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The affective consequences of minority stress among bisexual, pansexual, and queer (bi+) adults: A daily diary study

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Abstract

Bisexual, pansexual, and queer (bi+) individuals are at increased risk for depression and anxiety. These disparities are hypothesized to be due to the unique, minority-specific stressors that they experience. Prior research supports that bi+ stressors are associated with depression and anxiety, but nearly all studies have been cross-sectional, limiting our understanding of how experiencing bi+ stress influences individuals' levels of depression and anxiety as they occur in their day-to-day lives. To address this gap, we examined the daily associations between bi+ stressors (discrimination, internalized stigma, rejection sensitivity, and identity concealment) and depressed/anxious mood in a 28-day diary study. Participants were 208 bi+ individuals who completed daily measures of bi+ stressors and depressed/anxious mood. We tested unlagged (same-day) and lagged (next-day) associations, and we also tested whether internalized stigma, rejection sensitivity, and identity concealment functioned as mechanisms underlying the daily associations between discrimination and depressed/anxious mood. Participants reported higher depressed/anxious mood on days when they reported higher discrimination, internalized stigma, rejection sensitivity, and identity concealment. There were significant unlagged indirect effects of discrimination on depressed and anxious mood via internalized stigma and rejection sensitivity, and there was also a significant unlagged indirect effect of discrimination on anxiety via identity concealment. However, none of the lagged associations were significant. Results suggest that bi+ stress is related to same-day, but not next-day, depressed/anxious mood. The non-significant lagged associations could reflect that bi+ individuals are using adaptive coping skills in response

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to bi+ stress, or that other experiences throughout the day have stronger influences on next-day mood.

Keywords

bisexual; pansexual; queer; minority stress; depression; anxiety; daily diary

Bisexual people are at increased risk for depression and anxiety compared to heterosexual people, and they are often at increased risk compared to gay and lesbian people as well (Ross et al., 2018). In addition, accumulating evidence suggests that people who use other labels to describe multi-gender attractions (e.g., pansexual, queer; collectively "bi+") are also at increased risk for depression and anxiety (Borgogna et al., 2019; Horwitz et al., 2020). These disparities are hypothesized to be due to the unique stressors that bi+ people face, including negative attitudes toward and stereotypes about them (e.g., that they are confused about their sexual orientation), which come from both heterosexual and gay/lesbian people (Brooks, 1981; Feinstein & Dyar, 2017; Meyer, 2003). Prior research supports that these unique bi+ stressors are associated with depression and anxiety (Dyar et al., 2019; Lambe et al., 2017; Paul et al., 2014), but nearly all of these studies have been cross-sectional, limiting our understanding of how a given person's daily fluctuation in bi+ stress influences their depression and anxiety on the same- and next-day. To address this gap, we examined the daily associations between bi+ stressors (discrimination, internalized stigma, rejection sensitivity, and identity concealment) and depressed/anxious mood in a 28-day diary study.

Minority stress theory proposes that sexual minorities experience unique stressors related to their stigmatized social status ("minority stressors") and that these unique stressors account for their increased risk for depression and anxiety (Brooks, 1981; Meyer, 2003). Minority stressors are hypothesized to exist along a continuum from distal stressors, which are external to the individual (e.g., discrimination), to proximal stressors, which are internal to the individual (e.g., internalized stigma, rejection sensitivity, identity concealment). The associations between each of these minority stressors and depression and anxiety are well-documented (Cohen et al., 2016; Feinstein, 2020; Meyer, 2003; Newcomb & Mustanski, 2010; Pachankis et al., 2020).

While all sexual minorities are at risk of experiencing stressors related to their sexual orientation, bi+ individuals contend with unique forms of these stressors rooted in monosexism, or the assumption that everyone is or should be attracted to only one gender (Eisner, 2016). For example, bi+ individuals face having their identities questioned and erased by others, being stereotyped in unique ways (e.g., as promiscuous or unfaithful in relationships), and they experience discrimination from both heterosexual and gay/lesbian individuals (Brewster & Moradi, 2010; Dyar et al., 2019; Feinstein & Dyar, 2017). Bi+ individuals are also less likely to be open about and more likely to conceal their sexual orientation than gay/lesbian individuals (Balsam & Mohr, 2007; Mohr et al., 2017; van der Star et al., 2019). Accumulating evidence supports that each of these minority stressors is associated with depression and anxiety among bi+ individuals (Dyar et al., 2019; Lambe et

al., 2017; Paul et al., 2014). However, most of these studies have been cross-sectional. In an exception, one longitudinal study found that discrimination was associated with increases in anxiety over time, and internalized and anticipated stigma were associated with increases in anxiety and depression over time among bi+ individuals assigned female at birth (Dyar et al., 2021).

