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# Daily Experiences of Minority Stress and Mental Health in Transgender and Gender Diverse Individuals

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## Abstract

Transgender and gender diverse people experience various minority stressors although minimal research has examined prospective effects on daily affect or mental health. We explored rates of marginalization for transgender and gender diverse participants in a daily diary study and the concurrent and prospective associations with daily affect and weekly measures of depression and anxiety symptoms, as well as the mediating effects of internalized stigma, rumination, and isolation. There were 167 participants (82.2% white; *M* age = 25) retained in the daily surveys. Participants completed surveys for 56 days reflecting exposure to marginalization, gender non-affirmation, internalized stigma, rumination, isolation, affect (negative, anxious, and positive affect), and mental health (anxiety and depression symptoms). Participants experienced marginalization on 25.1% of the days. Within-person analyses revealed concurrent associations between marginalization and gender non-affirmation with increased negative and anxious affect and increased anxiety and depression symptoms, as well as associations for gender non-affirmation and decreased positive affect. At the within-person level, there were prospective associations between marginalization and gender non-affirmation with increased negative affect on the next day, as well as increased anxiety and depression symptoms the next week. Concurrent analyses revealed significant indirect effects with marginalization and gender non-affirmation associated with all three affect variables and mental health via increases in internalized stigma, rumination, and isolation. However, only gender non-affirmation was related to isolation and affect or mental health in the prospective analyses. Clinical considerations include strategies to address the immediate effects of minority stress as well as the long-term interpersonal effects.

## General Scientific Summary:

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Author contributions are as follows: Conceptualization (Puckett), data curation (Puckett), formal analysis (Dyar), funding acquisition (Puckett), investigation (Puckett), methodology (Puckett), project administration (Puckett), resources (Puckett, Mustanski, Newcomb), software (Puckett, Mustanski, Newcomb), supervision (Mustanski, Newcomb), writing – original draft (Puckett, Dyar, Maroney), and writing – review and editing (Puckett, Dyar, Maroney, Mustanski, Newcomb).

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Transgender and gender diverse people encounter marginalization every one out of four days. These stressors are related to daily fluctuations in mood with implications for overall mental health. Furthermore, there are likely longer term impacts on interpersonal relationships and isolation.

**Keywords**

transgender; gender minorities; minority stress; psychological mediation framework; affect

Transgender and gender diverse individuals (referred to as transgender for brevity) experience a range of stressful events in their lifetimes, which have deleterious effects on mental health and well-being (Testa et al., 2015). Collectively, identity-related stressors that transgender people encounter can be understood through minority stress frameworks. Minority stress refers to the unique stressors that minority groups experience which impact mental health above and beyond the general stressors that everyone may encounter (Brooks, 1981; Herek, 2016; Meyer, 2003; Testa et al., 2015). The expanding research on mental health disparities experienced by transgender individuals indicates that these elevated rates of distress are driven by contextual factors, such as hostile sociopolitical contexts (Price et al., 2020; White Hughto et al., 2015) and minority stressors (Puckett et al., 2021; Russell et al., 2018; Testa et al., 2015).

Although research in this area has grown, particularly in recent years (Sweileh, 2018), much of this research has been cross-sectional. There has been minimal research utilizing intensive data collection strategies to examine the mechanisms through which exposure to external minority stressors leads to negative mental health outcomes. In this study, we utilized a daily diary design to examine daily exposure to minority stressors, the pathways through which these stressors impact daily affect and mental health, and the prospective associations between minority stressors, daily affect, and mental health.

## Minority Stressors and Mental Health

Minority stressors can be conceptualized as stressors that are distal and proximal (Meyer, 2003; Testa et al., 2015). Distal stressors are external to the individual and are specific actions that target transgender people (also called enacted stigma; Herek et al., 2009). This can include discrimination, victimization, harassment, and other examples. Non-affirmation, also called misgendering, is another distal stressor that negatively impacts transgender people (Testa et al., 2015). At the proximal level are stressors that may be consequences of enacted stressors or of the broader hostile climate towards transgender people (Puckett, 2019; Testa et al., 2015). These stressors include internalized stigma, expectations of rejection, and non-disclosure of one’s gender identity or gender history. There are many nuances in how these minority stressors may be experienced by transgender people (e.g., Rood et al., 2017) and the literature has expanded to include additional transgender-specific minority stressors (e.g., Puckett et al., 2021).

Research shows that distal stressors are commonplace in the lives of transgender people. In a review, McCann and Brown (2017) found that rates of discrimination ranged from 40–70%.

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Similarly, over half of transgender youth report being discriminated against in accessing restrooms, which was associated with increased depression and suicidality (Price-Feeney et al., 2021). Correspondingly, other research has found that being targeted related to one's gender identity is associated with depression, anxiety, and suicidality (Kaniuka & Bowling, 2021; Kuper et al., 2018; Scandurra et al., 2017), including in longitudinal research on suicidal ideation (Rabasco & Andover, 2021). Likewise, non-affirmation and misgendering have been associated with worse mental health (McLemore, 2015, 2018; Russell et al., 2018). Furthermore, distal stressors have been associated with increased anxiety and depression among sexual and gender minorities in research utilizing ecological momentary assessment methods (Livingston et al., 2020) and longer-term longitudinal research (Dyar et al., 2020).

Proximal stressors likewise harm mental health. For instance, expectations of rejection have been associated with non-suicidal self-injury in trans masculine individuals (Jackman et al., 2018). Other research has similarly found proximal stressors to be associated with depression (Brennan et al., 2017). Internalized stigma is consistently associated with adverse mental health outcomes in transgender people, such as depression and anxiety (Scandurra et al., 2018, 2020). Longitudinal research with sexual and gender minorities also shows that internalized stigma is associated with depression and anxiety concurrently and prospectively (Dyar et al., 2020).

