

Temporal Relations and the Role of Coping Flexibility in Black Adults' Coping Responses to
Ethnic-Racial Discrimination

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Abstract

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In the United States, experiences of ethnic and racial discrimination (ERD) are associated with poor well-being outcomes which are believed to contribute to disparities in the prevalence and chronicity of mental health disorders for Black individuals. Prior studies have explored how coping responses to ERD may mitigate the negative impacts of ERD on well-being, though thus far, findings have been mixed and suggest there are various contextual factors that influence the relation of ERD, coping, and well-being. Building on prior literature, using ecological momentary assessment, the current study investigated temporal relations of coping, discrimination, and mood at the daily level and explored the moderating effect of coping flexibility. It was hypothesized discrimination would be associated with increased negative mood, individuals would use more avoidant and emotion-focused strategies in response to concurrent experiences of discrimination, and more problem focused coping in response to prior experiences (i.e. lagged) of discrimination at the daily level, and that these patterns of coping would moderate the relation of discrimination and mood, reducing the positive association.

Exploratory analyses were also conducted to explore whether coping flexibility would also moderate the relation between discrimination and mood. Contrary to hypotheses, results suggest discrimination is related to more use of varied coping strategies and increased negative mood in the moment, and for some outcomes, coping during periods of high discrimination is associated with less negative mood. Factors to consider in future research, including methodology and sample characteristics, are discussed.

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Introduction

In the United States, Black and African American individuals report more persistent mental health disorders (Breslau et al., 2005), including more persistent feelings of sadness, hopelessness, and worthlessness (CDC, 2021; Dunlop et al., 2003; Riolo et al., 2005). According to the nationally representative National Survey on Drug Use and Health, rates of serious mental illness and suicidality increased from 2008 to 2018 for Black individuals, and rates of depressive episodes increased from 2015 to 2018 (SAMSHA, 2020). Prior research identifies experiences of discrimination, specifically ethnic and racial discrimination (ERD), as an important variable to consider in the chronicity of mental health conditions within Black and African American populations (e.g., Asnaani et al., 2010; Bailey et al., 2019; Breslau et al., 2005). Given the negative effects of ERD, the role of emotion regulation and coping in response to these experiences has become an area of focus to understand how to potentially mitigate the impacts (e.g., Brondolo et al. 2009b; Jacob et al., 2023; Wilson & Gentzler, 2021). However, longitudinal investigations on how to mitigate the harmful impacts of experiencing ERD, which can ultimately inform clinical interventions, have been limited in scope.

Race vs. Ethnicity

Although race and ethnicity are often used interchangeably, there are notable differences in their meaning. Race refers to phenotypical characteristics while ethnicity is a multidimensional concept that refers to shared cultural background including shared language, traditions, and religions. While some regions prefer to describe people in terms of ethnicity instead of race, the United States has moved towards a combined phrasing of race/ethnicity. Individuals of African origin in the United States are often categorized as racially Black and ethnically African American. Black refers to people of sub-Saharan ancestry with brown or black

skin and African American includes any individual residing in the US with African ancestry (Agyemang et al., 2005).

The term African American is broad and more specificity in ethnic categorization of Black individuals is becoming common to better represent cultural backgrounds. For example, the US Census Bureau recommended using the term African American to refer to individuals whose ancestors immigrated three or more generations back and to refer to other more recent migrants by specific origins. Given this complexity in ethnic affiliation, it is useful to note that in the US, “Black” is the preferred term compared to “African American” at a rate of 2:1 (Aspinall, 2008). However, in psychological research, although there is more sensitivity to using terms with which people agree, there has not been consistency or consensus on use of terms. Therefore, for this study's purpose, the term Black will be used unless ethnicity was specified within reviewed samples.

Racial and Ethnic Discrimination, Racism, and Race-Related Stress

Although distinct constructs, ethnic/racial discrimination and racism have shared meaning with respect to experiences of unjust and inequitable treatment due to phenotypical and linguistic characteristics and cultural practices. The term discrimination broadly refers to unjust, prejudicial, inequitable treatment between groups defined by various identities including race and ethnicity, including in policies, laws, and behaviors (e.g., Contrada et al., 2000; Griffin & Armstead, 2020). Similarly, the term racism refers at times to unjust treatment and at other times to underlying beliefs that different racial groups are inferior and superior. Both racial and ethnic discrimination and racism exist at various levels including interpersonal, environmental, institutional, and cultural and can include both covert (i.e., subtle) acts, such as microaggressions, or overt (i.e., blatant) behaviors such as use of racial slurs (Brondolo et al.

2009a; Griffin & Armstead, 2020; Harrell, 2000). The stress resulting from experiences of ERD and racism is termed racism-related stress or race-related stress (RRS) which Harrell (2020) defines as “race related transactions between individuals or groups and their environment that emerge from the dynamics of racism and that are perceived to tax or exceed existing individual and collective resources or threaten well-being” (p.44).

In the United States, Black experiences of discrimination occur and vary across the lifespan; thus ERD is conceptualized as a chronic stressor (e.g., Christophe & Stein 2021, DeLapp & William, 2019). Longitudinal studies have documented frequent experiences of ERD within Black samples ranging from averages of twice a day to once every two weeks (Mendez et al., 2020; Swim et al., 2003). Chronic experiences of ERD, and thus RRS, result in persistently elevated mental health symptoms among Black individuals (Pascoe & Richman, 2009), as discrimination is linked with negative mood, decreased self-esteem, and increased psychological distress, feelings of helplessness, depression, and anxiety in multiple Black samples (e.g., Brondolo et al., 2009b; Pieterse et al., 2012; Soto et al., 2011; Stein et al., 2016). Thus, research has aimed to identify the pathways by which ERD, and RRS, impact stress responses and in turn, psychological health.

The Impacts of ERD on Mental Health

Prior literature suggests that discrimination negatively impacts mental health through various pathways. For example, Pascoe and Richman’s (2009) discrimination health model proposes discrimination directly impacts mental health and is also mediated by increased stress response and health risk behaviors. In addition to stress, many prior studies have focused on exploring the relation between discriminations and negative affect more broadly including anger,

sadness, and hopeless which has been linked to poor mental health outcomes such as increased depression and anxiety (e.g., Brondolo et al. 2009b; Broudy et al. 2007; Kwate & Goodman, 2015). Cross-sectional studies broadly find that more experiences of ERD relate to more negative affect such as anger and sadness (e.g., Brondolo et al., 2008; Broudy et al., 2007). Longitudinal studies, including those using daily diary and ecological momentary assessment (EMA) strategies, similarly have found increased experiences of ERD predict more negative affect including anger, nervousness, sadness, and poor mental health across various age groups (e.g., Brondolo et al. 2008; Broudy et al. 2007; Kwate & Goodman, 2015).

While some studies show ERD predicts increased negative affect on a daily level (e.g., Cheeks et al., 2020), other studies suggest ERD has an additive effect, increasing daily negative affect over time. Thus, the day-to-day distress associations with discrimination may be one pathway through which discrimination progressively harms health over the life course (Jochman et al., 2019). For example, in a one-year longitudinal study of NYC Black adult residents, a one unit increase in measures of discrimination and racism predicted 2 to 3 more days of poor mental health (Kwate & Goodman, 2015). Therefore, the impacts of ERD are better captured when explored over time.

Coping and ER in Response to ERD

Given the quantity of specific coping strategies, coping has largely been categorized, based on the early stress and coping model, into problem-focused, also referred to as active coping, and emotion-focused coping (Lazarus & Folkman, 1984). Problem-focused coping, also referred to as active coping, is managing the problem that is causing the stress and include strategies such as instrumental social support (e.g. seeking advice), confrontation, and problem

solving. In comparison, emotion-focused coping aims to regulate emotional responses to the problem and include strategies such as social-emotional support (e.g. seeking comfort), acceptance, and religion. Carver and colleagues (1989) expanded on this dichotomy to include the concept of avoidant coping style which refers to distracting behaviors or giving up trying to deal with the situation.

In response to the adverse, cumulative impacts of ERD over time, prior research has explored strategies for reducing negative affect, and increasing positive affect, through implementation of various coping and ER strategies. While there is substantial research exploring the how coping broadly relates to affect and psychological health, findings thus far suggest Black individuals cope differently with RRS, and with a broad range of strategies, compared to how they cope with general stressors (Brown, et al. 2011; Hoggard et al., 2012).

For example, in a review of coping with discrimination across ethnic and racial groups, Brondolo and colleagues (2009b) identified positive ethnic racial identity, confrontation, anger suppression, and social support as common coping responses. In a more recent review, avoidance, suppression of emotion expressions, substance use, social support, and religiosity, often considered an emotion focused strategy, were identified as the most common coping and regulation strategies in response to ERD (Wilson & Gentzler, 2021). Further, in a review of Black individuals coping with racism, Jacob and colleagues (2023) suggest type of coping implemented depends on the type of racism experience and found cultural racism was associated with more social support seeking, institutional racism was associated with more active (e.g. problem focused) coping, and interpersonal discrimination was associated with more spiritual coping.

Although prior literature has identified common coping strategies in response to RRS and

experiences of ERD, there is limited knowledge on how these efforts are associated with outcomes (i.e., serve as a mediator or moderator). Therefore, it is important to further explore these associations important to better inform clinical implications.

Efficacy of Coping and Emotion Regulation to Reduce Impacts of ERD on Psychological Health

In general, prior research suggests problem-focused coping is generally associated with better health outcomes whereas emotion-focused and avoidant coping strategies are related to negative health outcomes (e.g., Boals et al., 2011). However, research on coping and discrimination present more nuanced results. Among the few studies that have explored the efficacy of coping and use of emotion regulation (ER) strategies in response to experiences of ERD, findings are mixed. When considering efficacy, a coping strategy is considered adaptive (e.g., effective) when implementation mitigates stress response, regulates emotions, and achieves individual goals. In contrast, strategies are considered maladaptive (e.g., not effective) when they are not successful in regulating emotion or attenuating stress response (Aldao & Nolen-Hoeksema, 2012; Clark et al., 1999).

Despite support that specific categories of coping/ER or strategies are linked to poor mental health outcomes (e.g., rumination and depression, avoidant coping, and drug use), coping and ER strategies are rarely objectively adaptive or maladaptive. Instead, the selection and efficacy of each strategy depends on several contextual variables including culture, personality, context, emotional intensity, and the demands on the individual at a given time (Dixon-Gordon et al., 2015; Eldesouky & English, 2019; Lewis-Coles & Constantine, 2006). Therefore, it is suggested that effective coping and ER occurs when there is a fit between strategies and

contextual demands (Aldoa & Nolen-Hoeksema, 2012; Clark et al. 1999; Folkman & Moskowitz, 2004).

Various studies, largely using cross-sectional designs, have explored how various coping and ER strategies may be effective in buffering against the negative impacts of ERD on affect and psychological health. However, findings thus far have been mixed. For example, cross sectional studies suggest active (e.g. problem focused) coping strategies, such as social support seeking may reduce negative impact in response to ERD (Joseph et al., 2020, Pascoe & Richman, 2009). However, other cross-sectional studies have found other active coping approaches, such as John Henryism, a term that describes expending large amounts of effort to cope with prolonged exposure to stress, had no association ERD in one sample (Jones et al 2019), and increased distress in another (Hudson et al., 2016). Further, Bierman (2006) found religious coping, often described as an emotion-focused coping strategy, buffered against negative affect while Horton and Loukas (2013) found it was related to more tobacco use.