While these studies provide support for the associations between bi+ stress and depression and anxiety, examining the day-to-day experiences of bi+ individuals can provide important insights into the more immediate impacts of these stressors on depressed and anxious mood. Depressed and anxious mood are cardinal symptoms of depressive and anxiety disorders, respectively—so much so that the term “emotional disorders” is often used to describe mood and anxiety disorders (Bullis et al., 2019). Furthermore, daily dynamics of depressed and anxious mood may characterize disorder. In an ecological momentary assessment study, compared to people without a lifetime history of mood, anxiety, or substance use disorder, people with a lifetime history of major depression reported higher daily sad and anxious mood, and people with a lifetime history of an anxiety disorder reported higher daily anxious mood (Lamers et al., 2018). Given the centrality of depressed and anxious mood to emotional disorders, examining the associations between daily experiences of bi+ stressors and mood is critical to advancing our understanding of bi+ people’s mental health.

In addition, determining whether bi+ stressors co-occur with or prospectively predict depressed and anxious mood can help establish the directionality of these associations. Prior studies have found that daily experiences of minority stress (including discrimination, internalized stigma, and expectations of rejection) are associated with negative mood among sexual minorities (Mereish et al., 2021; Mohr et al., 2019; Mohr & Sarno, 2016), but relatively few studies have examined these processes specifically among bi+ individuals. In exceptions, one study found that bi+ individuals reported higher anxiety on days when they experienced discrimination (Flanders, 2015); another study found that daily experiences of microaggressions were associated with elevated levels of depression and suicidality among bi+ women (Salim et al., 2019); and another study found that weekly experiences of discrimination and internalized stigma were associated with increases in internalizing symptoms over time among bisexual cisgender women (Dyar & London, 2018a).

Together, these studies provide support for the within-person associations between bi+ stressors and mental health at the daily/weekly level, but each of these studies was limited in its focus on only one type of bi+ stressor (e.g., discrimination, microaggressions) or in its focus on a specific subset of bi+ individuals (e.g., cisgender women). Furthermore, additional research is needed to understand the mechanisms underlying these associations. According to the psychological mediation framework (Hatzenbuehler, 2009), experiencing discrimination can lead to internalizing these experiences (internalized stigma), anxiously expecting them to re-occur in the future (rejection sensitivity), and concealing one’s identity to prevent them from re-occuring (identity concealment), all of which can then contribute to depression and anxiety. Prior cross-sectional studies of sexual minorities have found that discrimination is associated with internalized stigma, rejection sensitivity, and identity concealment, which in turn are associated with depression and anxiety (Dyar et al., 2018; Feinstein et al., 2012; Liao et al., 2015). Although the temporality of these associations

cannot be determined from these cross-sectional studies, one longitudinal study of bi+ individuals found that discrimination was associated with increases in internalized and anticipated stigma six-months later, which, in turn, were associated with increases in depression and anxiety symptoms six-months after that (Dyar et al., 2021).

Still, the mechanisms underlying the associations between bi+ stressors and mental health have yet to be examined at the daily level. Daily diary studies have several strengths relative to traditional longitudinal methods with longer time intervals between assessments. By collecting data in the context of people's daily lives, daily data have greater ecological validity and are less susceptible to recall error and biases (Kihlstrom et al., 2000; Trull & Ebner-Priemer, 2009). In addition, daily diary studies can clarify temporal associations between variables that change within short time intervals (e.g., mood). By assessing bi+ individuals' experiences of bi+ stressors and mood each day, we can test the extent to which experiencing higher levels of a bi+ stressor on a given day (relative to one's own average level of a bi+ stressor) is associated with higher levels of depressed and anxious mood on the same day as well as the next day. Finally, given that stress and emotional experiences vary over time within a single person (Howland et al., 2017; Sliwinski et al., 2009), accurate examination of these constructs requires assessment in close to real time.

The Current Study

The goals of the current study were to examine the within- and between-person associations between bi+ stressors (discrimination, internalized stigma, rejection sensitivity, and identity concealment) and depressed/anxious mood in a sample of 208 bi+ individuals who participated in a 28-day diary study. We hypothesized that, at the within-person level, on days when participants experienced discrimination, concealed their identity, and/or reported higher levels of internalized stigma and rejection sensitivity, they would report higher levels of depressed/anxious mood on that same day (unlagged) and on the following day (lagged). In addition, we hypothesized that the unlagged and lagged associations between discrimination and depressed/anxious mood would be mediated by internalized stigma, rejection sensitivity, and identity concealment. At the between-person level, we hypothesized a similar set of associations between bi+ stressors and depressed/anxious mood. Specifically, we expected that individuals who tended to experience more discrimination, report higher levels of internalized stigma and rejection sensitivity, or conceal their identity more would tend to have higher levels of depressed/anxious mood.