Past literature has primarily examined mental health more broadly whereas little is known about daily affect in relation to minority stressors. In the general psychological literature, daily affective experiences have been shown to be important to understanding subsequent mental health issues, such as depression and anxiety disorders (Charles et al., 2013; Clark & Watson, 1991; Khazanov & Ruscio, 2016). For example, depression is typically described as the presence of high levels of negative affect with low positive affect (Clark & Watson, 1991). In consideration of research showing that affect prospectively predicts mental health, including depression (Naragon-Gainey, 2019), anxiety (Khazanov & Rscio, 2016), and self-reported emotional disorders (Charles et al., 2013), research on minority stress will particularly benefit from assessing both the impact on daily affect and mental health more broadly.

## Distal Stressors and their Mechanisms of Impact

Extending minority stress frameworks, Hatzenbuehler (2009) proposed the psychological mediation framework to explain how minority stressors may come to have such drastic effects on mental health. In this mediation framework, enacted stigma influences mental health via the impact on both identity-specific and general psychological processes. Specific to holding a marginalized identity, enacted stigma may increase proximal stressors such as internalized stigma. Enacted stigma may also influence general psychological processes by impairing emotion regulation capacities or disrupting social and interpersonal functioning.

Research has shown that internalized stigma is a crucial identity-specific mechanism through which distal factors influence mental health. For transgender people, this proximal stressor mediates the association between discrimination and mental health (anxiety and depression;

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Scandurra et al., 2018; general distress; Timmins et al., 2017) and between rejection and mental health (Scandurra et al., 2020). Internalized stigma has also been shown to mediate the association between distal stressors and suicidal ideation (Staples et al., 2018; Testa et al., 2017).

In relation to general, non-identity based mediators, social connections and isolation may be one pathway through which stressors influence mental health. Cross-sectional research has shown that decreased social support mediates the association between stigma and depression for trans women (Chakrapani et al., 2017). Even so, we are not aware of longitudinal or prospective research that has examined this effect. Rumination is another general factor that may underlie the mental health impacts of minority stressors. Rumination is associated with higher levels of suicidal ideation, depression, and anxiety in transgender individuals (Silva et al., 2021). Furthermore, in their cross-sectional study, Timmins and colleagues (2017) found that distal and proximal stressors were related to distress for transgender people and that rumination partially accounted for these associations. In longitudinal research with sexual minority men and transgender women, Sarno and colleagues (2020) found that rumination mediated the association between enacted and internalized stigma with depression. Overall, there seems to be strong support for the role of rumination in understanding how minority stressors come to impact mental health.

## Current Study

We explored rates of exposure to marginalization for transgender participants over the course of 56 days of daily surveys. We also examined the concurrent and prospective associations with daily affect and weekly measures of depression and anxiety. Finally, we were interested in understanding more about the mechanisms or processes that may underlie how marginalization comes to impact mental health and thus explored mediating variables (i.e., internalized stigma, isolation, and rumination).

## Method

### Procedures

Participants were recruited via a multi-pronged approach, including outreach at community events in the Chicago area, flyers and advertisements shared with community organizations, and online recruitment via social media (see Puckett et al., 2021 for more description). Participants completed a screener survey to express their interest in participating. To be enrolled in the daily diary study, participants had to be between ages 16–40 years old, identify as a transgender man, transgender woman, genderqueer, or non-binary person, lived in the U.S., had sex in the past 30 days, and either binge drank or used substances in the past 30 days. The overall aim of the study was to examine associations between minority stress, mental health, substance use, and sexual behaviors and thus shaped inclusion criteria. Data were collected between fall 2015 and summer 2017. Surveys were completed via REDCap or Qualtrics, depending on when the participants were enrolled. The Institutional Review Boards at Northwestern University (STU00103994-MOD0003) and the University of South Dakota (2015.229) approved of this research.

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Enrolled participants first completed a baseline questionnaire, followed by daily surveys for 56 days (which took approximately 10–15 minutes to complete), and then a brief follow-up survey administered within the following week that repeated some of the scales from baseline (not included in the current analyses). On the seventh day of each participants' daily surveys, they received two additional measures related to anxiety and depression to more thoroughly assess these constructs. Participants were paid $50–60 (range reflects additional funding that was acquired) for completing at least 85% of the surveys and $20 for completing less than this but at least half of the days. Individuals who did not qualify for the daily diary study were offered the chance to participate in a brief one-time survey. Further details about data collection and steps to ensure the quality of the online data collection are available in Puckett et al. (2021), as well as details about our integration of a community advisory board.

There were a total of 181 participants enrolled. Of these, 177 participants (97.8%) completed at least one of the daily surveys. Participants who reported less than a week's worth of data were removed from the sample, resulting in a final sample of 167 participants retained in the daily diary data.

## Participants

Demographic information is presented in Table 1. Approximately half of the total of 167 participants identified as transgender men (49.1%), with others identifying as transgender women (18.6%), nonbinary (22.2%), and genderqueer (10.2%). Most participants were non-Latinx white (82.2%).

## Daily Measures

**Marginalization—**The investigator-created measure of marginalization included 15 items, each describing an instance of transgender victimization, harassment, enacted stigma, felt stigma, or targeting. The items were developed based on a literature review (e.g., Herek & Berrill, 1992; Nadal, 2013; Nadal et al., 2014) and with input from the community advisory board. Participants were asked whether they had experienced each event on the previous day. Items and frequency information are presented in Supplemental Table 1. A probit multilevel factor analysis was supportive of a single factor, with strong standardized factor loadings for most items (.60-.91) at both levels. The most severe and least frequently endorsed items loaded on the within-person factor less strongly (.35-.44), which is likely a result of their low levels of endorsement. As a result, we treated this measure as reflecting a single construct, and created a sum of the number of items endorsed on each day. We calculated Nezlek's alpha, which is the equivalent of Cronbach's alpha for multilevel data. Results indicated acceptable internal consistency ($\alpha$ = .63). The associations with other variables supported evidence of validity. More specifically, this scale had a moderate association of .40 with the items assessing gender non-affirmation and a small association of .21 with the items assessing internalized stigma. As theoretically implied in the minority stress model, there was a stronger association with the other measure of distal stressors (gender non-affirmation) and a weaker association with the proximal stressor (internalized stigma).

