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THE EFFECTS OF INTERPERSONAL DISCRIMINATION ON SOCIAL
COGNITION AND DEPRESSIVE SYMPTOMS

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by

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ABSTRACT

THE EFFECTS OF INTERPERSONAL DISCRIMINATION ON SOCIAL COGNITION AND DEPRESSIVE SYMPTOMS

Emilia Eva Mikrut

Interpersonal racial/ethnic discrimination is a risk factor for poor psychological well-being, including symptoms of depression. Emerging research suggests that changes in social cognition, including relational schemas about the self and others that facilitate navigation of the social world, may be one mechanism underlying the relation between exposure to discrimination and psychological distress. Prior studies have often examined the mediating role of one or two negative relational schemas in isolation. However, less is known about the unique and combined effects of multiple dimensions of social cognition on the relation between exposure to interpersonal racial/ethnic discrimination and depressive symptoms. This study tested a social-cognitive model of psychological consequences of perceived lifetime discrimination. An analytic sample of 278 participants recruited from a private university and from a community medical center completed surveys consisting of self-report measures of exposure to interpersonal discrimination, nine measures of relational schemas, and depressive symptoms. Participants ranged in age from 18 to 85 years old ($M = 30$, $SD = 13.70$) and 63% of all participants were female. Most participants identified as either Black (47%) or White (22%). Exploratory factor analysis was conducted to discern that the nine relational

schemas mapped onto three primary social-cognitive domains: concerns about rejection and invalidation, social vigilance, and mistrust. Parallel mediation analyses, controlling for age, gender, race, life stress, and recruitment site, indicated that discrimination is associated with greater concerns about rejection and invalidation ($a_1b_1 = .10$, $SE = .03$, 95% CI: .05, .17), and mistrust ($a_3b_3 = .05$, $SE = .02$, 95% CI: .01, .09), and ultimately, greater depressive symptoms. Findings suggest that exposure to interpersonal discrimination may drive the development of negative relational schemas, particularly hostile attribution bias, that undermine social relationships and may ultimately culminate in symptoms of depression.

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INTRODUCTION

Health disparities, or avoidable differences in health status between sociocultural groups, are a major public health concern. Health disparities are prevalent and manifest in different ways among racial and ethnic groups (Baciu et al., 2017). For example, Black Americans are disproportionately more likely to suffer from a number of medical conditions, including chronic pain (Mechlin et al., 2011), diabetes (Centers for Disease Control and Prevention, 2017), and cardiovascular disease and cardiovascular disease-related death (Villiblanca et al., 2016) than White counterparts. Similarly, obesity and diabetes (Dominguez et al., 2015), and cardiovascular disease risk factors (Daviglius et al., 2012), are more prevalent among those who are Latinx compared to Whites.

Racism has been identified as a main social determinant of health contributing to health disparities. Racism can occur at the institutional level, interpersonal level, and intrapersonal or internalized level (Jones, 2000). Interpersonal racism, or discrimination, can be defined as acts of unfair treatment enacted by majority group members onto minority group members due to their devalued social status (Jones & Carter, 1996). As a psychosocial stressor, discrimination is widespread and disproportionately affects individuals from ethnic and racial minority groups. According to the Pew Research Center (2016), 60% of Black Americans and 43% of Hispanic Americans report occasionally experiencing discrimination, while 11% and 8%, respectively, report experiencing discrimination regularly. However, other research suggests perceived discrimination may be even more prevalent. For example, one study found that three in four Black and Latinx adults reported an experience of racism-based interpersonal interaction within the past week (Brondolo et al., 2011).

Discrimination and Mental Health

The experience of discrimination, and the effects discrimination on well-being, are often conceptualized within Lazarus and Folkman's (1984) transactional model of stress and coping, which posits that psychological stress occurs when environmental demands, or stressors, outnumber available resources. As a result of institutional and cultural racism, racial and ethnic minority groups tend to have decreased access to education, housing, and healthcare, which limits resources needed to cope with life stressors. Minority populations are more likely to live in poverty and/or have low socioeconomic status (SES), and are less likely to have access to insurance and health care (Barr, 2014; U.S. Department of Health and Human Services, 2011). In the face of these contextual stressors and lack of resources, interpersonal discrimination, which is often difficult to predict or control, can be a particularly difficult stressor to cope with (Major et al., 2002; Lazarus & Folkman, 1984). As a chronic social stressor that leads the sustained experience of stress, discrimination can lead to negative physiological effects, such as hypertension and prolonged exposure to cortisol, that adversely affect health over time and culminate in a heightened risk for cardiovascular disease, diabetes, obesity, and cancer, among other illnesses (Pascoe & Richman, 2009).