Method

Procedure

This study was part of a larger project focused on bi+ visibility attempts, minority stress, and health that included a cross-sectional survey (N = 715) and a 28-day diary study with a subset of the larger sample (N = 208). Participants were recruited using paid advertisements on Facebook and Instagram, which directed potential participants to an eligibility survey. Eligibility criteria included: (1) at least 18 years old; (2) lived in the United States; and (3) reported being attracted to people of more than one gender or regardless of gender. We purposefully recruited a gender-diverse sample, aiming to recruit similar proportions

of cisgender women (i.e., individuals assigned female at birth who identify as women), cisgender men (i.e., individuals assigned male at birth who identify as men), and gender minorities (i.e., individuals who identify with a gender that differs from their sex assigned at birth; e.g., transgender, nonbinary). Those who met the eligibility criteria were automatically directed to the consent form. If they consented to participate, then they were automatically directed to the cross-sectional survey. A random subset of participants who completed the cross-sectional survey and consented to be contacted about the diary study were sent an email invitation to participate in the diary study. This email contained a link to the consent form for the diary portion of the study. A total of 215 people consented to participate in the diary study, but seven did not complete any diary surveys, leaving an analytic sample of 208 participants. Participants were compensated $1 for each daily survey they completed as well as a $10 bonus if they completed at least 21 of the 28 daily surveys.

The diary study included 28 daily online surveys and participants were required to complete each day's survey within a six-hour window (6pm-12am Central Standard Time). Participants could not complete a daily survey after the survey window closed. Participants were sent automatic emails when the survey window opened and they were sent a reminder email if the survey had not been completed after three hours. It took an average of 6 minutes for participants to complete the survey (median = 3 minutes). This study was approved by the Institutional Review Board at Northwestern University (the first and second authors' institution at the time of data collection).

Participants

The analytic sample (N = 208) included similar proportions of cisgender women (32.2%), cisgender men (35.6%), and gender minorities (32.2%). The majority of participants identified as non-Latinx white (72.6%), and the average age was 27.0 years (SD = 8.8 years). Participants predominately identified as bisexual (57.2%), pansexual (19.7%), or queer (20.7%), with a small number of participants (2.4%) identifying with other sexual identity labels (e.g., fluid). See Table 1 for further information about the sample's demographics.

Measures

Mood was assessed prior to any other constructs in all daily surveys in order to avoid potential order effects. Depressed and anxious mood were each assessed using 3 items (depressed: *sad*, *hopeless*, and *discouraged*; anxious: *anxious*, *on edge*, *uneasy*) from the Profiles of Mood States (POMS-15) (Cranford et al., 2006). Participants were asked to indicate to what extent they felt each of the 6 emotions "today" on a 5-point Likert scale from 1 (*not at all*) to 5 (*extremely*). Items from each subscale were averaged to create subscale scores. Internal consistency was calculated using procedures recommended by Nezlek (2017) and were acceptable (.84–.85).

Internalized stigma was assessed using a two-item version of the internalized binegativity subscale of the Bisexual Identity Inventory (Paul et al., 2014). Participants were asked, "How much did you agree or disagree with each of the following statements today?" Items included "I wish I could control my sexual and romantic feelings by directing them at a

single gender" and "I would be better off if I would just identify as gay or straight, rather than bi+." Responses were provided on a 7-point Likert scale from 1 (*strongly disagree*) to 7 (*strongly agree*). Items were averaged to create subscale scores. This two-item subscale has been used and psychometrically validated in a previous diary study (Dyar & London, 2018a, 2018b).

Internal consistency calculations demonstrated low day-level variance in internalized stigma (σ^2 = .02), which is consistent with the high intraclass correlation (ICC) observed for this subscale (.87). Given the low day-level variance and inclusion of only two items, the estimate of item-level reliability was also low (.20). However, this low estimate of item-level reliability does not appear to be the result of small associations between responses to the two items in the subscale during a given day, as participants provided the same responses to both of the items on a subscale on 66–73% of days and provided responses within one point of each other to the two items on a subscale on 89–90% of days. This pattern of findings highlights the limitations of current methods available to calculate item-level variability in daily diary studies, several of which are noted by Nezlek (2017).

Rejection sensitivity was assessed using two items adapted from existing measures of rejection sensitivity for sexual minority individuals (Dyar et al., 2016; Pachankis et al., 2008). First, participants were asked, "How worried or anxious were you about being rejected because of your bi+ identity today?" on a 6-point Likert scale of 1 (*not at all anxious*) to 6 (*very anxious*). Then, they were asked, "How likely did you think it was that you would be rejected because of your bi+ identity today?" on a 6-point Likert scale of 1 (*very unlikely*) to 6 (*very likely*). A similar two-item measure of sexual orientation rejection sensitivity has previously been utilized in a daily diary study (Dyar & London, 2018a). Consistent with other measures of rejection sensitivity (Chan & Mendoza-Denton, 2008; Dyar et al., 2016; London et al., 2012; Mendoza-Denton et al., 2002; Pachankis et al., 2008), the responses for these two items were multiplied to create a total score. To avoid issues with convergence due to having measures on substantially different scales, these scores were divided by 6 to place the total score on a scale of 1 to 6.