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**Gender Non-Affirmation—**Gender non-affirmation was assessed using a four-item investigator created measure based on a review of past research (e.g., Sevelius, 2013). Three of the four items (e.g., "The way other people interacted with me was affirming of my gender identity" [reverse scored]) were assessed on a Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The fourth item was a slider bar question which asked participants how much they agreed with a statement ("Yesterday other people treated me as the gender I identify with") on a scale of 0 (*completely agree*) to 100 (*completely disagree*). Items were standardized to allow for an average to be taken of the four items (Nezlek's $\alpha$ = .88).

**Internalized Stigma—**Internalized stigma was assessed using six items. Five were Likert scale items adapted for a daily format from Wright et al.'s (1999) measure of internalized homophobia [e.g., "Yesterday, I felt ashamed of myself for being transgender;" response options: 1 (*strongly disagree*) to 7 (*strongly agree*)] and modified based on the community advisory board's input. The sixth item was a slider bar question, which asked participants how much they agreed with a statement ("Yesterday, how did you feel about being transgender?"; reverse scored) on a scale of 0 (*very negative*) to 100 (*very positive*). Items were standardized to allow for an average to be taken of the six items (Nezlek's $\alpha$ = .89).

**Isolation—**Isolation was assessed via an adapted version of the UCLA Loneliness Scale (Hughes et al., 2004) for a daily diary format. Rather than including the full prompts, we shorted the items and asked participants to reflect on their experiences over the previous day. Participants were asked to indicate how strongly six statements described their feelings (e.g., "lonely," "isolated," "like there was no one you could turn to") on a scale of 1 (*not at all*) to 5 (*extremely*) and items were averaged (Nezlek's $\alpha$ = .87).

**Rumination—**Rumination was assessed using the five-item brooding subscale of the Ruminative Response Scale (Treynor, 2003) with wording adapted for a daily format. Participants indicated how frequently they had engaged in negatively valenced rumination on the previous day (e.g., "Yesterday, did you think about a recent situation, wishing it had gone better"). Participants responded to items on a scale of 1 (*never or almost never*) to 4 (*always or almost always*) and responses were averaged (Nezlek's $\alpha$ = .82).

**Affect—**Affect was assessed using a modified version of the Positive and Negative Affect Schedule (Watson et al., 1988). We included items that had the highest factor loadings on factors reflecting positive, negative, and anxious affect from a daily diary study of affect among men who have sex with men (Mustanski, 2007). Three items were used to assess positive affect (inspired, excited, enthusiastic; Nezlek's $\alpha$ = .75), two items assessed negative affect (upset, distressed; Nezlek's $\alpha$ = .72) and three assessed anxious affect (anxious, nervous, scared; Nezlek's $\alpha$ = .68). Participants indicated how much they experienced each emotion on the previous day on a scale of 1 (*very slightly or not at all*) to 5 (*extremely*).

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## Weekly Measures

**Anxiety and Depression Symptoms—**Symptoms were assessed weekly using the PROMIS Emotional Distress Anxiety and Depression Short Forms (Cella et al., 2010). Participants indicated how often they had experienced each item on a scale of 1 (*never*) to 5 (*always*) during the past seven days. The anxiety scale had seven items (e.g., "I felt worried"; Nezlek's $\alpha$ = .86) and the depression scale had eight items (e.g., "I felt unhappy"; Nezlek's $\alpha$ = .90).

## Analytic Plan

Analyses were conducted in Mplus version 8.4. There were 7,436 observations from 167 participants. The median completion rate was 89.3% ($M$ = 79.5%, $SD$ = 22.6%). Within the completed surveys, 2.2% of the data were missing. Missing data were handled using full information maximum likelihood. First, we examined the direct associations between minority stressors and affect/mental health. The majority of variables were assessed daily; however, symptoms of anxiety and depression were tested weekly. In models including only daily variables, each day was treated as an observation. In models including symptoms of anxiety and depression, each week was treated as an observation and average weekly scores of other measures were utilized. In each of these models, the within- and between-person components of a minority stressor (i.e., marginalization or gender non-affirmation) were predictors of the within- and between-person components of an affect or mental health variable (i.e., positive, negative, or anxious affect, anxiety and depression). Associations between within-person stressors and outcomes were allowed to vary across individuals. The autocorrelations between the outcome at time *t-1* and time *t* were modeled as random, effectively controlling for the outcome at the previous time point in all associations. Autocorrelations were also included for the predictors and modeled as random. In all models, the linear association between the day or week of the assessment (e.g., day 1 of 56) and the outcome variable were included at the within-person level and allowed to vary across individuals. Additionally, whether an observation was collected during a weekend or weekday was entered as a within-person predictor of the outcome for models that did not include symptoms of anxiety and depression, controlling for differences in the outcome between weekend and weekdays. Age, sexual identity, gender identity, and race/ethnicity were included as covariates at the between-person level. We examined both concurrent (minority stressors at time *t* predicting the outcome at time *t*) and prospective (minority stressors at time *t* predicting the outcome at time *t*+1) within-person associations.