Discrimination is also associated with negative mental health effects, including symptoms of depression, anxiety, and post-traumatic stress, as well as general wellbeing and quality of life (Pascoe & Richman, 2009). In fact, interpersonal discrimination founded in racial or ethnic bias has been more consistently related to adverse mental health outcomes than physical health outcomes (Paradies et al., 2015). Moreover,

research suggests that adverse psychological effects experienced as a result of discrimination may be a risk factor for further health issues (Pasco & Richman, 2009).

Prior research has provided conflicting findings regarding the prevalence of depressive symptoms or rate of diagnosis for Major Depressive Disorder among socially marginalized racial/ethnic groups. The majority of studies suggest that the incidence of depression among Black Americans is less than that among White Americans (Williams et al., 2007). Some hypothesize that these differences may be a result of moderating factors, such as differences in socioeconomic status, social support or cohesion, or spirituality, which can buffer the negative effects of social stress (Odom & Vernon-Feagans, 2010). However, there exists some concern as to whether current clinical measures of depression, which were traditionally developed using samples consisting of primarily White individuals, accurately capture symptoms expressed by members of other various cultural groups (Sohail et al., 2014; Walton & Payne, 2016) or if provider bias influences underdiagnosis among Black Americans (Bailey et al., 2011). For example, prior research suggests that Black men and Black women may express symptoms of depression in different ways compared to White Americans due to cultural factors (Walton & Payne, 2016).

However, multiple meta-analyses examining the effects of racism or discrimination have found a negative effect of discrimination on collective mental health (Paradies et al., 2015; Pieterse et al., 2012; Pascoe & Richman, 2009; Britt-Spells, Sledobnik, Sands & Rollock, 2018). Across a range of racial/ethnic groups, self-reported experiences of race-based discrimination have been shown to be associated with multiple proxy measures of psychological distress, including depression, anxiety, post-traumatic

distress, and suicidal ideation (Paradies et al. 2015; Pieterse et al., 2012; Pascoe & Richman, 2009). These effects are robust to strategies used to measure either discrimination or depression (Britt-Spells et al., 2018; Paradies et al., 2015), though the majority of studies conducted so far have only examined cross-sectional, rather than longitudinal, effects (Paradies et al., 2015).

The detrimental effects of discrimination have been assessed among many racial, ethnic, and cultural groups. One meta-analysis examining cross-sectional studies of Black Americans provides evidence for a positive association between perceived racism and psychological distress, including symptoms of depression and anxiety (Pieterse et al., 2012). Another meta-analysis similarly found that among Black men specifically, more frequent experiences of discrimination are related to greater depressive symptoms (Britt-Spells et al., 2018).

Though the majority of the literature has focused on experiences of Black-identifying individuals, findings from studies investigating the psychological effects of discrimination among other racial/ethnic groups has provided similar results. For example, one recent study assessing the effects of discrimination among community-dwelling Latinx adults found that higher frequency of interpersonal discrimination was associated with greater symptoms of depression (Molina et al., 2019). In another study surveying Asian-American adults, experiences of discrimination were related to depressive symptoms and a greater likelihood of being diagnosed with Major Depressive Disorder (Chae et al., 2012). Similarly, in another study assessing ethnic minorities across various countries, perceived ethnic discrimination was associated with Major Depressive Disorder and clinical levels of depressive symptoms (Ikram et al., 2014).

The link between discrimination and mental health outcomes has also been examined across life stages. For example, among Black young adults, perceived discrimination is related to greater anxiety and depressive symptoms, as well as decreased life satisfaction (Seaton et al., 2010; Cheng et al., 2015). Similarly, another study showed that among Hispanic emerging adults, ethnic discrimination is related to greater symptoms of anxiety and depression (Cano et al., 2016).