Given variability in findings in cross-sectional studies, studies implementing longitudinal designs are proposed to better provide information on the potential stability or change in how people respond to ERD, understanding of directionality, and long-term impacts of responses (Wilson & Gentzler, 2021). Longitudinal studies thus far have explored a range of coping strategies including religious coping, social support, avoidant coping, passive coping, active coping, difficulties with ER, drug and alcohol use, ethnic/racial identity, rumination, positive thinking, cognitive restructuring, and reappraisal (Christophe & Stein, 2021; Ellison et al., 2008; English et al., 2018; Gerrard et al., 2018; Hoggard et al., 2015; Jochman et al., 2019; Lee et al., 2020; Qin et al., 2020). Combined, longitudinal studies found emotion focused strategies including religious coping, rumination, and problem focused strategies such as shift and persist

(i.e., reappraisal and planning) predicted reduced symptoms of depression and loneliness (Christophe & Stein, 2021; Ellison, Musick, & Henderson, 2008; Jochman et al., 2019).

Additional studies have found avoidant coping strategies, difficulty in emotion regulation, and social support seeking were associated with poor outcomes including depression, anxiety, and drinking (English, Redina, & Parsons, 2018; Gerrard et al., 2018; Qin et al., 2020). Longitudinal findings largely align with findings from cross sectional studies though there are some contradictory findings, specifically with respect to social support which is associated with improved outcomes in cross-sectional studies but poorer outcomes in longitudinal studies.

As a potential explanation for contradictory findings between cross sectional and longitudinal studies, Jacob and colleagues (2023) highlight the function of coping behaviors may vary over time depending on the demands of the situation. For example, when Black individuals are experiencing ERD, the goal in the short term may be to reduce distress and regulate emotions and therefore coping strategies that may be maladaptive in the long term may have short term benefits. For example, Park and colleagues (2018) found that anger expression, an emotion focused strategy that has been associated with negative mental health outcomes across the lifespan, predicted faster cortisol recovery for Black participants, with low levels of chronic discrimination, in response to social rejection by a White confederate. Additionally, in a cross-sectional study, Jochman and colleagues (2019) found rumination, an emotion-focused strategy supported to mediate the relation between discrimination and depression in a prior study (e.g. Borders & Liang, 2011), was negatively associated with loneliness depression when considering only experiences of discrimination the past week.

A review by Jacob and colleagues (2023) suggests that emotion focused strategies that aid in regulatory goals may have short term benefits. However, in the long term, coping

strategies that target reducing experiences of discrimination, such as changing environments or reporting offenders, may be more adaptive for improving psychological health (Jacob et al., 2023). For example, emotion focused coping shortly after experiences of ERD may be beneficial if followed by use of active, problem focused, coping strategies later. Alternatively, it may be that how individuals cope with discrimination over time is more influential on their well-being than how they respond in the moment. Relatedly, the ability to implement different strategies over time would require flexibility in coping (e.g. coping flexibility) which prior researchers have proposed may be key factor in coping efficacy (e.g. Brondolo et al., 2009b). Therefore, it is important to further explore how coping responses change over time and how timing of strategy use may be differentially effective. This is currently a gap in the literature.

Coping Flexibility, ERD, and Psychological Health

Coping flexibility is described as the ability to modify cognitive and behavioral strategies based on environmental demands (Gabrys et al., 2018; Kraft et al., 2020). Coping flexibility has further been conceptualized as a dual-process theory that involves re-evaluation processes, coping processes (abandonment and re-coping) and a meta-coping process that monitors the process. During re-evaluation, individuals evaluate the efficacy of the coping strategy. Following, individuals abandon ineffective strategies (i.e., abandonment) and engage in re-coping by identifying and implementing alternative strategies (i.e., re-coping). Meta-coping involves monitoring and providing feedback on the effects of each process (Kato, 2012).

People who demonstrate more flexibility can implement more strategies that align with contextual demands and are better adjusted (Aldao & Nolen-Hoeksema, 2012; Cheng, 2003). Prior studies have found coping flexibility is associated with less symptoms of depression and is

related to more effective use of coping and ER (e.g., Cheng et al., 2012; Cheng et al., 2014). Thus, researchers have suggested that flexibility is key to effectively managing stressors (Brondolo et al., 2009b; Cheng, 2003). In the context of ERD, more coping flexibility would result in individuals generating multiple coping and ER approaches to respond to ERD (Volpe et al., 2021). However, research is limited on whether coping flexibility specifically can buffer against negative impacts of ERD.

Research on the role of coping flexibility in response to ERD has been limited. One study investigated the role of cognitive flexibility, an umbrella term which refers to the ability to adjust behavior to environmental demands and includes coping flexibility, on interpersonal discrimination and depressive symptoms in a Black college sample and found no association (Volpe et al., 2021). However, these researchers studied cognitive flexibility broadly, utilized cross-sectional methods, and only measured lifetime discrimination. Thus, longitudinal investigations, particularly exploring shorter term relations to recent experiences of ERD and coping flexibility specifically, may produce different results.

Overall, although the role of coping flexibility is supported to be an important variable when responding to stress, there is limited knowledge on whether it may also contribute to how Black individuals effectively select and implement coping and ER in response to ERD. However, given the mixed findings on specific coping and ER strategies, understanding the flexibility in coping processes in response to ERD is important to better inform interventions. Research exploring the role of coping flexibility over time and how it is related to coping and ER strategy use in response to varied experiences of ERD may help better inform how to mitigate the negative impacts of ERD.

The Current Study

The current study explored how temporal relations between discrimination and coping, and coping flexibility, are associated with affect and mood on the daily level. While prior studies have explored the relation between various coping strategies on the relation between ethnic racial discrimination and psychological health, the pathways in which various coping methods may be effective in reducing negative impacts of ERD on psychological health are not well understood. Research thus far suggests coping efficacy depends on individuals' goals and demands in response to experiences of ERD which may be different when coping with ERD in the short vs long term and may require the ability to cope flexibly.

This study is one of few exploring temporal relations in coping and the role of coping flexibility, and to our knowledge the first to explore this relation on the daily level. Prior literature suggests coping may have more long-term than immediate impacts on well-being and there may be other variables contributing to the relation between coping, ERD, and well-being. For example, Christophe and Stein (2020) found that Black adults use of shift and persist (i.e., reappraisal and planning) in response to discrimination in their 40's predicted decreased depression ten years later. Further, other researchers, such as Anderson and colleagues (2021) have investigated temporal relations in terms of prior experiences of discrimination predicting later mood. However, prior studies have not investigated how timing of coping throughout the day may influence the relation between discrimination and mood which may better explain the pathway for cumulative impacts on health.

Further, this study is one of few that used ecological momentary assessment to explore the relation between coping, discrimination, and mood. Given mixed findings and limitations in the

current literature, ecological momentary assessments (EMA) can help fill gaps in understanding as to how responses to ERD unfold over time and influence outcomes. While longitudinal studies obtaining data over several years provide information on directionality, causal mechanisms, and changes in relations over time, use of momentary assessments can provide more information on the temporal relations of responses to ERD and the more proximate influence on psychological well-being. Specifically, the use of EMA provides the opportunity to obtain more accurate information on how people's experiences, and responses to those experiences, happen in real time (de Vries et al., 2021; Moskowitz & Young, 2006).

Aims and Hypotheses

The current study aimed to expand on prior work and add to the literature by exploring temporal relations in coping responses to ERD, and the role of coping flexibility, on mood using ecological momentary assessment.

Aim 1

Explore the within-person concurrent and delayed coping responses to discrimination.

Hypothesis 1. Concurrent coping responses to experiences of discrimination will include more avoidant and emotion-focused coping strategies.

Hypothesis 1b. Delayed coping responses to experiences of discrimination will include more problem-focused strategies.

Aim 2

Explore the within-person associations of discrimination and momentary mood and moderators of those associations.

Hypothesis 2a. Experiences of discrimination will be associated with increased depression, anxiety, anger, and stress.

Hypothesis 2b. Coping will moderate the relation between discrimination and mood such that more momentary avoidant and emotion focused coping will weaken the relation between momentary discrimination and mood and problem focused coping will weaken the relation between lagged discrimination and mood.

Exploratory Analyses

Previous research suggests flexibility in coping is crucial for effectively managing stressors (e.g., Brondolo et al., 2009b; Cheng, 2003). Exploratory analyses thus investigated the moderating role of coping flexibility in the relationship between discrimination and mood. Existing literature offers limited insight into whether coping flexibility can mitigate the adverse effects of discrimination (e.g., Volpe et al, 2021). Therefore, the analyses explored whether coping flexibility, specifically in response to concurrent discrimination, correlates with decreased momentary negative mood.

Method

Participants

Participants were 100 Black adults ($M_{age} = 37.7$, $SD_{age} = 12.4$) recruited using targeted advertisements on Facebook and Instagram. All participants identified as Black/African American ($N = 96$) or African ($N = 4$) including those who also identified as Biracial ($N = 1$) and Multiracial ($N = 15$). The majority of participants were born in the United States ($N = 92$), identified as female ($N = 83$), heterosexual ($N = 87$), and employed full time ($N = 52$). A detailed overview of the sample's demographic characteristics can be found in Table 1.

Procedure

Advertisements were posted on social media sites Facebook and Instagram. Posts contained information on the study and a link to an online screening survey for prospective participants. Screening surveys included questions about age, racial and ethnic identity, residency, and frequency of discriminatory experiences in the past month ranging from “never” to “frequently”. Questions regarding mood were used for detecting discrepancies in reporting to identify fraudulent responses. To be eligible for the study, participants had to be at least 18 years old, currently reside in the United States, identify as Black, report experiencing racial discrimination at least “sometimes” in the past month, and own a smartphone. Participants were excluded from participating if they provided a VoIP (voice over internet protocol) phone number, reported a geographic location inconsistent with their geotagged location per IP address, or whose responses indicated careless or fraudulent responding (e.g. endorsing nonsensical, implausible items such as “seeing tiny objects, like white mice, that nobody else can see”; Meade & Craig, 2012)

A total of 2757 screening surveys were completed, and 257 individuals met screening criteria. 1576 were excluded for race, 526 were excluded for threshold of discrimination, 714 were excluded for endorsing nonsensical or implausible items, and 210 were excluded for providing VoIP or IP address inconsistent with geotagged location. All participants who met screening inclusion criteria were contacted by the study team via phone or email, based on stated preference, and provided a link to schedule a brief orientation meeting via Zoom. A total of 104 individuals scheduled a baseline assessment.

During the orientation meeting, participants verified age and identity by displaying photo identification and location through sharing current location via Google Maps. Participants who

were not willing to provide photo identification ($N = 1$), share location, or whose Google location was different from tracked location in the baseline survey ($N = 1$) were excluded. Eligible participants completed informed consent, a baseline questionnaire via Qualtrics, and were then oriented to the procedures of the EMA portion of the study. EMA surveys began the following day. Of those eligible, one individual withdrew prior to consent and one individual did not complete the baseline assessment and therefore did not continue into the EMA portion of the study. Of the 100 participants who completed the baseline assessment, 100% completed at least one EMA survey. One participant withdrew from the study after three days of EMA surveys.

EMA surveys were distributed with a unique link sent either by text message or email which could be accessed using a smartphone or web-enabled device such as a laptop or tablet. Survey prompts were sent at a random time point within three quasi-random intervals each day for 14 days with at least two hours between prompts. By default, surveys were scheduled between 9:00am-1pm, 1pm-5pm, and 5pm-9pm and participants could adjust start times as requested. From the receipt of the survey prompt, participants had up to 90 minutes to complete each survey with reminder messages every 30 minutes until completion. All survey notifications were sent by text message and/or email using the web application Inclivio©.