Similar models were used to test for indirect effects. Following procedures outlined by Preacher et al. (2010), we estimated the full indirect effects models at both within- and between-person levels to disaggregate effects. In each indirect effects model, concurrent or prospective associations among a stressor, a mediator, and an affect or mental health variable were modeled. For prospective indirect effects, lagging was used so that the indirect effect tested the association between the minority stressor at time *t-2*, the mediator at *t-1*, and the outcome at *t*. Autocorrelations for the stressor, mediator, and affect outcome were included in all indirect effects models and modeled as random, effectively controlling for the prior time point for the mediator and outcome in all associations. The same demographic controls were included for the indirect effects models.

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For both direct and indirect effects models, multilevel structural equation modeling (MSEM) with a Bayesian estimator and the default of diffuse (non-informative) priors were used. Bayesian MSEM has several advantages over traditional multilevel modeling using maximum likelihood estimation (Depaoli & Clifton, 2015). MSEM estimates between-person variables with more reliability and less bias than standard multilevel approaches (Preacher et al., 2010). MSEM treats repeated measures as indicators of latent variables, which estimate the between-person level variable while adjusting for non-independence at the within-person level (Marsh et al., 2009). Using a Bayesian estimator can overcome problems with convergence that MSEM models using a maximum likelihood estimator can have (Depaoli & Clifton, 2015). We used Markov Chain Monte Carlo (MCMC) algorithms to generate a series of 20,000 random draws from the multivariate posterior distribution of our sample for each model. Trace plots and the Gelman-Rubin potential scaling reduction were used to determine whether convergence was achieved (Depaoli & Clifton, 2015; Muthén, 2010). The confidence/credible interval for the indirect effect was calculated within the context of the model, as bootstrapping is not necessary when Bayesian estimation is used (Yuan & MacKinnon, 2009). This study was not preregistered. The data, study materials, and analysis code are not publically available although the authors can be contacted for the analysis code.

## Results

Supplemental Table 1 details the prevalence of daily marginalization. Overall, participants endorsed at least one experience of marginalization from the checklist on 25.1% of days, with an average of 2.82 instances of marginalization ($SD = 2.18$) on days when they reported one or more experience. Correlations, means, standard deviations, and intraclass correlations are presented in Supplemental Table 2. Intraclass correlations ranged from .36 to .66, indicating that there was substantial variance at both within- and between-person levels.

### Direct Associations: Marginalization and Mental Health

At the *within-person* level in *concurrent* direct effects models, daily marginalization and gender non-affirmation were associated with negative and anxious affect (Table 2). Specifically, on days when participants experienced more daily marginalization or gender non-affirmation than usual, they also experienced higher levels of negative and anxious affect. Only gender non-affirmation was associated with positive affect, such that on days when participants experienced more gender non-affirmation than usual, they also experienced less positive affect than usual. During weeks when participants experienced more marginalization and gender non-affirmation than usual, they also experienced more anxious and depressive symptoms than usual.

At the *within-person* level in *prospective* direct effects models, daily marginalization and gender non-affirmation were associated with negative affect. Specifically, when participants experienced more of these two types of stigma on one day, they experienced a subsequent increase in negative affect from that day to the next. Only gender non-affirmation was associated with positive affect, such that when participants experienced more gender non-affirmation than usual on one day, they experienced a subsequent decrease in positive affect

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from that day to the next. No prospective associations between marginalization or gender non-affirmation variables and anxious affect were significant. When participants experienced more marginalization and gender non-affirmation than usual during one week, they also experienced a subsequent increase in anxious and depressive symptoms from that week to the next.

At the *between-persons* level, people who tended to experience more daily marginalization or gender non-affirmation over the course of the study also tended to experience more negative affect, anxious affect, and anxiety and depression symptoms on average over the study. Only gender non-affirmation was associated with positive affect between-persons, such that participants who tended to experience more gender non-affirmation on average also tended to experience less positive affect on average.

### Indirect Effects

*Concurrent within-person* pathways included in indirect effects are presented in Table 3 and significance tests for indirect effects are presented in Table 4. On days when participants experienced more daily marginalization than usual, they also experienced more internalized stigma, rumination, and feelings of isolation than usual, which in turn were associated with experiencing more negative and anxious affect and less positive affect than usual. A similar pattern of significant indirect effects was also present for gender non-affirmation. On days when participants experienced more gender non-affirmation than usual, they also experienced more internalized stigma, rumination, and feelings of isolation than usual, which in turn were associated with experiencing more negative and anxious affect and less positive affect than usual. The same pattern was present at the weekly levels for anxiety and depression symptoms

Many of the prospective associations between marginalization and gender non-affirmation and hypothesized mediators were not significant. Specifically, daily marginalization was not prospectively associated with internalized stigma, rumination, or isolation and gender non-affirmation was not significantly prospectively associated with internalized stigma or rumination. Therefore, prospective indirect effects including these paths were not tested. Only prospective indirect effects involving gender non-affirmation and isolation were formally tested. Prospective indirect effects of gender non-affirmation on negative, anxious, and positive affect as well as anxiety and depression symptoms through isolation were significant (Tables 3 and 4). Specifically, when participants experienced more gender non-affirmation than usual on one day or week (time $t$-2), they experienced a subsequent increase in feelings of isolation from that day/week to the next ($t$-1), which in turn was associated with subsequent increases in negative and anxious affect and decreases in positive affect from that day to the next ($t$) and increases in anxiety and depression symptoms from that week to the next.

## Discussion

Similar to past research (e.g., McLemore, 2015; Price-Feeney et al., 2021), we found that minority stressors were commonplace in the lives of our transgender participants. We found that participants endorsed marginalization 25.1% of the days across our 56-day study.

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This 56-day window is a brief snapshot of transgender people's lived experiences. The cumulative toll of repeated marginalization on a quarter of the days in a transgender person's life is likely substantial. Indeed, in our sample, greater exposure to daily marginalization and gender non-affirmation over the course of the study was associated with increased negative and anxious affect. Furthermore, those who endorsed marginalization often reported experiencing multiple types within a day, which was in turn related to higher distress (i.e., higher anxious and negative affect) that same day and mental health at the weekly level.