Minimal literature has examined the long-term effects of discrimination on mental health, though findings suggest the effects of discrimination may be cumulative and persist over time (Paradies et al., 2015). Findings from one Australian study found that among racially/ethnically diverse children ages 8-15 years old, experiences of discrimination predicted depressive symptoms nine months later (Priest et al., 2017). Other studies have found that among Black adolescents (English et al., 2014) and Hispanic adolescents (Basanez et al., 2012), and adult migrants in Hong Kong (Chou, 2012), exposure to racial discrimination predicted depressive symptoms at least one year later. Similarly, experiences of interpersonal discrimination have been associated with corresponding fluctuations in depressive symptoms among Black adult women (Schulz et al., 2005) and Black emerging adults (Noelle et al., 2014). Taken together, these studies provide evidence that discrimination is a persistent social stressor associated with long term consequences on mental health.

The Effects of Interpersonal Discrimination on Social Cognition

Given the large body of evidence suggesting that the stress of discrimination is pervasive and compounding, affecting the psychological well-being of ethnic/racial minorities at various life stages, it is critical to understand the specific pathways through

which these processes occur. Emerging research suggests that discrimination-related changes in social cognition may contribute to the relation of discrimination to depression (Brondolo et al., 2016).

Social cognition encapsulates the ways one thinks about themselves and the world around them (Fiske & Taylor, 2013). Higgins (2000) conceptualized social cognition as the bidirectional relation between the ways in which the social world shapes an individual's cognitions and the ways in which these cognitions shape perceptions of and reactions to the social world. As people experience different events and interactions, they learn about their environment. This information is organized and categorized to form overall mental representations, or *schemas*, about people, objects, or particular environments (Smith & Queller, 2004). Schemas can encapsulate memories, feelings, values, images, and sensations that inform the way we understand the world (Martin et al., 2004). Though schemas can be formed about a broad range of topics or stimuli, schemas concerning relationships with other people are called relational schemas (Baldwin, 1992)

Schema formation is adaptive from an evolutionary perspective as it enables efficient retrieval of information that can be applied to current stimuli or situations. Social cognition allows one to create mental representations of the self and the world to enable rapid appraisal and navigation of social situations (Martin et al., 2004; Oakes, 2004). The more often one is exposed to certain information, the more salient and accessible the associated schema becomes. When primed again with a similar stimulus, schemas can resurface quickly and enable causal attributions to be made in potentially ambiguous situations (Higgins, 1996; Bruner, 1957; Martin et al., 2004).

Social cognitive processes are shaped through past social experiences. Experiences of interpersonal stress, and more specifically discrimination, can foster negative attributions about the self and others. Past exposure to interpersonal discrimination can breed beliefs that the social world is threatening and unjust, and lead to the development of *negative relational schemas* involving anticipations of rejection and harm (Oakes, 2004). Specifically, members of ethnic and racial minority groups who experience persistent discrimination may come to expect that others will act in a hostile manner or reject them in social interactions (Brondolo et al., 2016). It is important to note that such negative relational schemas are not innately maladaptive, but may act as an adaptive cognitive filter that protects individuals belonging to stigmatized groups from future harm. For example, expectations of harm or maltreatment based on one's prior exposure to racial prejudice can be functionally protective by increasing awareness of potential social threat in everyday situations.

There is growing literature on the ways in which discrimination affects social cognition, although researchers have not always framed their findings as relevant to the study of social cognition. Prior studies have found that interpersonal discrimination is associated with a number of dimensions of social cognition. Specifically, exposure to discrimination has been linked to multiple negative relational schemas such as greater hostility and cynicism, rejection sensitivity, social vigilance, social constraints, stereotype confirmation concern, group-conformity concern, and beliefs that the world is unjust (Henson et al. 2013; Lewis et al., 2006; Mendoza-Denton et al., 2002; Liu & Lau, 2013; and Himmelstein et al., 2015).