To reduce attrition, participants who missed three consecutive survey prompts were contacted by the study team via phone and email to troubleshoot any potential barriers and encourage participation. Participants were compensated up to \$100 USD: \$25 for completing the baseline assessment, \$1 per daily survey, and a \$32 bonus for completing at least 90% of EMA surveys. All procedures were approved by the University of Washington's institutional review board.

Measures

Baseline Depression, Anxiety, and Stress. Baseline depression, anxiety, and stress were measured using the Depression, Anxiety, and Stress Scales (DASS-21; Lovibond & Lovibond, 1995a). The DASS-21 is a 21-item self-report abbreviated scale adapted from the 60-item Depression Anxiety Stress Scales (Lovibond & Lovibond, 1995b). The scale assesses the frequency and severity of negative emotions in the past week using a 4-point Likert scale ranging from 0 (did not apply to me at all) to 3 (applied to me very much, or most of the time). The scale produces three factors: depression, anxiety, and stress each with scores ranging from 0 to 42. The DASS-21 provides guidelines for symptoms severity including: normal symptoms (0 to 9 for depression, 0 to 7 for anxiety, and 0 to 14 for stress), mild symptoms (10 to 13 depression, 8 to 9 for anxiety, 15 to 18 for stress), moderate (14 to 20 for depression, 10 to 14 for anxiety, 19 to 25 for stress), severe (21 to 27 depression, 15 to 19 for anxiety, 26 to 33 for stress), and extremely severe (28 or above for depression, 20 or above for anxiety, 34 or above for stress). The DASS-21 has shown good internal consistency and validity across racial groups including African Americans (Norton, 2007). The DASS-21 demonstrated strong internal consistency in our sample for the depression ($\alpha=.88$) and stress ($\alpha=.80$) subscales, and acceptable consistency for the anxiety subscale ($\alpha=.64$).

Baseline Coping. The Brief Coping Orientation to Problems Experienced Inventory (Brief-COPE; Carver, 1997) was administered to measure general coping responses at baseline. The Brief-COPE is a 28-item measure abbreviated from the 60-item COPE scale (Carver et al., 1989). The measure assesses direct and indirect ways individuals cope with stressful life events using a 4-point Likert scale (1= I haven't been doing this at all, 2= A little bit, 3= a medium amount, 4= I've been doing this a lot). The initial measure included three subscales for coping

styles: problem-focused coping, emotion-focused coping, and avoidant coping, each with scores ranging from 1 to 4. Prior studies have used the measure to investigate coping with racism including studies using Black samples (Mosher et al., 2006; West et al., 2010). The Brief-COPE demonstrated strong internal consistency in the current sample ($\alpha=.85$).

Lifetime Discrimination. To assess lifetime discrimination, the Perceived Ethnic Discrimination Questionnaire-Community Version-Brief was utilized at baseline (PED-CV-B; Brondolo et al., 2005). The measure is a 17-item scale adapted from the Perceived Ethnic Discrimination Questionnaire developed by Contrada and colleagues (2001). The measure assesses lifetime discrimination, exclusion/rejection, stigmatization/devaluation, discrimination at work/school, and threat/aggression. Items are scored on a Likert-type scale ranging from 1 (never happened) to 5 (happened very often) and averaged to calculate a total score with the total lifetime discrimination score ranging from 0 to 5. The scale is reported to have good within-group and between-group variability in responses in Black samples (Brondolo et al., 2005). The PED-CV-B demonstrated strong reliability in the sample ($\alpha=.90$).

Momentary Discrimination. Momentary discrimination was measured using 10 items adapted from the PED-CV-B (Brondolo et al., 2005). Using a slider scale from 0 (Not at all) to 100 (Frequently), participants were asked report the frequency and extent to which they experienced 10 categories of discrimination since their last survey, or past four hours if sooner, because of their Black identity. Items included: “I was made to feel like an outsider/ like I did not belong”, “I was ignored/not paid attention to”, “My ability/credibility/work quality was questioned”, “I was not trusted by others”, “I was hurt/threatened to be hurt”, “My property was damaged/threatened to be damaged”, “I experienced a “microaggression”, “I was treated

unfairly/profiled/harassed”, “I observed discrimination directed towards other Black individuals/communities”, and “I experienced a different form of discrimination that was not listed” which included a write-in option to describe the discrimination experienced. A total score was computed by averaging the 10 items which demonstrated strong internal consistency in the sample ($\alpha=.91$).

Momentary Coping. Momentary coping was measured using 10 items adapted from the Brief-COPE (Carver, 1997) participants. Using a slider scale from 0 (Not at all) to 100 (Very Much), participants were asked to report how frequently they used each strategy to cope with racial discrimination since their last survey, or past four hours. 10 categories of coping were assessed via individual items including: Reframing (“I’ve been trying to see things/it in a different light, to make it seem more positive”), Distraction (“I’ve turned to work or other activities to take my mind off things”), Social Support (“I’ve been getting emotional support/help/advice from others”), Problem solving (“I’ve been taking action/coming up with a strategy to try to make the situation better”), Denial (“I’ve been refusing to believe it has happened”), Withdrawal (“I’ve been giving up trying to deal with it”), Humor (“I’ve been making jokes about it”), Acceptance (“I’ve been learning to live with it”), Religiosity (“I’ve been praying or meditating”), and Self-Blame (“I’ve been blaming myself for things that happened”). If participants endorsed experiencing discrimination in the prior question block, they were prompted to select coping strategies used in response to the discrimination. Otherwise, participants were prompted to select coping strategies used to cope with general stressors.

Three subscales for coping style were computed based on the three-factor structure of the Brief-COPE (Carver, 1997). Avoidant coping was comprised of the average of withdrawal, denial, and distraction; emotion-focused coping was the average of social support, humor,

acceptance, religion, and self-blame; and problem-focused coping was comprised of the average of problem-solving, social support, and reframing. These items demonstrated acceptable internal consistency for avoidant coping ($\alpha=.66$), and emotion-focused coping ($\alpha=.74$), and good internal consistency for problem-focused coping ($\alpha=.84$) (Carver, 1997).

Momentary Mood. Momentary mood was measured using three items. Using a slider scale of 0 (Not at all) to 100 (Very Much), participants were prompted to rate how anxious, depressed, and stressed they felt in the past hour.

Coping Flexibility. Coping flexibility was calculated by counting the total number of coping strategies within each subscale of coping (avoidant, emotion focused, problem focused). Prior research has supported using a count-based approach to measure coping flexibility given flexibility relies on access and use of different coping strategies. Further, a count-based approach has been shown to detect more relations between coping mechanisms used and outcomes (fu).

Analytic Approach

Given nested data, and to explore time-dependent variability of discrimination, coping, and mood, general linear mixed models were estimated using R statistical software and ‘lme4’ package (Bates et al., 2015; R Core Team, 2019). All coefficients were centered within person, and alpha was set at 0.05 with 95% confidence intervals to determine significance. Based on prior studies, study day and lifetime discrimination were included as covariates in each model (e.g., Brondolo et al., 2009a; Broudy et al., 2009; Jochman et al., 2019). For models that included only concurrent discrimination, ping number (e.g., which survey of the day: 1-3), was also included as a co-variate. To account for the repeated measures design, a random intercept was specified for participants. Visual inspection of residual plots did not reveal any obvious

deviations from homoscedasticity or normality. Listwise deletion was utilized for missing data.

Aim 1: Concurrent and Delayed Coping Responses

To explore the within-person concurrent and delayed coping responses to discrimination (Hypotheses 1a and 1b), a random-intercept model was computed for each subscale of coping (i.e., avoidant coping, emotion-focused coping, problem-focused coping), with discrimination, discrimination (t-1), and discrimination (t-1) serving as predictors, for a total of 3 models. Day number and lifetime discrimination were included as co-variates within each model. Given that only data from the last survey of the day (e.g. ping 3) would contain all discrimination variables, ping number was not included as a co-variate in these models.

Aim 2: Relation of Discrimination and Mood and Coping as a Moderator

To test the within-person associations of discrimination and mood (Hypothesis 2a), and coping as a moderator of those associations (Hypothesis 2b), a series of models were tested. The first set of models evaluated the relation between discrimination (t, t-1, and t-2) and mood (Hypothesis 2a). Models then included each coping subscale (e.g. avoidant coping, emotion focused coping, problem focused coping) followed by the interaction of each subscale of coping and discrimination, discrimination (t-1), and discrimination (t-2).

Exploratory Analyses

To test coping flexibility as a moderator of the relation between concurrent discrimination and mood, coping flexibility variables (e.g. avoidant coping flexibility, emotion focused coping flexibility, problem focused coping flexibility) were added to each model from Aim 2a followed by the addition of the interaction of discrimination (t) and coping flexibility for each outcome variable (depression, anxiety, stress). Given coping flexibility utilized a count-based approach, where the use of a coping strategy was scored as 1 and no use scored as 0,

scores below give were filtered out to account for errors in sliding scale. Sensitivity analyses were conducted around the cutoff score to assess for significant changes in outcome.

Results

Baseline Characteristics

Baseline characteristics are presented in Table 2. At baseline, participants reported severe symptoms of anxiety ($M = 15.06$, $SD = 12.30$), moderate symptoms of depression ($M = 17.45$, $SD = 17.31$), and severe symptoms of stress ($M = 25.70$, $SD = 16.90$), as interpreted from the DASS. Additionally, participants indicated moderate experiences of lifetime perceived discrimination ($M = 2.59$, $SD = 0.79$). Regarding coping strategies in response to general stressors, participants most frequently utilized problem-focused coping ($M = 2.94$, $SD = 0.62$), followed by emotion-focused coping ($M = 2.49$, $SD = 0.49$), and avoidant coping ($M = 1.82$, $SD = 0.53$).

EMA Data

A total of 3,776 surveys were completed by participants ($M = 37.8$ [89.90%]). Surveys were completed, on average, within six minutes, with a completion rate of 98%. To address potential errors associated with sliding scale reporting, reports of discrimination above 5 were considered as reports of discrimination. Using this criterion, there were 1,176 reports of discrimination during the study period ($M/\text{day} = 0.84$). Among different types of discrimination, being ignored was the most frequently reported ($N = 1,008$), while property damage or destruction was reported least frequently ($N = 573$). Participants indicated utilizing problem-focused coping most frequently ($M = 41.55$, $SD = 31.47$), followed by emotion-focused coping

($M = 29.20$, $SD = 22.86$), and avoidant coping ($M = 28.40$, $SD = 23.81$) in response to experiences of discrimination.

Aim 1: Temporal Relations between Discrimination and Coping

Summaries of results are presented in Table 3 through 5. The Intraclass Correlation Coefficients (ICCs) for avoidant coping, emotion-focused coping, and problem-focused coping were 0.50, 0.73, and 0.70, respectively, suggesting that 50%, 73%, and 70% of the variance in these coping strategies, respectively, were attributable to between-person differences.

Concurrent discrimination (t) was significantly and positively associated with avoidant coping ($b = 0.43$, $SE = 0.08$, $p < .01$, 95% CI = [0.28, 0.59]), emotion-focused coping ($b = 0.43$, $SE = 0.06$, $p < .01$, 95% CI = [0.26, 0.49]), and problem-focused coping ($b = 0.52$, $SE = 0.10$, $p < .01$, 95% CI = [0.34, 0.69]). However, there were no significant effects of lagged discrimination ($t-1$, $t-2$) on coping strategies.

Additionally, significant relationships between covariates were observed in some models. There was a significant negative relationship between emotion-focused coping and day number. Moreover, there was a significant positive association between lifetime perceived discrimination, emotion-focused coping, and avoidant coping.