Advancing our understandings of prospective effects of minority stressors, we found that marginalization and non-affirmation were related to increases in negative affect on the following day. In addition, non-affirmation was related to decreases in positive affect on the following day. There were no significant prospective associations with anxious affect, even though there were prospective associations with weekly anxiety symptoms. This likely indicates that there may be longer term effects on anxiety at a broader level, such as anxiety related disorders, even if daily fluctuation in anxious affect may have been undetected.

The present study's exploration of indirect pathways extends work based on the psychological mediation framework (Hatzenbuehler, 2009). In concurrent analyses, marginalization and non-affirmation were related to affect and mental health with significant indirect effects via internalized stigma, rumination, and isolation. In prospective analyses, marginalization did not predict changes in internalized stigma, rumination, or isolation on the subsequent day. Likewise, non-affirmation did not predict changes in internalized stigma or rumination on the subsequent day, although there were significant associations with isolation. The only significant indirect effect in prospective analyses was for isolation mediating the effects of non-affirmation on affect and mental health.

It may be that general psychological processes better capture the prospective effects of marginalization compared to identity-specific mediators. In line with this, Lloyd and colleagues (2019) similarly found that there was not a prospective association between discrimination and internalized stigma or identity nondisclosure for transgender individuals. In contrast, psychological inflexibility mediated the effects of discrimination on depression over a one year period. Although rumination did not emerge as a significant mediator in the prospective analyses, other research has suggested that this may help explain the association between discrimination and mental health six months later for sexual and gender minorities (Sarno et al., 2020). Collectively, these findings and the current study suggest that future research would benefit from including general psychological processes alongside minority specific variables.

Importantly, the significant prospective effects of gender non-affirmation highlight the interpersonal nature of minority stressors and the ways they may come to influence mental health. Past research has shown that gender non-affirmation negatively impacts mental health among transgender people (McLemore, 2015; Russell et al., 2018; Testa et al., 2015) and this was the case in our analyses as well. Furthermore, we found that gender non-affirmation predicted isolation in the prospective analyses and that this explained some of the effects on affect and mental health. Prior research has clearly noted the buffering impact social support can have for transgender individuals against minority stressors, and

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that decreased social support mediates the relationship between stigma and depression (e.g., Chakrapani et al., 2017). Some research also has demonstrated the positive impact that community engagement can have on buffering the impact of gender minority stressors (Barr et al., 2016). These findings add to this literature by demonstrating how exposure to minority stressors may shape interpersonal relationships and access to interpersonal resources for transgender people, with implications for mental health.

Finally, experiences of positive affect, joy, happiness, and related constructs are often overlooked in research with transgender communities given the overemphasis on hardships and mental health variables such as anxiety and depression (shuster & Westbrook, 2022). This study is novel in the integration of an assessment of positive affect as well. Our findings show that experiencing less marginalization and less gender non-affirmation was associated with more positive affect within concurrent analyses. Notably, at the prospective level, we found that when participants experienced less gender non-affirmation, they had more positive affect because they were experiencing less isolation. Future research is needed that considers how positive affect or additional variables such as identity pride may buffer the effects of marginalization and non-affirmation to further this line of study.

## Limitations

Findings should be interpreted in light of several limitations. The sample was comprised of largely non-Latinx white participants. Although common with recruitment for online research, we know that experiences of marginalization differ among individuals who are transgender and Black, Indigenous, People of Color (BIPOC), given the intersections of oppression related to racial, ethnic, and gender minority identities. Furthermore, our study's sample primarily consisted of trans men and women whereas future research would benefit from greater diversity in gender identities.

The findings also point to several important future research questions. As Lloyd and colleagues (2019) discuss, it is possible that there are moderators that may impact whether we detect prospective associations between distal and proximal minority stressors. Future research should take into account whether identity-related variables, like level of outness, may influence whether marginalization has subsequent effects on internalized stigma or other proximal stressors. In addition, future research should explore who perpetuated the gender non-affirmation as the type of relationship (e.g., family members, acquaintances) may influence the magnitude of the effect on mental health. Furthermore, although our daily diary design is a strength, other sampling strategies like ecological momentary assessment may better evaluate the immediate response or coping strategies used in the face of marginalization. Future research in this area can provide more in-depth understandings of how minority stressors impact mental health and ways to promote healthier outcomes in the face of adversities.

## Clinical Implications

To effectively intervene in distress following marginalization, clinicians need to understand the underlying mechanisms that may lead to increased psychological distress. When conducting initial assessments, clinicians should assess the frequency and nature of

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exposure to gender non-affirmation and experiences of marginalization to aid in case conceptualization and intervention. Clinicians can support transgender clients in exploring whether presenting concerns (e.g., symptoms of anxiety) may be linked to distal or proximal stressors. This might include naming cissexism or acknowledging daily marginalization's effect on transgender people (Puckett, 2019). Pachankis and colleagues (2022) adapted a case conceptualization model to aid clinicians in understanding the impact of minority stress on sexual minority clients, which appears promising for adaptation and use with transgender clients.

In addition, clinicians may wish to provide psychoeducation and intervention related to the mechanisms underlying gender minority stress (e.g., internalized stigma or rumination) and mental health to ensure clients are prepared with coping strategies and tools that are most helpful in dealing with specific stressors. For instance, our finding that participants experienced higher negative and anxious affect on days with greater exposure to daily marginalization and gender non-affirmation has important implications for coping. It may be beneficial to discuss adaptive coping strategies and tools that clients can seek out following a distal event to cope with the anxious or negative affect that may emerge, such as specific strategies for distress tolerance, emotion regulation, and other forms of coping. This may include the use of therapeutic approaches that have been adapted to be culturally responsive to gender minority stressors, such as challenging negative beliefs about the self after experiences of marginalization (e.g., Cognitive Behavioral Therapy interventions; Austin & Craig, 2015) or working with internalized stigma through two-chair work (e.g., Emotion Focused Therapy interventions; Westmacott & Edmondstone, 2020).