Discrimination was assessed using an adapted version of the Brief Anti-Bisexual Experiences Scale (Brewster & Moradi, 2010; Dyar et al., 2019). Participants were asked to indicate if they had experienced each of the eight discrimination experiences that day (0 = *no*, 1 = *yes*). The original measure assessed the frequency of each experience on a 6-point Likert scale (1 = *never*, 6 = *almost all the time*) and did so separately for experiences with heterosexual versus lesbian/gay individuals. We modified the response options to make them appropriate for daily administration and we asked about experiences in general (rather than separating individuals' experiences with heterosexual versus lesbian/gay individuals) to reduce participant burden. Internal consistency was calculated using procedures recommended by Nezlek (2017) and was excellent (.91). Items were summed.

Identity concealment was assessed by asking participants "Did you purposefully try to conceal your bi+ identity today?" (0 = *no*, 1 = *yes*).

Analytic Plan

Analyses were conducted in Mplus version 8.1. Within the completed surveys, 1.2% of the data were missing. Missing data were handled using full information maximum likelihood. Multilevel structural equation modeling (MSEM) with a Bayesian estimator and the default of diffuse (non-informative) priors was 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 affect MSEM models using a maximum likelihood estimator (Depaoli & Clifton, 2015). We used Markov Chain Monte Carlo (MCMC) algorithms to generate a series of 10,000 random draws from the multivariate posterior distribution of our sample for each model. Trace plots and the Gelman-Rubin potential scaling reduction (PSR) were used to determine whether convergence was achieved (Depaoli & Clifton, 2015; Muthén, 2010). A probit link was used for binary outcomes (identity concealment). Probit regression coefficients represent the variance shared by the predictor and the latent continuous response variables underlying each binary observed item (Agresti, 2003).

We examined the direct associations between bi+ stressors and mood. In each of these models, the within- and between-person components of a bi+ stressor (discrimination, internalized stigma, rejection sensitivity, or identity concealment) were modeled as predictors of the within- and between-person components of mood (depressed or anxious mood). In all models, the linear association between the day of the assessment (e.g., day 1 of 28) and the outcome variable, and the first-order autocorrelation of the outcome's residuals (i.e., the correlation between the residual at time t-1 with the residual at time t) were included at the within-person level. All within-person associations were allowed to vary across individuals. Age, sexual identity, gender identity, and race/ethnicity were included as covariates at the between-person level. We examined both unlagged (bi+ stressors at time t predicting mood at time t) and lagged (bi+ stressors at time t predicting mood at time t+1) within-person associations.

Similar models were used to test for indirect effects. Following procedures outlined by Preacher, Zyphur, and Zhang (2010), we estimated the full indirect effects models at both the within- and between-person levels to disaggregate the effects. In each indirect effects model, unlagged or lagged associations among discrimination, a mediator (internalized stigma, rejection sensitivity, or identity concealment), and mood were modeled. The lagged indirect effects models tested the association between discrimination at time t-2, the mediator at t-1, and mood at t. Autocorrelations for discrimination, the mediator, and mood were included in all indirect effects models and modeled as random, effectively controlling for the prior time point for the mediator and mood in all associations. The same demographic controls included for the direct effects models were also included in the indirect effects models. An illustration of the lagged indirect effect model is provided in Figure 1. This illustration also

applies to the unlagged indirect effect model with the exception that all of the variables are measured at same time point in the unlagged model.

Results

There were a total of 4,444 complete daily diary surveys from 208 participants. The median completion rate was 85.7% (M = 76.3%, SD = 25.8%). Means, standard deviations, and ICCs for the main study variables are presented in Table 2. Participants experienced discrimination on a total of 8.9% of days. The number of days any individual participant experienced discrimination ranged from 0–17 days (M = 1.91 days, SD = 2.92). ICCs for discrimination, rejection sensitivity, identity concealment, depressed mood, and anxious mood ranged from .20 to .45, indicating that 55–80% of the variance in these variables was due to within-person variability. The ICC for internalized stigma was higher (.87), indicating that only 13% of the variance in this variable was due to within-person variability.

Direct Associations

At the within-person level in unlagged direct effects models, discrimination, internalized stigma, rejection sensitivity, and identity concealment were all associated with both depressed and anxious mood (Table 3). Specifically, on days when participants experienced more discrimination, internalized stigma, or rejection sensitivity than usual or concealed their identity, they also experienced higher levels of depressed and anxious mood. None of the lagged within-person associations between bi+ stressors and mood were significant.

At the between-person level, only internalized stigma and rejection sensitivity were significantly associated with depressed and anxious mood. Specifically, bi+ individuals who tended to experience more internalized stigma and rejection sensitivity on average (over the course of the study) also tended to experience more depressed and anxious mood on average.