Aim 2a: Discrimination and Mood

Summaries of results are presented in Table 5 through 8. The Intraclass Correlation Coefficients (ICCs) for anxiety, depression, and stress were 0.44, 0.57, and 0.42, respectively, suggesting that 44%, 57%, and 42% of the variance in these mental health indicators, respectively, were attributable to between-person differences.

Concurrent discrimination (t) was significantly associated with increased levels of anxiety ($b = 0.77$, $SE = 0.09$, $p < .001$, 95% CI = [0.60, 0.95]), depression ($b = 0.66$, $SE = 0.07$, $p < .001$, 95% CI = [0.53, 0.80]), and stress ($b = 0.83$, $SE = 0.09$, $p < .001$, 95% CI = [0.65, 1.02]). Additionally, lagged discrimination ($t-2$) was negatively associated with depression ($b = 0.14$, $SE = 0.06$, $p = .03$, 95% CI = [-0.25, -0.01]).

Both covariates were significant in each of the models. Lifetime perceived discrimination was positively associated with increased levels of anxiety, depression, and stress. Furthermore, study day number was negatively associated with anxiety, depression, and stress.

Aim 2b: Moderation of Coping

Avoidant Coping. Results revealed a significant interaction between concurrent discrimination (t) and avoidant coping on depression (Figure 1; $b = -0.01$, $SE = 0.004$, $p < .001$, 95% CI = [-0.02, -0.003]). Simple slopes analyses indicated at low discrimination (one standard deviation below the mean), avoidant coping was more strongly, positively associated with depression ($b = 0.92$, $SE = 0.12$, $t(550) = 7.66$, $p < .001$). At high discrimination (one standard deviation above the mean) avoidant coping weakened the association between discrimination and depression ($b = 0.62$, $SE = 0.10$, $t(550) = 6.44$, $p < .001$).

There were no significant interactions of lagged discrimination ($t-1$ or $t-2$) and avoidant coping on depression. There were additionally no significant interactions between concurrent discrimination (t) or lagged discrimination ($t-1$, or $t-2$) and avoidant coping on anxiety or stress. There was a significant, positive, main effect of avoidant coping on stress suggesting increased avoidant coping was related to increased stress ($b = 0.20$, $SE = 0.06$, $p < .001$, 95% CI = [0.07, 0.32]).

Emotion Focused Coping. Results revealed a significant interaction between concurrent discrimination (t) and emotion-focused coping on depression (Figure 2; $b = -0.01$, $SE = 0.006$, $p = .003$, 95% CI = [-0.03, -0.00]) and stress (Figure 3; $b = -0.02$, $SE = 0.01$, $p < .001$, 95% CI = [-0.03, -0.01]). Simple slopes analyses indicated a similar trend for depression and stress. Specifically, at high levels of discrimination (one standard deviation above the mean), greater use of emotion-focused coping weakened the association between discrimination and depression ($b = 0.59$, $SE = 0.10$, $t(548) = 6.01$, $p < .01$) as well as stress ($b = 0.66$, $SE = 0.12$, $t(547) = 5.37$, $p < .001$). Conversely, increased use of emotion-focused coping when discrimination was low (one standard deviation below the mean) strengthened the relationship between discrimination and depression ($b = 0.97$, $SE = 0.13$, $t(548) = 7.41$, $p < .001$) as well as stress ($b = 1.16$, $SE = 0.16$, $t(547) = 7.06$, $p < .001$).

There was additionally a significant interaction of lagged discrimination ($t-1$) and anxiety ($b = -0.01$, $SE = 0.004$, $p = .02$, 95% CI = [-0.02, -0.00]). However, subsequent simple slopes analyses indicated that the relationships between lagged discrimination ($t-1$) and anxiety, as well as emotion-focused coping and anxiety, at different levels of the moderator were not statistically significant.

Problem focused coping. There was a significant interaction of concurrent discrimination and problem focused coping on anxiety (Figure 4; $b = -0.01$, $SE = 0.004$, $p = .01$, 95% CI = [-0.02, -0.002]). Simple slopes analyses indicated at high levels of discrimination (e.g., one standard deviation above the mean), problem-focused coping weakened the association between discrimination and anxiety ($b = 0.55$, $SE = 0.11$, $t(550) = 4.80$, $p < .001$). At low levels of discrimination, problem focused coping strengthened the relation between discrimination and anxiety ($b = 0.89$, $SE = 0.15$, $t(550) = 6.11$, $p < .001$).

There were significant interactions between lagged discrimination ($t-1$) and problem focused coping on anxiety (Figure 5; $b = -0.01$, $SE < 0.01$, $p < .001$, 95% CI = [-0.02, -0.00]) and stress (Figure 6; $b = -0.01$, $SE < 0.01$, $p = .03$, 95%CI = [-0.02, -0.00]). Simple slopes analysis indicated that the effect of problem focused coping on anxiety was significant when lagged discrimination ($t-1$) was at low levels ($b = 0.24$, $SE = 0.12$, $t(550) = 1.98$, $p = .05$), but not when lagged discrimination ($t-1$) was at high levels ($b = -0.22$, $SE = 0.14$, $t(550) = -1.58$, $p = .12$). The same pattern was found for stress, indicating the effect was only significant at low levels of lagged discrimination ($b = 0.26$, $SE = 0.13$, $t(549) = 2.00$, $p = .05$), and not high levels ($b = -0.11$, $SE = 0.15$, $t(549) = -0.78$, $p = .44$).

There was a positive main effect of problem-focused coping on depression ($b = 0.11$, $SE = 0.05$, $p = .02$, 95% CI = [0.02, 0.20]).

Exploratory Analyses: Moderation of Coping Flexibility

Avoidant Coping Flexibility. There was a significant interaction of concurrent discrimination and avoidant coping flexibility on depression (Figure 7; $b = -0.07$, $SE = 0.03$, $p = .04$, 95% CI = [-0.13, -0.00]) and stress (Figure 8; $b = -0.11$, $SE = 0.04$, $p = .01$, 95% CI = [-0.20, -0.02]). Simple slopes analyses indicated at high levels of discrimination (one standard deviation above the mean), avoidant coping flexibility weakened the association of discrimination and depression ($b = 0.43$, $SE = 0.04$, $t(3390) = 10.84$, $p < .001$) and stress ($b = 0.79$, $SE = 0.04$, $t(3391) = 15.14$, $p < .001$). At low levels of discrimination, avoidant focused coping flexibility strengthened the association between discrimination and depression ($b = 0.55$, $SE = 0.05$, $t(3390) = 10.29$, $p < .001$) and stress ($b = 0.99$, $SE = 0.07$, $t(3391) = 13.99$, $p < .001$).

There were no significant interactions of discrimination and avoidant coping flexibility on anxiety however there was a significant main effect ($b = 1.46$, $SE = 0.47$, $p < .001$, 95% CI = [0.53, 2.39]).

Emotion Focused Coping Flexibility. There was a significant interaction of concurrent discrimination and emotion-focused coping flexibility on stress (Figure 9; $b = -0.07$, $SE = 0.03$, $p = .02$, 95% CI = [-0.13, -0.01]). Simple slopes analyses indicated at high levels of discrimination (one standard deviation above the mean), emotion focused coping flexibility weakened the association of discrimination and stress ($b = 0.80$, $SE = 0.05$, $t(3390) = 14.87$, $p < .001$). At low levels of discrimination, emotion focused coping flexibility strengthened the association between discrimination and stress ($b = 1.00$, $SE = 0.07$, $t(3390) = 13.41$, $p < .001$).

There were no significant interactions of emotion focused coping flexibility and discrimination on depression or anxiety. There was a significant main effect of emotion-focused coping flexibility on depression ($b = 1.01$, $SE = 2.11$, $p < .001$, 95% CI = [0.53, 1.50]) and anxiety ($b = 1.16$, $SE = 0.31$, $p < .001$, 95% CI = [0.56, 1.76]).

Problem Focused Coping Flexibility. There was a significant interaction of problem focused coping flexibility and discrimination on depression (Figure 10; $b = -0.09$, $SE = 0.03$, $p < .001$, 95% CI = [-0.15, -0.02]). Simple slopes analyses indicated a similar trend for depression and stress. Specifically, at high levels of discrimination (e.g., one standard deviation above the mean), use of more varied use problem focused coping skills weakened the association between discrimination and depression ($b = 0.43$, $SE = 0.04$, $t(3390) = 10.64$, $p < .001$). Conversely, more use of varied problem focused coping skills when discrimination was low (e.g., one standard deviation below the mean) strengthened the relationship between discrimination and depression ($b = 0.61$, $SE = 0.06$, $t(3390) = 10.29$, $p < .001$).

There were no significant interactions of problem focused coping flexibility and discrimination on anxiety or stress. There however was a significant main effect of emotion focused coping flexibility on anxiety ($b = 1.84$, $SE = 0.41$, $p < .001$, 95% CI = [1.04, 2.64]) and depression ($b = 1.33$, $SE = 0.33$, $p < .001$, 95% CI = [0.69, 1.98]).

Discussion

Previous studies have established ERD is a chronic stressor associated with heightened negative affect among Black individuals (e.g., Brondolo et al., 2008; Broudy et al., 2007). However, within the existing literature, investigations into coping mechanisms in response to ERD have produced significant variability, complicating the understanding of the effectiveness of different coping styles and strategies. However, there are promising trends indicating that certain strategies may mitigate the adverse effects of ERD over time, leading to enhanced well-being (e.g., Brondolo et al., 2009b; Jacob et al., 2023; Wilson and Gentzler, 2021).

The current study aimed to expand on prior work by examining momentary relations between discrimination, coping, and mood. Specifically, the study explored how the timing and flexibility of coping in response to ERD were associated with momentary mood. While the findings only partially supported hypotheses, they indicate that individuals employ a diverse array of coping strategies when faced with concurrent discrimination, and such experiences are variably correlated with heightened symptoms of negative mood. Additionally, when exploring potential moderating factors, the results suggest that, in certain cases, elevated levels of discrimination, coupled with varying coping styles and flexibility, may attenuate the association between discrimination and negative mood. Overall, the findings indicate that concurrent discrimination displays more meaning patterns between coping and mood compared to lagged discrimination.

Regarding the relation between discrimination and mood, results partially support the hypotheses that discrimination would be positively associated with negative mood outcomes (i.e., depression, anxiety, and stress), aligning with prior research showing experiences of discrimination increase negative affect on the daily level (e.g., Cheeks et al., 2020). Notably, concurrent experiences of discrimination were significantly associated with heightened negative mood across outcome variables, while lagged discrimination ($t-1$) showed an unexpected association with decreased depression. Additionally, lifetime perceived discrimination, included as a covariate, was consistently associated with increased negative mood. Prior studies suggest that, in addition to impacting daily mood, discrimination has an additive effect, increasing daily negative affect over time (e.g., Jochman et al., 2019; Kwate & Goodman, 2015). The current findings align with prior research indicating that discrimination contributes to elevated negative affect, although results did not demonstrate a cumulative effect throughout the day. Instead, results suggest at the daily level, concurrent experiences of discrimination, and lifetime discrimination, rather than discrimination experienced earlier in the day are associated with heightened negative mood. Further, findings regarding depression suggest the impacts of discrimination on mood may appear to temporarily diminish at the daily level although this trend may be better explained by other variables such as how individuals are coping throughout the day.

In exploring temporal relations in coping strategies, the current study aimed to explore whether discrimination at different time points was associated with different coping responses. However, findings indicated coping was associated with concurrent discrimination rather than lagged discrimination. Therefore, contrary to the hypotheses, concurrent depression was associated with increased utilization across all coping styles (avoidant, emotion-focused, and

problem-focused) and no significant relations were observed between lagged discrimination and coping.