Findings from this study also have important implications for clinicians who are interested in acting at the structural level. This could include taking actions to ensure their organization is inclusive for transgender individuals to prevent additional experiences of marginalization and gender non-affirmation within clinical settings and advocating in their communities and local contexts (Puckett, 2019). Prior research has noted higher minority stress during times of sociopolitical unrest with the introduction of anti-transgender rhetoric and policies (Gonzalez et al., 2018). At the time of this paper, numerous bills and amendments are targeting transgender people across the United States. Even when such anti-transgender legislation is not passed, there are still adverse mental health effects on transgender people (Horne et al., 2022). The knowledge of such legislation can exacerbate the negative impact of distal stressors on mental health (i.e., depression, anxiety; Tebbe et al., 2021).

## Conclusions

Findings from this daily diary study indicated that experiences of daily marginalization and non-affirmation were associated with negative and anxious affect, as well as anxiety and depression symptoms, both concurrently and prospectively. This study extends prior longitudinal work on pathways of sexual and gender minority stressors (Dyar et al., 2020; Sarno et al., 2020) by exclusively focusing on marginalization experiences among a sample of transgender individuals, with important implications for understanding the specific ways gender minority stressors impact mental health.

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## Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

## Acknowledgments

We have complied with APA ethical standards in the treatment of participants. The Institutional Review Boards at Northwestern University (STU00103994-MOD0003) and the University of South Dakota (2015.229) approved of this research. This study was not preregistered. The data, study materials, and analysis code are not publically available although the authors can be contacted for the analysis code.

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**Table 1**

Sample Demographics (N = 167)

| Demographic Variables | *n* | % |
|---|---|---|
| Gender Identity | | |
| Trans men | 82 | 49.1% |
| Trans women | 31 | 18.6% |
| Genderqueer | 17 | 10.2% |
| Nonbinary | 37 | 22.2% |
| Sex Assigned at Birth | | |
| Male | 39 | 23.4% |
| Female | 128 | 76.6% |
| Sexual Identity | | |
| Lesbian/Gay | 17 | 10.2% |
| Bisexual | 31 | 18.6% |
| Queer | 75 | 44.9% |
| Pansexual | 33 | 19.8% |
| Heterosexual/Straight | 8 | 4.8% |
| Another Identity | 3 | 1.8% |
| Race/Ethnicity | | |
| Non-Latinx White | 143 | 82.2% |
| Black/African American | 2 | 2.9% |
| Latinx | 5 | 3.0% |
| Multi-Racial | 12 | 7.2% |
| Another Identity | 5 | 3.0% |
| Education | | |
| Some high school | 4 | 2.4 |
| High school graduate or GED | 19 | 11.4% |
| Some college | 55 | 32.9% |
| Technical or Associate's degree | 9 | 5.4% |
| Bachelor's degree | 59 | 35.3% |
| Graduate degree | 21 | 12.6% |
| Annual Income | | |
| < $10,000 (USD) | 69 | 41.3% |
| $10,000 – $19,999 | 38 | 22.8% |
| $20,000 – $29,999 | 18 | 10.8% |
| $30,000 – $39,999 | 17 | 10.2% |
| $40,000 or more | 24 | 14.4% |
| Missing | 1 | 0.6% |
| Age (*M, SD*) | 25.4 (5.4) | |

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**Table 2**

Direct Associations between Minority Stressors, Affect, and Mental Health

| | | Within-Person Associations | | | | | | Between-Person Associations | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Concurrent Associations | | | Prospective Associations | | | | | |
| **Predictor** | **Outcome** | ***b*** | ***95% CI*** | ***p*** | ***b*** | ***95% CI*** | ***p*** | ***b*** | ***95% CI*** | ***p*** |
| Marginalization | Negative Affect | **.13** | **.10, .16** | **< .001** | **.02** | **.002,.047** | **.034** | **.31** | **.21, .41** | **< .001** |
| | Anxious Affect | **.11** | **.09, .14** | **< .001** | .01 | −.01, .03 | .226 | **.20** | **.10, .29** | **< .001** |
| | Positive Affect | −.02 | −.04, .001 | .062 | −.001 | −.02, .02 | .922 | −.04 | −.14, .06 | .398 |
| | Anxiety | **.82** | **.46, 1.21** | **< .001** | **.42** | **.02, .80** | **.038** | **2.39** | **.42, 4.34** | **.020** |
| | Depression | **.83** | **.41, 1.30** | **< .001** | **.47** | **.03, .91** | **.036** | 2.89 | −.01, 5.73 | .050 |
| Gender Non-Affirmation | Negative Affect | **.27** | **.22, .33** | **< .001** | **.09** | **.04, .14** | **< .001** | **.36** | **.19, .53** | **< .001** |
| | Anxious Affect | **.16** | **.11, .20** | **< .001** | .04 | −.002, .08 | .064 | **.23** | **.07, .39** | **.006** |
| | Positive Affect | **−.24** | **−.28, −.19** | **< .001** | **−.05** | **−.09, −.01** | **.028** | **−.18** | **−.34, −.03** | **.018** |
| | Anxiety | **1.60** | **.73, 2.49** | **< .001** | **1.13** | **.56, 2.17** | **< .001** | **2.90** | **.81, 4.84** | **.008** |
| | Depression | **2.63** | **1.53, 3.70** | **< .001** | **1.81** | **.78, 2.89** | **.002** | **4.60** | **1.99, 6.94** | **.002** |

*Note.* Random autocorrelations were included for the outcome. Day of assessment and whether the assessment was on a weekend or weekday were controlled for at the within-person level in analyses of affect. Analyses of symptomology included week of assessment as a covariate at the within-person level. Age, sexual identity, gender identity, and race/ethnicity were included as covariates at the between-person level. Bolded text represents significant findings.