Exposure to racial/ethnic discrimination can cultivate expectations that others will act in an unfair manner towards oneself, a phenomenon known as anticipatory harm. Multiple studies have shown that individuals who report greater lifetime racial/ethnic discrimination are also more likely to report having been harassed, unfairly treated, and ignored during interpersonal interactions (Broudy et al., 2007; Brondolo et al., 2008; Ong et al., 2009). Experiences of racism-based social stress can also increase awareness of race and racial differences (Quintana, 2007; Sellers & Shelton, 2003). This awareness can manifest in concerns about confirming stereotypes about one's racial/ethnic group and experiencing stigmatization in future interactions (Contrada et al., 2001; Cross, 1991; Helms, 1990; Sellers & Shelton, 2003).

Individuals who are highly aware of stereotypes concerning their own social group and anticipate stigmatization may be more likely to perceive discrimination in everyday situations or avoid situations where they may be stereotyped (Pinel, 1999). They may also grow generally mistrustful of out-group members or society at large. For example, young adults from ethnic/racial minority groups (including Black-Americans, Asian-Americans, and Latinos) whose families attempted to prepare them for bias and promoted mistrust tended to be more pessimistic and exhibit more symptoms of depression (Liu & Lau, 2013). Importantly, the relation between past exposure to discrimination and anticipation of discrimination in future social experiences may be bidirectional. Namely, past experiences can foster the development of negative relational schemas that may lead to appraising future social interactions, particularly those with outgroup members, as discriminatory and threatening (Broudy et al., 2008). However, data on such bidirectional effects is limited.

Consequently, due to awareness of racial differences and increased anticipation of harm, individuals highly concerned about future discrimination may become increasingly vigilant of their surroundings so as to pick up cues signaling threat (Smith, Ruiz, & Uchino, 2000). They may also monitor their own behaviors as to not fulfill widely-held stereotypes of their own group and to avoid threat (Schneiderman & McCabe, 1989; Williams, 1986). Among Black-Americans, experiences of discrimination are predictive of vigilant coping style, entailing monitoring and modifying behavior in order to protect against expected discrimination, which is in turn associated with symptoms of depression (Himmelstein et al., 2015). Racial/ethnic minorities sensitive to race-based rejection and concerned about stereotype confirmation may also decrease socialization with outgroup members, thereby limiting access to potential information that may disprove the relational schemas they have already developed. Indeed, race-based rejection sensitivity predicts a higher frequency of negative race related experiences, and greater overall feelings of rejection, when controlling for personal rejection sensitivity (Mendoza-Denton et al., 2002).

Negative relational schemas that form as a result of exposure to discrimination can also lead individuals to expect rejection from others when disclosing their stress. Social constraints, interpersonal interactions that are perceived as unsupportive or dismissive, can impede cognitive processing of distressing life events (Lepore & Revenson, 2007). Though often studied within the context of coping with chronic illness, social constraints have also been studied within the context of stigma among socially marginalized groups. For example, findings from one study (Lewis et al., 2006), revealed that following a stressful, stigmatizing event, sexual minority members who felt they

could not speak openly about their concerns with close others experienced more intrusive thoughts and worse mental health outcomes. Similarly, another study found that among Black college students who experienced a racially discriminatory event, the perception of social constraints was associated with negative affect and less forgiveness of the perpetrator, partially due to inability to process the stressful event (Henson et al., 2013).

Negative Relational Schemas and Depression

Over time, negative relational schemas can have detrimental effects on psychological well-being. According to Beck's cognitive-triad model of depression, maladaptive negative schemas about the self, others, and one's future maintain symptoms of depression such as low self-regard and hopelessness (Beck, 1976). Among psychiatric populations, maladaptive schemas may account for approximately half of the variation in depression, with the two most robust individual predictors being schemas involving abandonment and insufficient self-control (Wellburn et al., 2002). Longitudinal studies have also provided support for the hypothesis that negative relational schemas are associated with vulnerability to depression, especially in the presence of stressful life events that activate these schemas (Hammen, 1985). These findings suggest that social cognition may be one mechanism underlying the relation of discrimination, a chronic social stressor, to negative mental health outcomes.