These findings partially align with prior literature suggesting that Black individuals use a variety of coping strategies, across coping styles, in response to ERD. However, patterns of coping in the literature remained mixed, and prior studies often have not assessed discrimination and coping continuously. For example, using retrospective reports of coping and discrimination, Brown, and colleagues (2011) found African American college students used more active coping and emotional support when faced with race-related stressors. However, when exploring similar variables using daily reports, Hoggard and colleagues (2012) found participants engaged in less planful problem solving and more avoidance in response to race-related stressors. Therefore, variability in reported use of ERD strategies in the literature may be a function of methodology and recall bias from retrospective reporting. The current study adds to the literature that individuals use various coping strategies when measured continuously and in the moment.

Further, when exploring the interaction of coping and discrimination on depression, anxiety, and stress, results yielded mixed findings. Moderation was explored both by examining the frequency and flexibility of coping strategy use (i.e., variability in strategy use). It was hypothesized that avoidant and emotion-focused coping would moderate concurrent discrimination and mood, while problem-focused coping would moderate lagged discrimination and mood. Additionally, it was hypothesized that coping flexibility would moderate the relation of concurrent discrimination and mood.

Notably, although significant interaction effects were observed, their effect sizes were small. Even the largest increase in variables within the study would lead to only a minor change. For instance, all variables were measured on a 0-100 scale in the current study. Therefore, among

the significant interactions, the maximum increase in discrimination would result in just a one- to four-point increase in mood ratings. Consequently, while these observed trends partially support the hypotheses and align with previous literature, further investigation is necessary to thoroughly explore these relationships, as detailed in the subsequent section on future directions.

There was partial support for the hypothesis that avoidant coping would weaken the association between concurrent discrimination and negative mood, but this was only observed for depression and only at high levels of discrimination. The same trend emerged for avoidant coping flexibility, weakening the relation of concurrent discrimination, depression, and stress. Prior studies suggest Black individuals may implement more avoidant coping strategies in response to ERD (e.g., Hoggard et al., 2015), which has been shown to be positively associated with depression and anxiety in other samples (e.g., Carver & Connor-Smith, 2010; West et al., 2010). However, others propose that avoidant coping may aid in ensuring physical and emotional safety in the short term but may be more detrimental to health in the long-term if other strategies are not implemented in addition (Jacob et al., 2023). The current findings add the literature the finding that at high levels of discrimination, more frequent and varied (i.e., flexible) use of avoidant coping strategies are less strongly associated with depression and stress. However, results failed to support that this trend persists or changes over time and impacts symptoms of anxiety.

Regarding emotion-focused strategies, there was a similar interaction between emotion-focused coping and emotion-focused coping flexibility in relation to concurrent discrimination and stress. Prior literature suggests a more nuanced relation between emotion-focused coping and mood, suggesting the efficacy of emotion focused approaches may vary depending on context (Jacob et al., 2023). In the current sample, at high levels of discrimination, more frequent

and varied use of emotion-focused strategies weakened the relation between concurrent discrimination, depression, and stress. These findings align with prior literature suggesting strategies focused on changing emotional state in response to discrimination may have more immediate impacts on relieving distress in the short term (Jacob et al., 2023). However, the current study did not find patterns of emotion-focused coping and lagged discrimination thus it is unclear whether these coping approaches may be effective in reducing the impacts of discrimination over time.

Results did not support the hypothesis that problem-focused coping would weaken the relation between lagged discrimination and mood, producing mixed findings across outcome variables. Prior literature suggests that problem-focused coping may be an effective strategy in response to ERD by equipping individuals to reduce future exposure to ERD by employing strategies to evoke change (e.g., activism, changing environment; Jacob et al., 2023). In the current study, problem-focused coping was positively correlated with anxiety and stress only at low levels of lagged discrimination ($t-1$). Contrary to hypotheses, problem-focused coping moderated the relation of concurrent discrimination and anxiety, while problem-focused coping flexibility moderated the relation of concurrent discrimination and depression. Trends across moderation with concurrent discrimination suggest that at high levels of concurrent discrimination, increased problem-focused coping weakened the relation of concurrent discrimination, anxiety, and depression. Therefore, contrary to hypotheses and prior literature suggesting problem-focused coping may be efficacious in the long term, not short term, the current study did not support this trend at the daily level.

Together, results suggest that at the daily level, concurrent discrimination may have a stronger influence on the utilization of coping mechanisms and momentary mood compared to

the lasting effects of discrimination experienced earlier in the day. Notably, trends suggest the intensity of concurrent discrimination appears to influence the efficacy of coping strategies, weakening the relation between discrimination and negative mood at high levels of discrimination. Further, trends suggest that the frequent use of coping strategies, compared to varied use of coping (i.e., coping flexibility) may differently impact the relation of discrimination and mood. However, findings did not consistently demonstrate trends across outcome variables, suggesting further exploration is needed to understand pathways between discrimination, coping, and mood. Overall, while these trends offer valuable insights, further refinement of methodology in future studies would enhance understanding of these relationships to better inform intervention.

Strengths, Limitations, and Future Directions

There are notable strengths of the current study that provide valuable contributions to the current body of literature. The longitudinal design utilized in the current study, compared to cross-sectional designs using retrospective reporting, reduced the risk of recall bias inherent to retrospective reporting. Further, improving on prior longitudinal designs that infrequently measured variables over time (e.g. Ellison, et al., 2008; English, et al., 2018; Gerrard, et al., 2018), in the current study, coping, discrimination, and mood were measured multiple times a day allowing for exploration of how these variables relate on the daily level.

However, some factors limit the interpretation and generalizability of results and should be improved upon in future work. Regarding generalizability, the current sample was largely African American, cis-gender, heterosexual women. This is an important group to consider in its own rights; however, it limits generalization. Although demographics variables were not found to be significant co-variates in models, prior literature suggests that the target variables differ

across demographics. For example, prior reviews suggest differences in coping by gender and cultural background (e.g., English et al., 2018; Jacob et al., 2023). Therefore, future studies should aim to strategically recruit samples that are representative of the diversity within Black communities to better generalize findings. More diverse samples could also allow for exploration of the impact of intersectional identities or comparisons between characteristics (e.g., gender) that the current study did not explore.

Further, the study strategically recruited individuals who reported experiencing discrimination at least occasionally in the past month. In the current sample, individuals reported about one instance of discrimination every day to every other day. While this falls within the range of findings from prior studies documenting experience of ERD, ranging from averages of twice a day to once every two weeks (e.g., Mendez et al., 2020; Swim et al., 2003), results may not replicate in samples with greater variation of discriminatory experiences.

Variability in results, as well as failure to support hypotheses, suggest future research could be strengthened by modification in design and sample size. Given small effect sizes, future research would benefit from larger sample sizes to enhance the ability to interpret results. Further, prior literature supports that discrimination has cumulative effects (Brondolo et al., 2009b; Jochman et al., 2019; Kwate & Goodman, 2015) and selection of coping, and coping flexibility, requires an appraisal process to assess the demands of the situation (Brondolo et al., 2009b; Jacob et al., 2023; Lazarus and Folkman, 1984). Therefore, given that current findings did not support a relation between lagged discrimination, mood, or coping at the daily level, nor the moderation of coping on lagged discrimination and mood, the relation between discrimination, coping, and mood may be better observed over longer periods of time (e.g., between days or weeks). Additionally, though prior literature supports using a count-based

approach to measure coping flexibility (e.g., Heffer, & Willoughby, 2017), future work could benefit from implementing qualitative or mixed method designs to assess how individuals are appraising and selecting coping strategies. Thus, an important future direction is to better understand the cognitive processes that unfold during coping in response to ERD.

Given the current study is correlational, further experimental work is needed to determine causality. Additionally, the current study did not explore bidirectionality which should be explored in future work. Prior literature suggests that negative emotion is associated with the employment of various coping strategies (e.g., Smith et al., 2023). Additionally, prior studies suggest that more discrimination is correlated with increased coping (e.g., Vassillière, et al., 2016). Therefore, given the current sample reported high symptomology of negative mood and lifetime perceived discrimination at baseline, results may be highlighting a more complex relation between variables.

Conclusion

Given the well documented, detrimental impacts of discrimination on mood and overall well-being for Black individuals, research exploring potential protective factors is critical to improve well-being. Overall, results of the current study suggest discrimination is related to more use of varied coping strategies and increased negative mood in the moment, and for some outcomes, coping during periods of high discrimination is associated with less negative mood. However, given lack of findings for lagged discrimination, which contradicts prior research demonstrating cumulative effects of discrimination, the current findings highlight the importance of exploring these variables over time. Thus, to produce more generalizable findings that can contribute to intervention, future research should continue exploring these variables over longer

periods of time, utilizing large, diverse samples, and implementing mixed method designs to better understand individual's appraisal processes.

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Tables

Table 1

Demographic Characteristics of Sample

Characteristic	n	%
Gender*		
Female	84	84
Male	13	13
Non-binary	1	1
Trans (FTM)	1	1
Trans (MTF)	1	1
Other	4	4
Race/Ethnicity*		
African	4	4
American Indian	3	3
Black/African American	97	97
Hispanic/Latinx	7	7
Southeast Asian	1	1
White/European American	1	1
Biracial	3	3
Multiracial	3	3
Other	1	1
Education		
Some high school	3	3
Highschool diploma	6	6
Some technical/ vocational	1	1
Some college	25	25
AA degree	15	15
BA/BS degree	28	28
Some graduate/professional	2	2
Graduate/ professional	18	18
Other	2	2
Income		
<25k	15	15
25k-49.9k	30	30
50k-74.9k	27	27
75k-99.9k	9	9
100k-149.9k	11	11
150k+	7	7
No response	1	1

*Participants were prompted to select all options that applied.

Table 2*Baseline Measurements of Study Variables*

Variable	M	SD
Mood		
Anxiety	15.06	12.30
Depression	17.25	17.31
Stress	25.70	16.90
Coping		
Avoidant Coping	3.38	0.53
Emotion-Focused Coping	2.49	0.49
Problem-Focused Coping	2.94	0.62
Discrimination		
Lifetime Perceived Discrimination	2.59	0.79

Table 3*Association of Concurrent and Lagged Discrimination and Avoidant Coping*

Predictors	b	SE	CI	p
Intercept	27.00	2.15	22.78 – 31.23	<0.001
Discrimination	0.43	0.08	0.28 – 0.59	<0.001
Discrimination(t-1)	0.07	0.08	-0.09 – 0.22	0.400
Discrimination (t-2)	-0.06	0.07	-0.19 – 0.07	0.379
Day Number	-0.07	0.17	-0.41 – 0.26	0.665
Lifetime Discrimination	9.75	2.22	5.38 – 14.12	<0.001

Table 4*Association of Concurrent and Lagged Discrimination and Emotion-Focused Coping*

Predictors	b	SE	CI	p
Intercept	29.60	2.19	25.29 – 33.90	<0.001
Discrimination	0.38	0.06	0.26 – 0.49	<0.001
Discrimination(t-1)	0.05	0.06	-0.07 – 0.16	0.419
Discrimination (t-2)	0.03	0.05	-0.07 – 0.13	0.546
Day Number	-0.29	0.13	-0.54 – -0.04	0.022
Lifetime Discrimination	6.51	2.50	1.59 – 11.42	0.010

Table 5*Association of Concurrent and Lagged Discrimination and Problem-Focused Coping*

Predictors	b	SE	CI	p
Intercept	41.57	3.16	35.37 – 47.78	<0.001
Discrimination	0.52	0.09	0.34 – 0.69	<0.001
Discrimination(t-1)	0.03	0.09	-0.14 – 0.20	0.750
Discrimination (t-2)	-0.09	0.08	-0.24 – 0.06	0.242
Day Number	-0.20	0.19	-0.57 – 0.18	0.305
Lifetime Discrimination	6.12	3.57	-0.88 – 13.13	0.086