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**Table 3**

Concurrent and Prospective Within-Person Indirect Effect Components

| | | | | Path a | | | Path b | | | Path c | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Model** | **Predictor** | **Mediator** | **Outcome** | ***b*** | ***95% CI*** | ***p*** | ***b*** | ***95% CI*** | ***p*** | ***b*** | ***95% CI*** | ***p*** |
| Concurrent | Marginalization | Internalized Stigma | Negative Affect | **.12** | **.09, .14** | **< .001** | **.57** | **.51, .64** | **< .001** | **.06** | **.04, .09** | **< .001** |
| | | | Anxious Affect | **.12** | **.09, .14** | **< .001** | **.27** | **.21, .33** | **< .001** | **.08** | **.05, .10** | **< .001** |
| | | | Positive Affect | **.12** | **.09, .14** | **< .001** | **−.46** | **−.51, −.40** | **< .001** | **.03** | **.01, .05** | **.002** |
| | | | Anxiety | **.12** | **.08, .17** | **< .001** | **2.34** | **1.48, 3.14** | **< .001** | **.56** | **.20, .91** | **< .001** |
| | | | Depression | **.12** | **.08, .17** | **< .001** | **4.33** | **3.15, 5.52** | **< .001** | .31 | −.16, .77 | .192 |
| | | Rumination | Negative Affect | **.07** | **.06, .09** | **< .001** | **.97** | **.89, 1.05** | **< .001** | **.05** | **.03, .08** | **< .001** |
| | | | Anxious Affect | **.07** | **.06, .09** | **< .001** | **.51** | **.45, .56** | **< .001** | **.07** | **.05, .09** | **< .001** |
| | | | Positive Affect | **.07** | **.06, .09** | **< .001** | **−.41** | **−.46, −.35** | **< .001** | .01 | −.01, .03 | .318 |
| | | | Anxiety | **.09** | **.05, .13** | **< .001** | **3.90** | **3.07, 4.74** | **< .001** | **.47** | **.15, .81** | **.004** |
| | | | Depression | **.09** | **.05, .13** | **< .001** | **6.49** | **5.43, 7.45** | **< .001** | .25 | −.23, .71 | .294 |
| | | Isolation | Negative Affect | **.06** | **.04, .08** | **< .001** | **.71** | **.65, .78** | **< .001** | **.09** | **.07, .12** | **< .001** |
| | | | Anxious Affect | **.06** | **.04, .08** | **< .001** | **.31** | **.26, .36** | **< .001** | **.10** | **.07, .12** | **< .001** |
| | | | Positive Affect | **.06** | **.04, .08** | **< .001** | **−.41** | **−.46, −.35** | **< .001** | .002 | −.02, .02 | .846 |
| | | | Anxiety | **.10** | **.06, .15** | **< .001** | **2.53** | **1.87, 3.27** | **< .001** | **.42** | **.10, .83** | **.012** |
| | | | Depression | **.10** | **.06, .16** | **< .001** | **5.27** | **4.46, 6.19** | **< .001** | .18 | −.25, .66 | .386 |
| | Gender Non-Affirmation | Internalized Stigma | Negative Affect | **.32** | **.27, .36** | **< .001** | **.58** | **.51, .65** | **< .001** | **.07** | **.02, .13** | **.006** |
| | | | Anxious Affect | **.32** | **.27, .36** | **< .001** | **.29** | **.23, .35** | **< .001** | **.05** | **.01, .09** | **.008** |
| | | | Positive Affect | **.32** | **.27, .36** | **< .001** | **−.40** | **−.46, −.35** | **< .001** | **−.09** | **−.14, −.05** | **< .001** |
| | | | Anxiety | **.38** | **.30, .46** | **< .001** | **2.42** | **1.56, 3.31** | **< .001** | .59 | −.31, 1.48 | .196 |
| | | | Depression | **.38** | **.29, .45** | **< .001** | **4.14** | **2.96, 5.34** | **< .001** | 1.14 | −.03, 2.26 | .056 |
| | | Rumination | Negative Affect | **.15** | **.11, .19** | **< .001** | **.97** | **.89, 1.05** | **< .001** | **.13** | **.08, .17** | **< .001** |
| | | | Anxious Affect | **.15** | **.11, .19** | **< .001** | **.52** | **.46, .58** | **< .001** | **.08** | **.04, .12** | **< .001** |
| | | | Positive Affect | **.15** | **.11, .19** | **< .001** | **−.37** | **−.42, −.31** | **< .001** | **−.18** | **−.22, −.13** | **< .001** |
| | | | Anxiety | **.22** | **.12, .32** | **< .001** | **3.74** | **2.92, 4.56** | **< .001** | **.80** | **.08, 1.56** | **.028** |
| | | | Depression | **.22** | **.13, .33** | **< .001** | **6.06** | **5.08, 7.07** | **< .001** | **1.59** | **.67, 2.51** | **< .001** |
| | | Isolation | Negative Affect | **.22** | **.16, .27** | **< .001** | **.70** | **.64, .77** | **< .001** | **.12** | **.08, .17** | **< .001** |
| | | | Anxious Affect | **.22** | **.16, .27** | **< .001** | **.31** | **.26, 37** | **< .001** | **.09** | **.04, .13** | **< .001** |