Indirect Effects Models

Unlagged within-person pathways included in indirect effects are presented in Table 4, and significance tests for indirect effects are presented in Table 5. There were significant indirect effects of discrimination on depression and anxious mood through internalized stigma and rejection sensitivity. Specifically, on days when participants experienced more discrimination than their usual level, they also experienced more internalized stigma and rejection sensitivity than usual, which in turn were associated with experiencing more depressed and anxious mood than usual. In addition, there was also a significant indirect effect of discrimination on anxious mood through identity concealment. On days when participants experienced more discrimination than usual, they were more likely to conceal their identity, which was associated with experiencing more anxious mood than usual. None of the lagged within-person indirect effects were significant.

Discussion

The overarching goal of the current study was to advance our understanding of the role of bi+ stress on mood at the daily level. By examining these processes as they naturally occur in daily life, we can better understand the extent to which bi+ stressors fluctuate from

day-to-day for a given individual and the temporality of their associations with mood, while also increasing ecological validity and reducing recall biases. In the current study, 55–80% of the variability in discrimination, rejection sensitivity, and identity concealment was due to within-person variability, highlighting the importance of examining these constructs as they occur in daily life. In contrast, only 13% of the variability in internalized stigma was due to within-person variability. This is consistent with prior research, which has also found that internalized stigma is more trait-like than other minority stressors (Feinstein et al., 2017).

Consistent with prior studies (Dyar & London, 2018a; Flanders, 2015; Salim et al., 2019), we found that on days when participants experienced more discrimination and internalized stigma than their usual level, they also experienced higher levels of depressed and anxious mood. We built on these findings in two important ways. First, we extended these findings to rejection sensitivity and identity concealment, demonstrating that on days when participants experienced more rejection sensitivity than usual or concealed their identity, they also experienced higher levels of depressed and anxious mood. Second, consistent with the psychological mediation framework (Hatzenbuehler, 2009), we found indirect effects of discrimination on depressed and anxious mood through internalized stigma and rejection sensitivity, and an indirect effect of discrimination on anxious mood through identity concealment. These findings demonstrate that discrimination is associated with depressed and anxious mood at the daily level, and that negative feelings about one's bi+ identity as well as concerns about experiencing discrimination in the future help to explain these associations.

Consistent with the within-person results, we also found that internalized stigma and rejection sensitivity were associated with depressed and anxious mood at the between-person level. In other words, participants who tended to report higher levels of internalized stigma and rejection sensitivity over the course of the study also tended to report higher levels of depressed and anxious mood. Given that we did not find the same pattern of results for discrimination, these findings may suggest that proximal minority stressors were more strongly related to depressed and anxious mood than distal minority stressors. This hypothesis is consistent with the psychological mediation framework, which posits that distal minority stressors influence mental health through their influences on proximal minority stressors (and other proximal risk factors) (Hatzenbuehler, 2009). In addition, recent evidence suggests that the extent to which identity concealment influences depression and anxiety among bi+ individuals depends on their motivations for concealing their identity (Feinstein et al., 2020). While interpersonal motivations (e.g., concern about being judged or treated negatively) are associated with higher levels of depression and anxiety, intrapersonal motivations (e.g., one's bi+ identity not being a central part of one's overall identity) are not. As such, if bi+ people are concealing their identity for different reasons at different times, then aggregating experiences of concealment over 28 days may obscure associations with depressed and anxious mood.

Finally, despite finding significant unlagged (same-day) associations between bi+ stressors and depressed/anxious mood, none of the lagged (next-day) associations between bi+ stressors and mood were significant. In other words, experiencing higher levels of bi+ stressors than usual on a given day was associated with experiencing higher levels of

depressed and anxious mood than usual on that same day, but not on the following day. One possible explanation for these nonsignificant findings is that our participants may have used adaptive coping skills that mitigated the effect of bi+ stressors on next-day mood. This would be consistent with prior findings that stressors are not uniformly related to mood—their relative impact depends heavily on the regulatory strategies that people use to cope with the situations and resulting emotions (Gross, 2015). Alternatively, it is possible that other experiences throughout the day had stronger influences on next-day mood. For example, bi+ individuals also have positive experiences related to their sexual orientation and these positive experiences are associated with better well-being (Dyar & London, 2018b). More generally, positive emotions can attenuate the intensity and effect of negative emotions (Fredrickson et al., 2000). We did not assess positive experiences in the current study, but it is possible that our participants also had positive experiences that mitigated the effects of bi+ stress on their mood. Finally, it is also possible that other unmeasured protective factors (e.g., social support) buffered against the iatrogenic effects of bi+ stressors on next-day mood.