Table 6*Association of Concurrent and Lagged Discrimination and Anxiety*

Predictors	b	SE	CI	p
Intercept	29.30	2.45	24.50 – 34.11	<0.001
Discrimination	0.77	0.09	0.60 – 0.95	<0.001
Discrimination(t-1)	0.03	0.09	-0.14 – 0.21	0.70
Discrimination (t-2)	-0.04	0.08	-0.20 – 0.12	0.62
Day Number	-0.56	0.18	-0.91 – -0.20	0.002
Lifetime Discrimination	8.96	2.61	3.84 – 14.08	0.001

Table 7*Association of Concurrent Discrimination, Lagged Discrimination, and Depression*

Predictors	b	SE	CI	p
Intercept	21.14	2.27	16.68 – 25.59	<0.001
Discrimination	0.67	0.07	0.53 – 0.80	<0.001
Discrimination(t-1)	-0.03	0.07	-0.16 – 0.11	0.716
Discrimination (t-2)	-0.14	0.06	-0.26 – -0.01	0.03
Day Number	-0.47	0.14	-0.74 – -0.19	0.001
Lifetime Discrimination	9.54	2.55	4.54 – 14.54	<0.001

Table 8*Association of Concurrent Discrimination, Lagged Discrimination, and Stress*

Predictors	b	SE	CI	p
Intercept	31.31	2.48	26.44 – 36.18	<0.001
Discrimination	0.83	0.09	0.65 – 1.02	<0.001
Discrimination(t-1)	0.17	0.09	-0.02 – 0.35	0.080
Discrimination (t-2)	-0.02	0.09	-0.19 – 0.15	0.814
Day Number	-0.62	0.19	-0.98 – -0.25	0.001
Lifetime Discrimination	10.15	2.62	5.01 – 15.29	<0.001

Figures

Figure 1

Association Between Momentary Depressed Mood and Avoidant Coping by Concurrent Discrimination

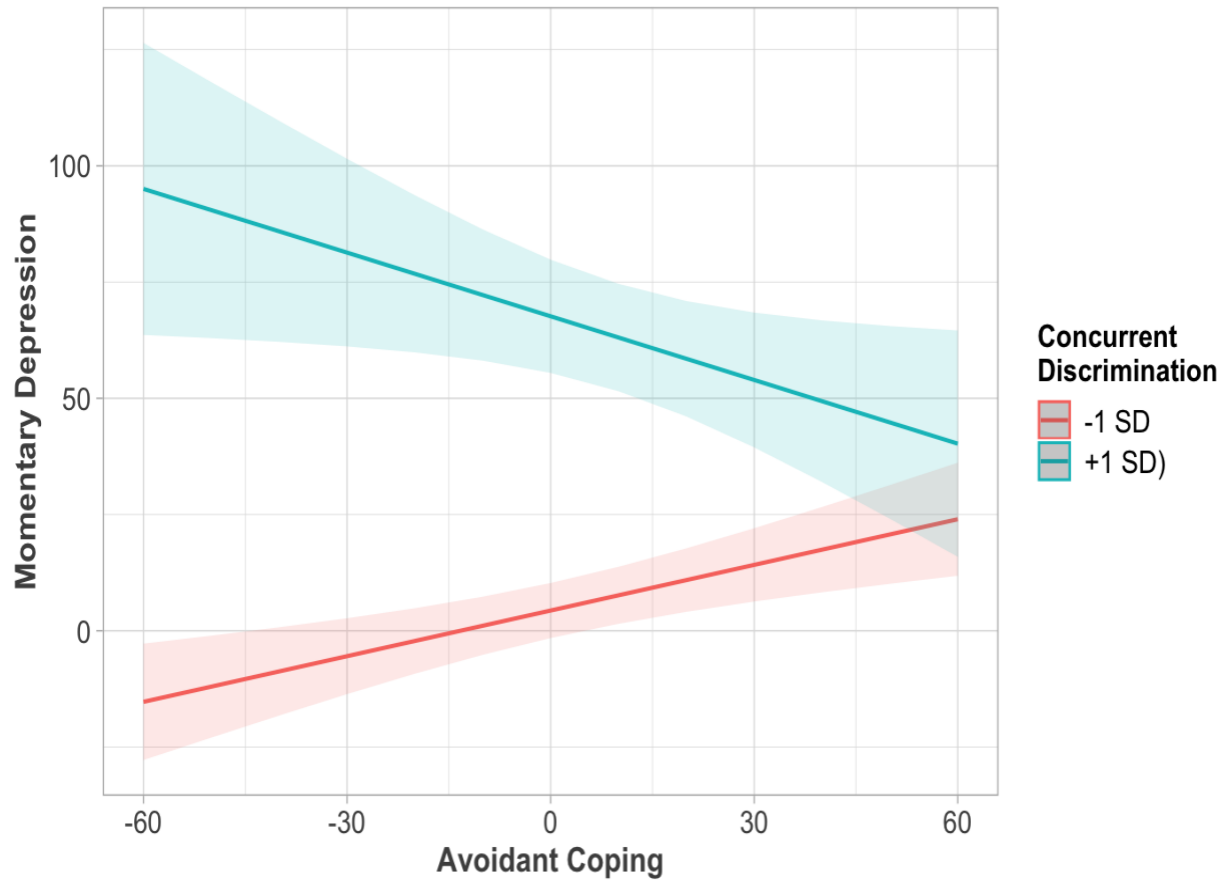


Figure 2

Association Between Momentary Depressed Mood and Emotion-Focused Coping by Concurrent Discrimination

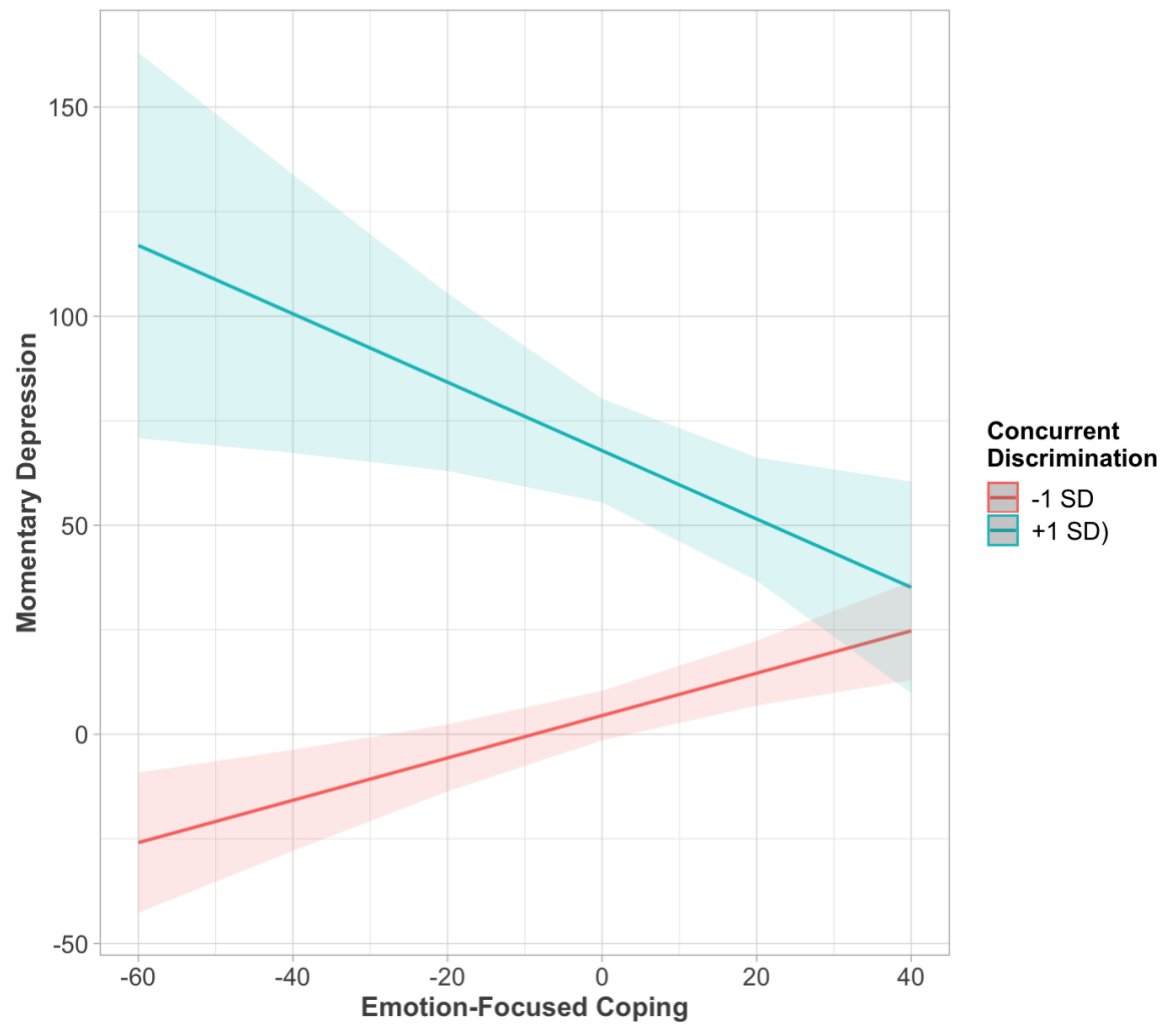


Figure 3

Association Between Momentary Stress and Emotion-Focused Coping by Concurrent Discrimination

