.40	3.33	−0.00	.985
Sex assigned at birth	1.25 (1.52)	−1.74	4.24	0.05	.411
Age	0.02 (0.06)	−0.09	0.13	0.02	.774
White, non-Hispanic	1.18 (1.52)	−1.82	4.18	0.05	.439
Education	0.81 (0.74)	−0.65	2.26	0.07	.275
Income	−0.43 (0.23)	−0.88	0.02	−0.12	.062

CI = confidence interval; LL = lower limit; UL = upper limit

Step 1 Model adjusted R^2 = 0.21; F = 13.88, p = <.001

Step 2 Model adjusted R^2 = 0.17; F = 9.83, p = <.001

Table 5

Regression Predicting Global Severity Index with Multiple Measures of Minority Stress (N=297)

Variable	b (SE)	95% CI		β	p
		LL	UL		
Intercept	−3.71 (5.25)	−14.05	6.63		.480
Invalidation	4.26 (1.40)	1.50	7.01	0.22	.003
Felt Stigma	2.42 (0.87)	0.01	0.70	0.19	.006
Enacted Stigma	0.90 (0.35)	0.21	1.59	0.16	.011
Nonbinary	0.50 (1.67)	−2.79	3.78	0.02	.767
Sex assigned at birth	0.27 (1.51)	−2.71	3.24	0.01	.861
Age	0.05 (0.06)	−0.06	0.16	0.05	.388
White, non-Hispanic	1.84 (1.49)	−1.10	4.78	0.07	.218
Education	0.01 (0.74)	−1.45	1.48	0.00	.985
Income	−0.41 (0.22)	−0.85	0.03	−0.11	.066

CI = confidence interval; LL = lower limit; UL = upper limit

Step 1 Model adjusted R^2 = 0.22; F = 10.23, p = <.001