The current findings must be considered in light of several limitations. First, the majority of our participants were white, non-Latinx, and highly educated, and they were all from the United States. As such, our findings may not generalize to other subsets of the broader bi+ population, such as bi+ people of Color, who face unique challenges at the intersections of their sexual orientation, race, and ethnicity (e.g., a lack of belonging based on having multiple minoritized identities; Ghabrial, 2019). It will be important for studies to intentionally recruit diverse samples of bi+ people to determine whether the current findings generalize to bi+ people of Color, and to assess intersectional forms of minority stress to account for their unique experiences. Furthermore, nearly one-third of our participants were transgender or nonbinary. Prior research has found that bi+ transgender and nonbinary people often experience greater hardships (e.g., worse health, greater exposure to violence) than gay, lesbian, and heterosexual transgender and nonbinary people (Movement Advancement Project, 2017). As such, in future studies of bi+ transgender and nonbinary people, it will be important to assess minority stress related to sexual orientation and gender identity, and to examine their relative influences on mood and wellbeing.

Second, while examining the day-to-day experiences of bi+ individuals is an important strength of the current study, longer-term longitudinal studies are needed to examine the cumulative effect of bi+ stress on mental health over time. Third, although the mean levels of minority stress across participants were relatively low, we still found that each minority stressor was associated with depressed and anxious mood at the within-person level. Whether these findings would be the same or different in a sample that generally experienced more minority stress remains an empirical question. It may be useful for a future study to examine daily experiences of minority stress and mood in a sample pre-selected for high levels of minority stress (e.g., frequent experiences of discrimination). However, by not pre-selecting on the basis of minority stress, our findings are likely more generalizable to the broader population of bi+ individuals. In addition, participants may have experienced subtler forms of discrimination (i.e., microaggressions) that were not assessed by our measure of discrimination, and they may have experienced discrimination related to other aspects of their identities (e.g., race, ethnicity, gender identity) as well. Therefore,

it will also be important for future research to assess a broader range of discriminatory experiences to better understand the influence of discrimination on daily mood in this population.

Fourth, the psychological mediation framework proposes a number of other potential mechanisms underlying the associations between discrimination and mental health, such as maladaptive coping and emotion dysregulation (Hatzenbuehler, 2009). As such, it will be important to examine these additional potential mechanisms at the daily level. Finally, although depressed and anxious mood are hallmark symptoms of depressive and anxiety disorders, respectively, we did not assess the full ranges of symptoms of these disorders. However, prior research has found that single-item assessments of daily depressed and anxious mood are highly correlated with full-scale measures of depression and anxiety, respectively (Starr, 2015). Furthermore, prior research has also found that, compared to people without a lifetime history of mood, anxiety, or substance use disorder, people with a lifetime history of major depression report higher daily sad and anxious mood, and people with a lifetime history of an anxiety disorder report higher daily anxious mood (Lamers et al., 2018). Still, it will be important for future studies to use more comprehensive symptom measures. In addition, consistent with prior daily diary studies (e.g., Schneiders et al., 2006; Starr & Davila, 2012), daily depressed and anxious mood were highly correlated in our study. As such, it is not surprising that we largely observed the same pattern of results for depressed and anxious mood. However, in an exception, there was an indirect effect of discrimination on anxious mood through identity concealment, but this indirect effect did not extend to depressed mood. Therefore, although there is substantial overlap between these constructs, some aspects of minority stress may be uniquely related to anxiety.

Limitations aside, the results of the current study provide support for the affective consequences of minority stress among bi+ individuals, while highlighting the need for continued research on stress-buffering factors and other influences on daily affect in this population. Prior studies have consistently found that bi+ individuals are at increased risk for depression and anxiety (Ross et al., 2018), and the results of the current study suggest that daily experiences of bi+ stressors, including discrimination, internalized stigma, rejection sensitivity, and identity concealment, are all associated with same-day depressed and anxious mood. Mental healthcare providers are well-positioned to help bi+ clients to understand the impact of bi+ stressors on their mood and wellbeing and to cope with such stressors in adaptive ways. While there is generally a lack of evidence-based interventions designed to improve bi+ people’s mental health, clinicians can draw on existing interventions for coping with minority stress to guide their work with bi+ patients (Chaudoir et al., 2017; Feinstein et al., 2019; Pachankis et al., 2015; Smith et al., 2017). In addition, Israel et al. demonstrated preliminary efficacy of an online intervention to reduce internalized stigma among bisexual individuals, which included exercises for challenging stereotypes, identifying external sources of negative beliefs that had been internalized, and acknowledging the positive aspects of being bisexual (Israel et al., 2019). Although their intervention was designed for online administration, clinicians could adapt the exercises for in-person therapy. Still, in prior studies, bi+ individuals have described negative experiences with mental healthcare providers (Eady et al., 2011), and clinicians have reported lower perceived competence for affirmative practice with bisexual clients than gay/lesbian clients

(Ebersole et al., 2018). Therefore, mental healthcare providers may need additional training to understand the range of bi+ identities, to become aware of and to challenge negative attitudes toward and stereotypes about bi+ people, and to provide care that acknowledges but does not pathologize bi+ people's identities. In sum, we found that daily experiences of bi+ stressors were associated with same-day depressed and anxious mood, highlighting the need for mental healthcare providers to be prepared to help bi+ clients who experience these stressors.