Maladaptive relational schemas are often understood as cognitively distorted beliefs about the self and how others will treat oneself. However, the negative relational schemas held by members of racial/ethnic minority groups are not necessarily maladaptive in nature (i.e. they may not feature distorted perceptions of the social world, given the ongoing prevalence of discrimination and stigmatization). None the less, for

individuals belonging to racial/ethnic minority groups, as negative relational schemas continue to be activated during inter-group interactions or by encounters with discrimination, the perception that the world is unjust and rejecting of them may culminate in depressive symptoms over time.

Prior research suggests that a number of race-based negative relational schemas have been linked to symptoms of depression. For example, race-based rejection sensitivity is associated with poor well-being and greater overall feelings of rejection, even when controlling for personal rejection sensitivity (Mendoza-Denton et al., 2002). One study showed that among Black-Americans, experiences of interpersonal discrimination predicts social vigilance, which in turn leads to increased stress and depressive symptoms (Himmelstein et al., 2015). Similarly, Henson and colleagues (2013) found that among Black individuals who had recently been the target of a racism-based discriminatory experience, race-based rejection sensitivity and perceptions of social constraints in discussing racism-related issues was associated with poorer mood. Likewise, young adults from ethnic/racial minority groups (including Black-Americans, Asian-Americans, and Latinos) whose families attempted to prepare them for bias and promoted mistrust tended to be more pessimistic and exhibit more symptoms of depression (Liu & Lau, 2013). This suggests the assumption that the social world is likely to be hostile and untrustworthy, an expectation largely generated through systemic racism and interpersonal discrimination, may be an important risk factor for depression.

Understanding the Effects of Discrimination on Depressive Symptoms Through a Social-Cognitive Lens

There is growing evidence that negative relational schemas may be one mechanism through which interpersonal discrimination leads to poor mental health outcomes. However, thus far only a handful of studies (Himmelstein et al., 2015; Lewis et al., 2006; Molina & James, 2016) have directly examined the mediating effects of social cognition on the relation between perceived interpersonal discrimination and psychological well-being. Further, these studies have examined each schema within isolation, and have not conceptualized the impacts of discrimination on psychological wellbeing within the context of social cognition. To our knowledge, research has yet to examine the unique and combined mediating effects of multiple negative relational on the relation between perceived interpersonal discrimination and depressive symptoms. As such, the goals of this thesis are to:

1. Examine the relation between interpersonal discrimination and depressive symptoms. It is expected that interpersonal discrimination will be positively associated with depressive symptoms.
2. Test whether social cognition (namely, negative relational schemas) mediates the association between interpersonal discrimination and depressive symptoms. It is hypothesized that social cognition mediates the relation of discrimination to depressive symptoms.
3. Elucidate the most salient negative relational schemas that may act as mechanisms for the relation between discrimination and depressive symptoms. Due to the exploratory nature of this aim, specific differences in the mediational

effects of various domains of social cognition on the relation between exposure to discrimination and depressive symptoms were not hypothesized.

Methods

Recruitment and Participants

This study was approved by the Institutional Review Board at St. John's University, IRB protocol number FY2020-215. The current study utilizes a composite dataset compiled from two unpublished studies examining discrimination and health among racially and ethnically diverse adults. Study 1 included college students recruited from a common area in a large, private university located in the North Eastern United States. Study 2 included healthcare professionals and adult patients recruited from the waiting room within a community medical center located in the North Eastern United States. Participants were required to be at least 18 years old and to be English proficient at an 8th grade reading level. After eligibility requirements were met and informed consent was presented, eligible participants completed a survey consisting of self-report measures of exposure to discrimination, relational schemas, and depressive symptoms, among other measures, in the presence of a research assistant. The survey was designed to take approximately 30 minutes and to be completed in one session. All participants who completed the survey were compensated with a small monetary reward and a snack.

Measures

Demographic Variables

Participants were asked to report demographic information including their age, gender, race and ethnicity, education, as well as whether or not they were born in the United States.