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| | | | | Path a | | | Path b | | | Path c | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Model** | **Predictor** | **Mediator** | **Outcome** | ***b*** | ***95% CI*** | ***p*** | ***b*** | ***95% CI*** | ***p*** | ***b*** | ***95% CI*** | ***p*** |
| Prospective | Gender Non-Affirmation | Isolation | Positive Affect | **.22** | **.16, .27** | **< .001** | **−.38** | **−.43, −.33** | **< .001** | **−.15** | **−.20, −.10** | **< .001** |
| | | | Anxiety | **.34** | **.24, .44** | **< .001** | **2.49** | **1.82, 3.22** | **< .001** | .44 | −.32, 1.28 | .242 |
| | | | Depression | **.33** | **.23, .44** | **< .001** | **5.14** | **4.33, 6.05** | **< .001** | .62 | −.28, 1.60 | .170 |
| | | | Negative Affect | **.04** | **.01, .06** | **.01** | **.16** | **.11, .21** | **< .001** | .02 | −.02, .06 | .284 |
| | | | Anxious Affect | **.05** | **.02, .08** | **.002** | **.05** | **.01, .09** | **.008** | −.004 | −.04, .04 | .842 |
| | | | Positive Affect | **.05** | **.02, .08** | **.002** | **−.04** | **−.09, −.01** | **.028** | −.02 | −.06, .02 | .368 |
| | | | Anxiety | **.10** | **.03, .18** | **.010** | **1.62** | **.83, 2.36** | **< .001** | .09 | −.57, .65 | .744 |
| | | | Depression | **.06** | **.01, .12** | **.022** | **3.89** | **2.85, 4.71** | **< .001** | .33 | −.45, 1.02 | .366 |

*Note.* Random autocorrelations were included for the mediator and outcome at the within-person level. Day of assessment and whether the assessment was on a weekend or weekday were controlled for at the within-person level. Analyses of symptomology included week of assessment as a covariate at the within-person level. Age, sexual identity, gender identity, and race/ethnicity were included as covariates at the between-person level. Bolded text represents significant findings.

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**Table 4**

Concurrent and Prospective Within-Person Indirect Effect Estimates

| | | | Concurrent | | | Prospective | | |
|---|---|---|---|---|---|---|---|---|
| **Indirect Effect Predictor** | **Mediator** | **Outcome** | ***b*** | ***95% CI*** | ***p*** | ***b*** | ***95% CI*** | ***p*** |
| Marginalization | Internalized Stigma | Negative Affect | **.07** | **.05, .08** | **< .001** | - | - | - |
| | | Anxious Affect | **.03** | **.02, .04** | **< .001** | - | - | - |
| | | Positive Affect | **−.05** | **−.07, −.04** | **< .001** | - | - | - |
| | | Anxiety | **.29** | **.16, .46** | **< .001** | - | - | - |
| | | Depression | **.54** | **.32, .80** | **< .001** | - | - | - |
| | Rumination | Negative Affect | **.07** | **.05, .09** | **< .001** | - | - | - |
| | | Anxious Affect | **.04** | **.03, .05** | **< .001** | - | - | - |
| | | Positive Affect | **−.03** | **−.04, −.02** | **< .001** | - | - | - |
| | | Anxiety | **.34** | **.19, .52** | **< .001** | - | - | - |
| | | Depression | **.57** | **.32, .85** | **< .001** | - | - | - |
| | Isolation | Negative Affect | **.04** | **.03, .06** | **< .001** | - | - | - |
| | | Anxious Affect | **.02** | **.01, .03** | **< .001** | - | - | - |
| | | Positive Affect | **−.02** | **−.03, .01** | **< .001** | - | - | - |
| | | Anxiety | **.26** | **.14, .42** | **< .001** | - | - | - |
| | | Depression | **.54** | **.30, .84** | **< .001** | - | - | - |
| Gender Non-Affirmation | Internalized Stigma | Negative Affect | **.18** | **.15, .22** | **< .001** | - | - | - |
| | | Anxious Affect | **.09** | **.07, .12** | **< .001** | - | - | - |
| | | Positive Affect | **−.13** | **−.15, −.10** | **< .001** | - | - | - |
| | | Anxiety | **.91** | **.56, 1.33** | **< .001** | - | - | - |
| | | Depression | **1.54** | **1.03, 2.14** | **< .001** | - | - | - |
| | Rumination | Negative Affect | **.15** | **.10, .19** | **< .001** | - | - | - |
| | | Anxious Affect | **.08** | **.05, .10** | **< .001** | - | - | - |
| | | Positive Affect | **−.06** | **−.07, −.04** | **< .001** | - | - | - |
| | | Anxiety | **.83** | **.44, 1.29** | **< .001** | - | - | - |
| | | Depression | **1.35** | **.75, 2.04** | **< .001** | - | - | - |
| | Isolation | Negative Affect | **.15** | **.11, .19** | **< .001** | **.01** | **.002, .01** | **.006** |
| | | Anxious Affect | **.07** | **.05, .09** | **< .001** | **.003** | **.0001, .006** | **.010** |

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| Indirect Effect Predictor | Mediator | Outcome | Concurrent | | | Prospective | | |
|---|---|---|---|---|---|---|---|---|
| | | | *b* | *95% CI* | *p* | *b* | *95% CI* | *p* |
| | | Positive Affect | **−.08** | **−.11, −.06** | **< .001** | **−.002** | **−.005, −.0001** | **.030** |
| | | Anxiety | **.83** | **.52, 1.21** | **< .001** | **.15** | **.04, .32** | **.010** |
| | | Depression | **1.69** | **1.12, 2.34** | **< .001** | **.24** | **.04, .49** | **.022** |

*Note.* "-" indicated that significance of indirect effect was not tested due to non-significant a pathway (from enacted stigma to mediator). Random autocorrelations were included for the mediator and outcome at the within-person level. Day of assessment and whether the assessment was on a weekend or weekday were controlled for at the within-person level. Analyses of symptomology included week of assessment as a covariate at the within-person level. Age, sexual identity, gender identity, and race/ethnicity were included as covariates at the between-person level. Bolded text represents significant findings.