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Highlights

- Bi+ stressors are associated with same-, but not next-day, depressed/anxious mood.
- Proximal stressors help explain the associations between distal stressors and mood.
- Discrimination is associated with identity concealment and, in turn, anxious mood.

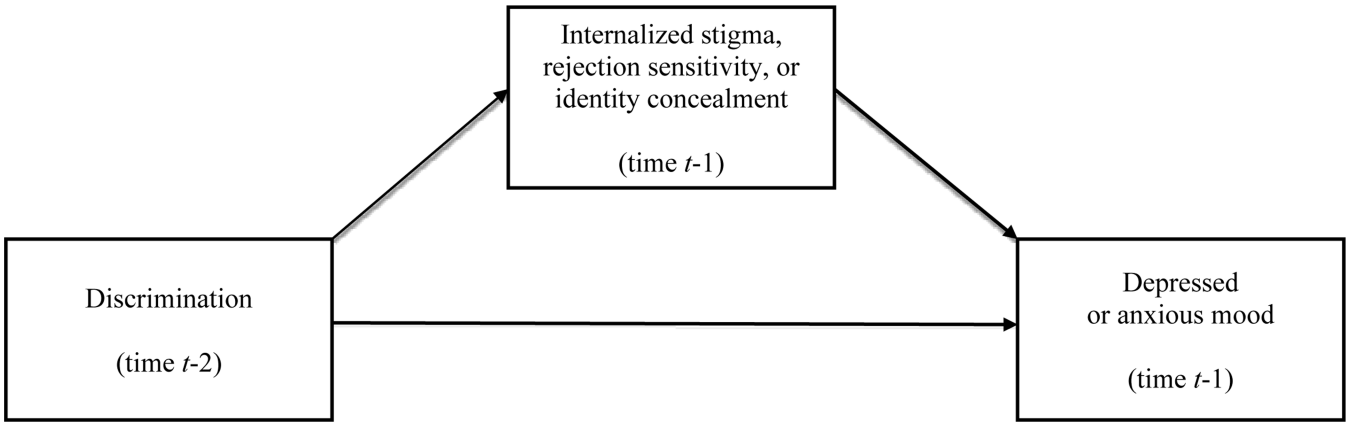

Figure 1.

Illustration of lagged within-person indirect effects.

Note: The within-person associations included in the lagged indirect effects models are presented above. While we estimated the full indirect effects models at both the within- and between-person levels to disaggregate the effects, the between-person effects are not included in the figure for simplicity. Each model included one mediator (internalized stigma, rejection sensitivity, or identity concealment) and one outcome (depressed or anxious mood). Autocorrelations for discrimination, the mediator, and the outcome were included in all indirect effects models and modeled as random. Age, sexual identity, gender identity, and race/ethnicity were included as covariates at the between-person level. Autocorrelations and covariates are not included in the figure for simplicity.

Table 1

Sample Demographics (N = 208)

	n	%
Gender identity		
Cisgender women	67	32.2
Cisgender men	74	35.6
Transgender men	5	2.4
Transgender women	22	10.6
Nonbinary	40	19.2
Sexual identity		
Bisexual	119	57.2
Pansexual	41	19.7
Queer	43	20.7
Another identity	5	2.4
Ethnicity		
Latinx	32	15.4
Non-Latinx	176	84.6
Race		
White	171	82.2
Black	6	2.9
Asian	10	4.8
Native American	5	2.4
Multiracial	10	4.8
Another Identity	6	2.9
Education		
High school	24	11.5
Some college	84	40.4
Associate’s degree	16	7.7
Bachelor’s degree	41	19.7
Graduate degree	28	13.5
Not reported	15	7.2

	n	%
Annual household income (USD)		
< $12,000	22	10.6
$12,000 – $23,999	33	15.9
$24,000 – $44,999	49	23.6
$45,000 – $74,999	38	18.3
$75,000 – $119,999	28	13.5
$120,000 or more	22	10.6
Not reported	16	7.7
Age *(M, SD)*	27.0 (8.8)	

Table 2

Correlations and Descriptive Statistics

	1.	2.	3.	4.	5.	6.
1. Discrimination	-	.08*	.39*	.14*	.07*	.08*
2. Internalized stigma	.09	-	.07*	.10*	.11*	.07*
3. Rejection sensitivity	.44*	.06	-	.41*	.12*	.15*
4. Identity concealment	.37*	.15*	.50*	-	.07*	.09*
5. Depressed mood	.07	.13	.24*	.02	-	.68*
6. Anxious mood	.09	.13	.18*	.06	.85*	-
Mean	.20	2.43	.68	.06	2.09	2.25
SD	.83	1.64	1.15	.24	1.05	1.02
Range	0–8	1–7	.17–6.0	0–1	1–5	1–5
ICC	.30	.87	.34	.20	.45	.40

Correlations above the diagonal are within-persons correlations, while those below the diagonal are between-person correlations. For all measures, higher scores indicate higher levels of the construct.