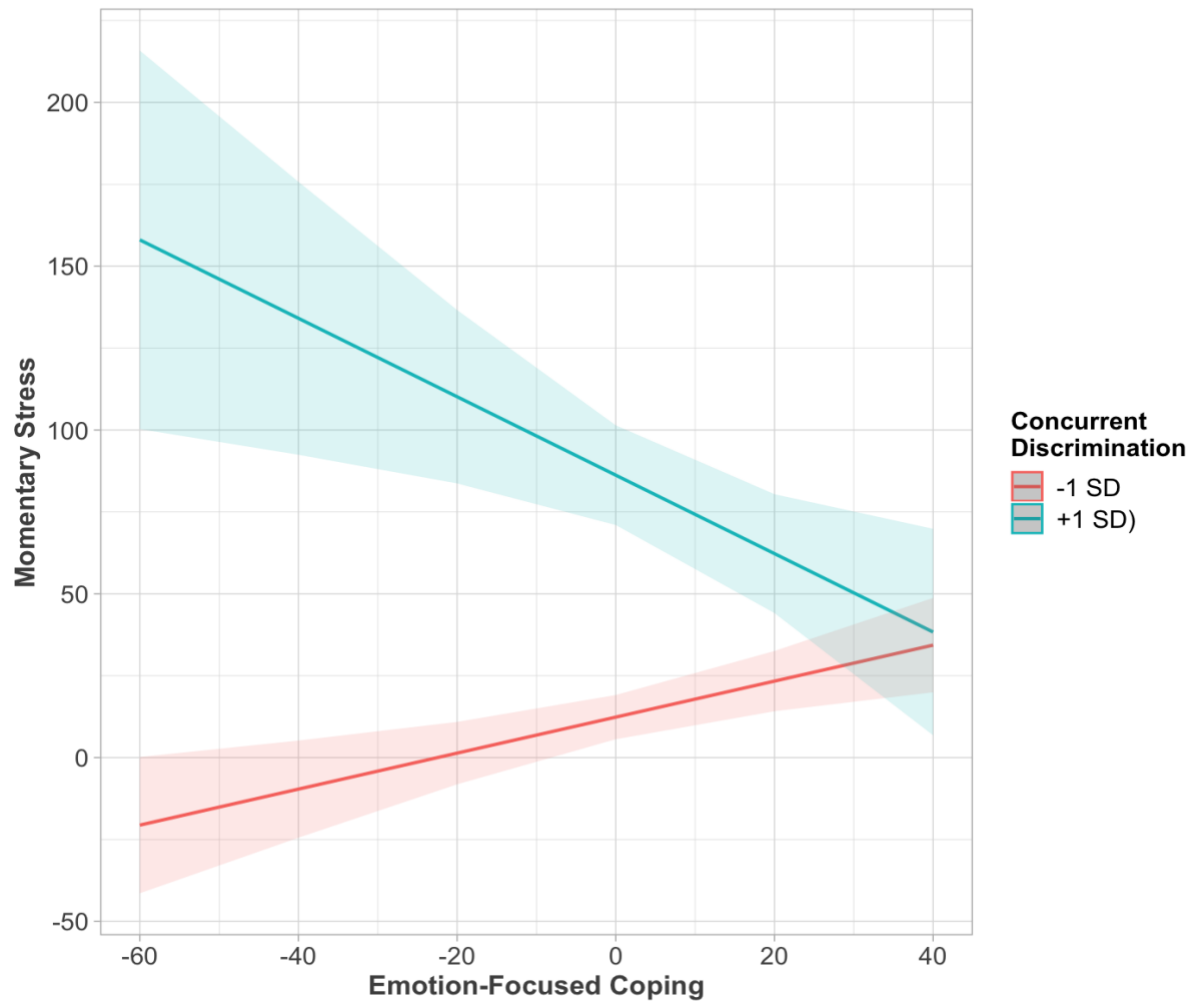


Figure 4

Association Between Momentary Anxious Mood and Problem-Focused Coping by Concurrent Discrimination

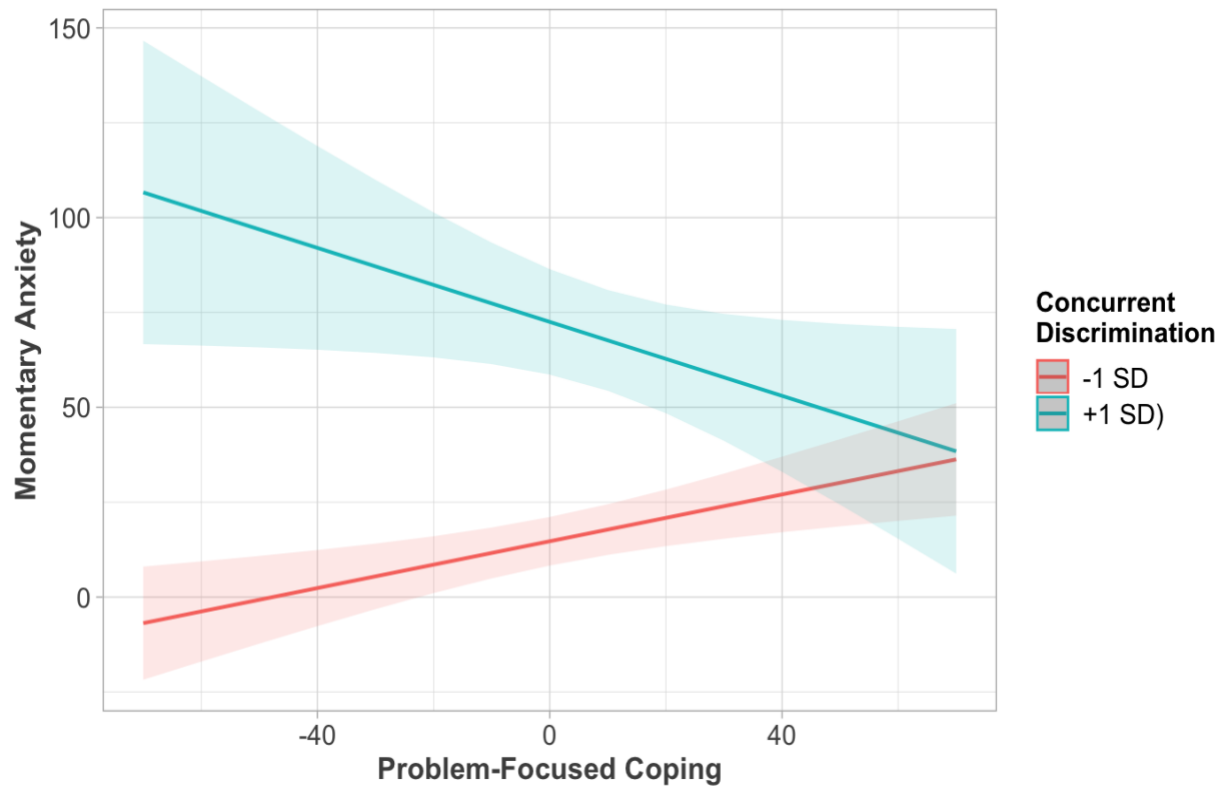


Figure 5

Association Between Momentary Anxious Mood and Problem-Focused Coping by Lagged Discrimination (t-1)

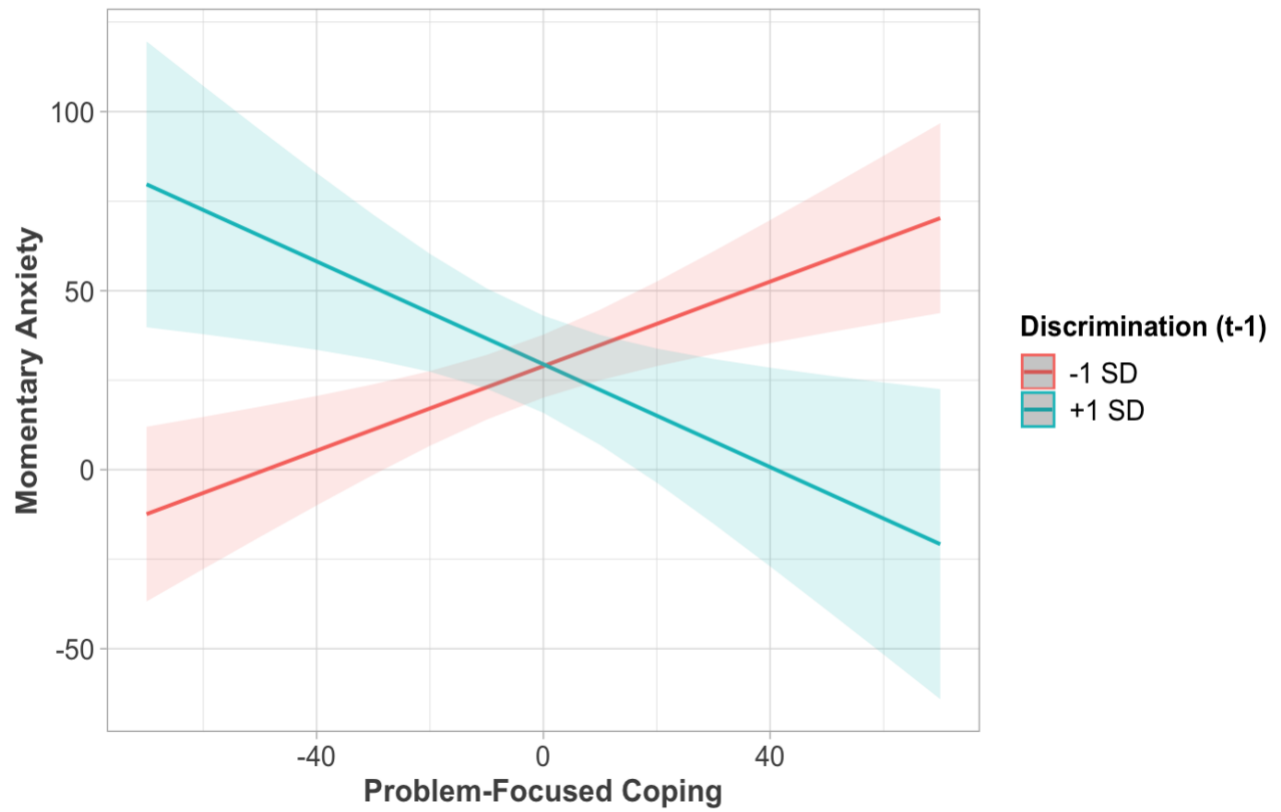


Figure 6

Association Between Momentary Stress and Problem-Focused Coping by Lagged Discrimination (t-1)

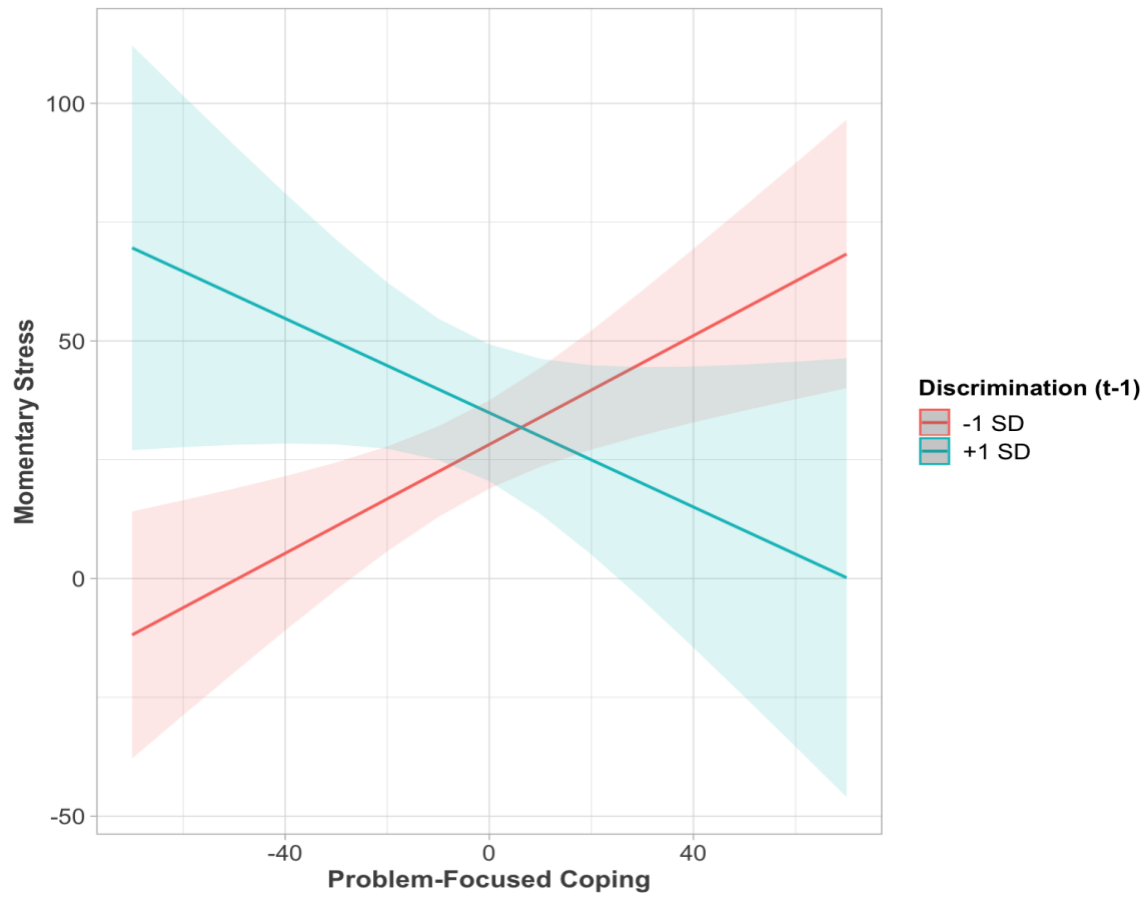


Figure 7

Association Between Momentary Depressed Mood and Avoidant Coping Flexibility by Concurrent Discrimination