*$p < .05$.

Table 3

Associations between bi+ stressors and mood

		Within-Person Associations						Between-Person Associations		
		Unlagged Associations			Lagged Associations					
Predictor	**Outcome**	***b***	***95% CI***	***p***	***b***	***95% CI***	***p***	***b***	***95% CI***	***p***
Discrimination	Depressed mood	.08	.03, .13	.004	−.03	−.08, .02	.25	.11	−.09, .31	.28
	Anxious mood	.13	.07, .19	< .001	−.03	−.09, .02	.22	.13	−.06, .33	.16
Internalized stigma	Depressed mood	.12	.07, .18	< .001	−.02	−.07, .03	.50	.07	.003, .14	.04
	Anxious mood	.11	.05, .17	.002	−.03	−.08, .02	.23	.07	.001, .13	.046
Rejection sensitivity	Depressed mood	.08	.04, .12	< .001	.02	−.02, .05	.30	.23	.08, .39	.002
	Anxious mood	.13	.08, .17	< .001	−.01	−.04, .02	.66	.18	.04, .33	.02
Identity concealment	Depressed mood	.20	.06, .35	.01	−.05	−.16, .06	.42	−.02	−.06, .03	.44
	Anxious mood	.29	.14, .45	< .001	−.06	−.19, .06	.39	.00	−.04, .04	.93

Note. Random autocorrelations were included for the outcome at the within-person level. Day of assessment was controlled for at the within-person level. Age, sexual identity, gender identity, and race/ethnicity were included as covariates at the between-person level.

Table 4

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***
Unlagged	Disc	Int. stigma	Depressed	.06	.03, .11	.01	.10	.05, .15	< .001	.08	.002, .13	.04
			Anxious	.29	.04, 1.06	.02	.09	.06, .14	< .001	.13	.07, .19	< .001
		Rej. sensitivity	Depressed	.58	.41, .75	< .001	.08	.03, .12	< .001	.03	−.02, .08	.21
			Anxious	.59	.43, .75	< .001	.12	.08, .16	< .001	.06	.01, .12	.02
		Concealment[a]	Depressed	.21	.10, .31	< .001	.01	−.06, .08	.86	.08	.02, .14	.01
			Anxious	.24	.13, .36	< .001	.08	.01, .15	.03	.10	.05, .15	< .001
Lagged	Disc	Int. stigma	Depressed	.02	−.36, .09	.68	−.01	−.06, .04	.71	−.01	−.08, .06	.76
			Anxious	.02	−.05, .09	.53	−.02	−.07, .04	.51	.01	−.06, .08	.83
		Rej. sensitivity	Depressed	−.02	−.13, .09	.75	.02	−.01, .06	.16	.01	−.03, .06	.69
			Anxious	.03	−.09, .15	.63	.001	−.03, .03	.99	−.004	−.05, .04	.86
		Concealment[a]	Depressed	−.08	−.31, .07	.35	−.12	−.20, −.04	.01	−.01	−.07, .05	.79
			Anxious	−.09	−.31, .08	.40	−.07	−.15, −.01	.02	−.01	−.06, .04	.62

[a]Concealment is a dichotomous variable. Probit regression was used to estimate models including concealment. Random autocorrelations were included for the mediator and outcome at the within-person level. Day of assessment was controlled for at the within-person level. Age, sexual identity, sex/gender, and race/ethnicity were included as covariates at the between-person level. Disc = discrimination.

Table 5

Unlagged and lagged within-person indirect effect estimates

			Unlagged			Lagged		
Predictor	**Mediator**	**Outcome**	***b***	***95% CI***	***p***	***b***	***95% CI***	***p***
Discrimination	Internalized stigma	Depressed mood	.01	.002, .01	.01	|<.001|	−.003, .007	.95
		Anxious mood	.03	.003, .09	.02	|<.001|	−.004, .002	.76
	Rejection sensitivity	Depressed mood	.04	.02, .07	< .001	|<.001|	−.004, .003	.78
		Anxious mood	.07	.04, .10	< .001	|<.001|	−.002, .002	.99
	Identity concealment	Depressed mood	.001	−.01, .02	.86	.01	−.01, .04	.35
		Anxious mood	.02	.001, .04	.03	.01	−.01, .03	.41

|<.001| indicates that the absolute value of the estimate was smaller than .001.