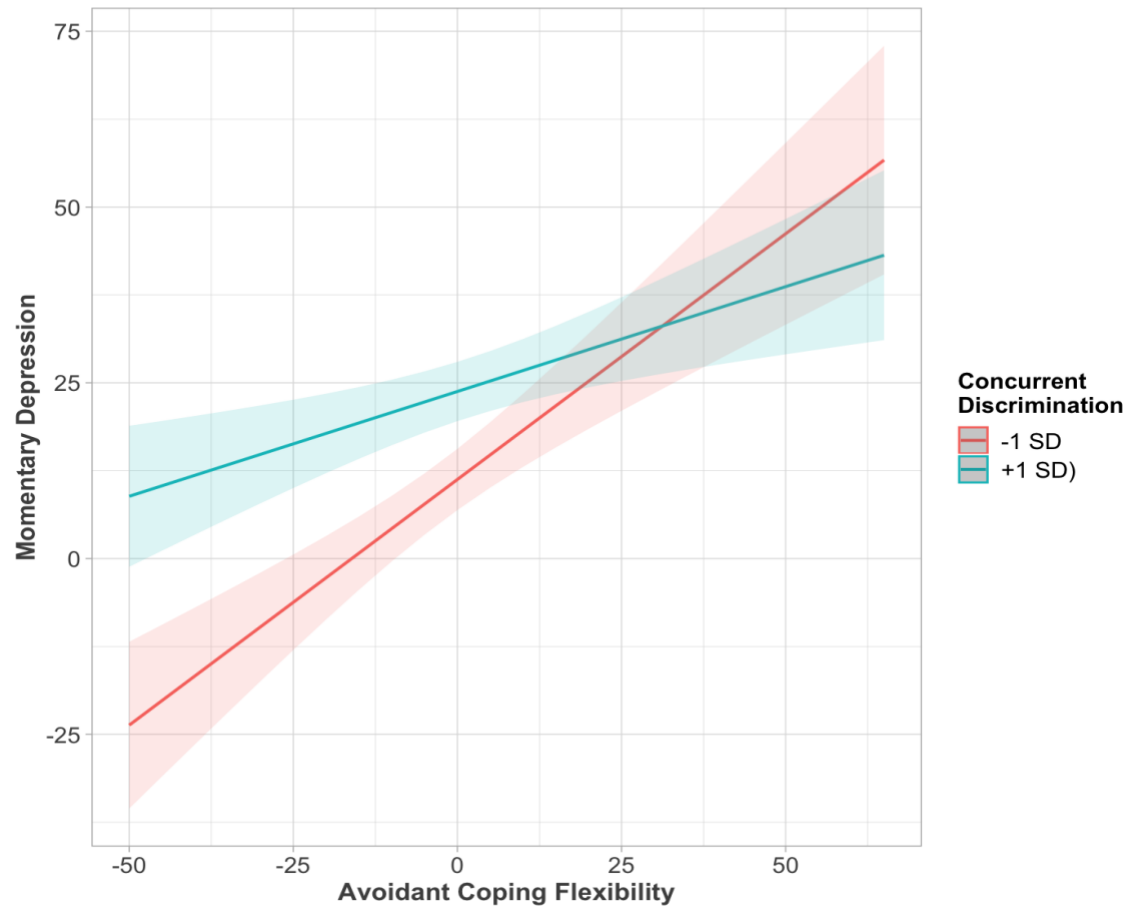


Figure 8

Association Between Momentary Stress and Avoidant Coping Flexibility by Concurrent Discrimination

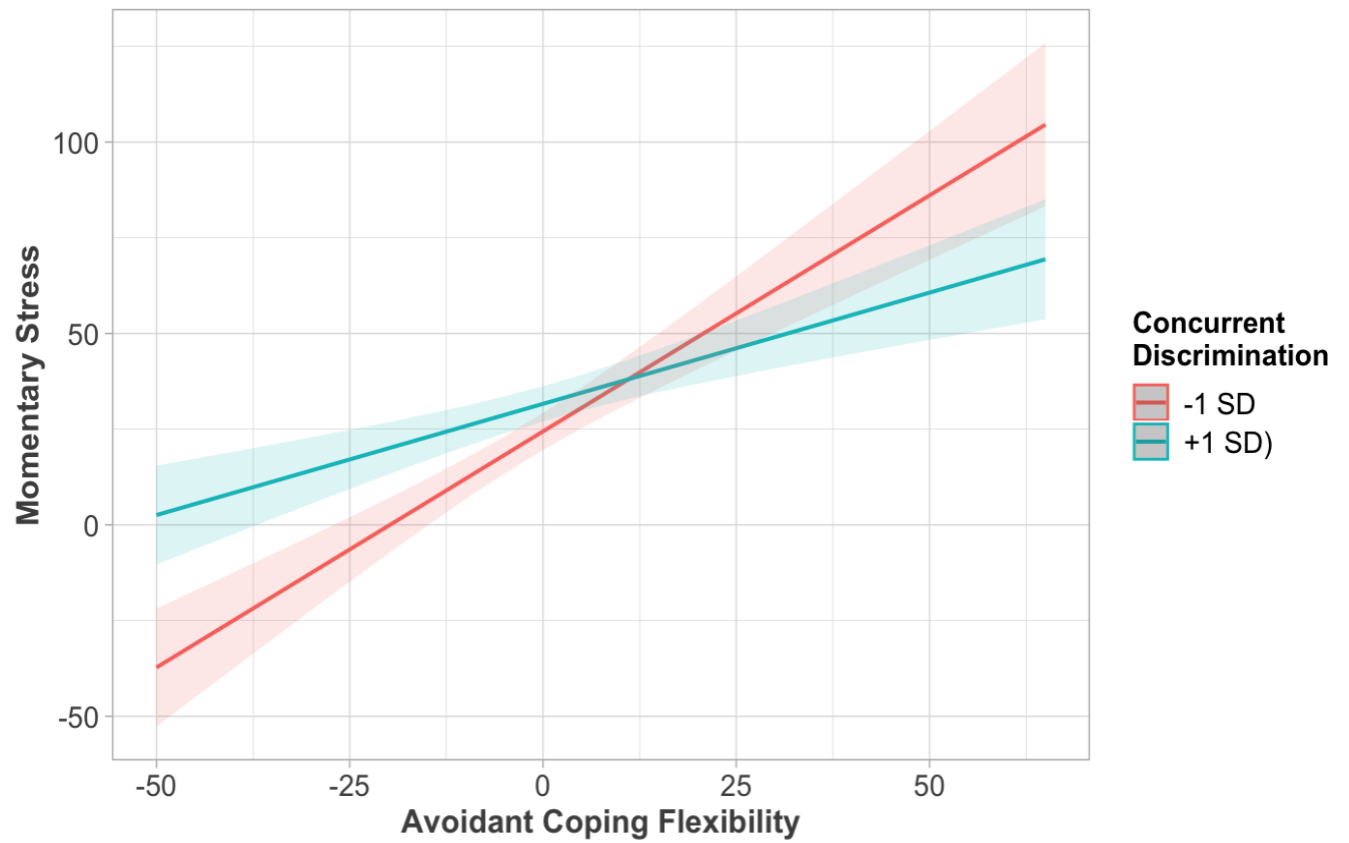


Figure 9

Association Between Momentary Stress and Emotion-Focused Coping Flexibility by Concurrent Discrimination

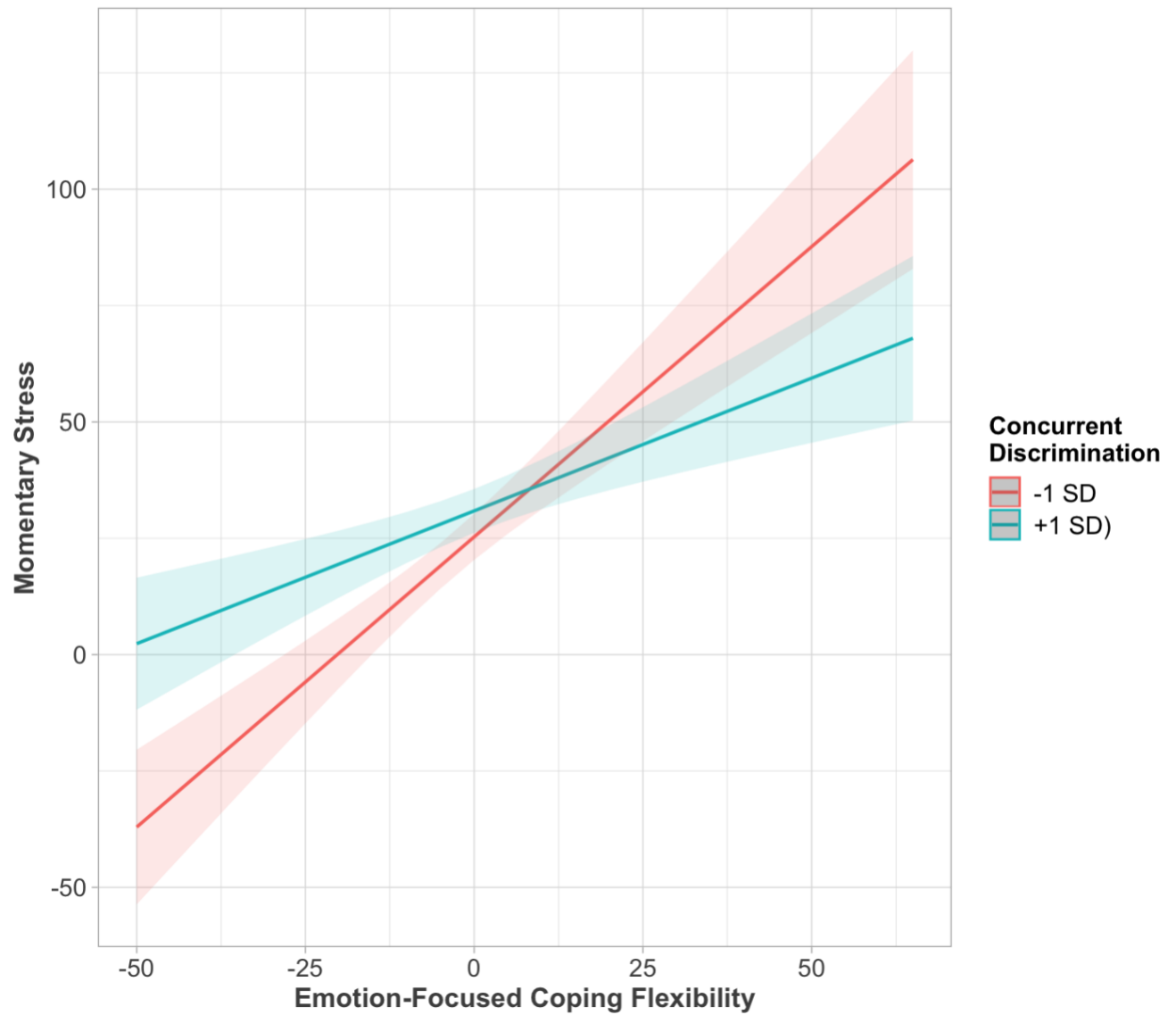


Figure 10

Association Between Momentary Depression and Problem-Focused Coping Flexibility by Concurrent Discrimination