Discrimination

Exposure to discrimination was assessed using the Brief Perceived Ethnic

Discrimination Questionnaire – Community Version (PEDQ-CV; Brondolo et al., 2005)

Lifetime Exposure Scale, a 17-item scale assessing experiences of interpersonal discrimination throughout the lifetime. This scale includes four subscales that assess various dimensions of discrimination, including stigmatization, threat or harassment, social exclusion, and discrimination experienced at work or school. Participants are asked to indicate their racial or ethnic group and reflect on the prompt “How often have any of the things listed below happened to you, because of your ethnicity?”. Sample items include “How often have others threatened to hurt you?” and “How often has your boss or supervisor been unfair to you?”. Responses were recorded on a 5-point Likert scale (1=never, 5=very often). For each participant, a mean score for all response items was calculated (possible range: 1-5), with higher scores representing greater exposure to interpersonal discrimination ($\alpha = .90$).

Life Stress

Perceived life stress was evaluated using The Holmes And Rahe Stress Scale (1967). The Holmes and Rahe Stress Scale is a 10-item scale that assesses an individual’s accumulated life stress. The questionnaire asked the participants to indicate if they had experienced various stressful life events in their lifetime or over the last 12 months. Sample items included “death of a close family member or loved one”, “separation, divorce, or break up from your romantic partner or spouse”, and “being the victim of a major crime (e.g., assault, robbery, burglary, rape, etc.)”. Responses were recorded as yes or no (0 = no, 1 = yes). For each participant, a mean score for all response items was calculated (possible range: 0-1), with higher scores representing greater life stress ($\alpha = .73$).

Social Cognition

In total, nine measures of different facets of relational schemas were used to examine social cognition, including: stereotype confirmation concern, own group conformity pressure, social constraints in communication with members of one's own racial/ethnic group and members of other racial/ethnic groups, social vigilance, cynicism and hostile attribution bias, and beliefs in a just world.

Stereotype Confirmation Concern. Concerns about confirming stereotypes about one's racial or ethnic group were measured using the 14-item Stereotype Confirmation Concern Scale (SCCS; Contrada et al., 2001). The measure asked participants to reflect on the prompt "How often have you been concerned that you will appear to confirm a stereotype about your racial or ethnic group by..." with individual items such as "eating certain foods" and "the way you look". Responses were recorded on a 7-point Likert scale (1 = never, 7 = always). An averaged total score was created for each participant (possible range: 1-7), with higher scores indicating greater stereotype confirmation concern ($\alpha = .95$).

Own-Group Conformity Pressure. Felt pressure to conform to norms of one own's racial or ethnic group were assessed via the 8-item Own-Group Conformity Pressure Scale (OGCPS; Contrada et al., 2001). The measure asked participants to reflect on the prompt "How much have you felt pressured by members of your own ethnic group to..." and included items such as "date only members of your own ethnic group" and "pursue/not pursue particular interests or hobbies". Responses were measured on a 7-point Likert scale (1 = not at all pressured, 7 = quite a bit pressured). A mean score was calculated for each participant (possible range: 1-7), with higher scores reflecting greater

own group conformity concern pressure ($\alpha = .92$).

Social Constraints. Perceived social constraints on disclosure during communication was measured using a revised version of a 15-item measure developed by Lepore and Ituarte (1999). This measure was originally developed to examine perceived social constraints on disclosure of concerns among individuals diagnosed with cancer, and was adapted for this study to assess for social constraints experienced during communication with individuals belonging to one's own racial/ethnic group and those belonging to other racial/ethnic groups. As such, two social constraints assessments were included in the study: perceived social constraints from same-race individuals and from other-race individuals.

The measures began with the prompts "How much did you feel that other people of your race/ethnicity would..." and "How much did you feel that people of other race/ethnicity would..." and included items such as "minimize your problems" and "let you down by not showing as much understanding and concern as you would have liked". The two measures in the present study included five items each, and responses were measured on a 5-point Likert scale (1 = not at all, 5 = very much). For each measure, a mean score was calculated for each participant (possible range: 1-5), with higher scores reflecting greater perceived social constraints during communication with members of one's own racial/ethnic group ($\alpha = .74$) or members of other racial/ethnic groups ($\alpha = .79$).

Social Vigilance. Vigilance of threat in social situations was assessed using the Social Vigilance Questionnaire (SVQ; Ruiz, 2017). The 10-item measure included items such as: "In social situations I look for potential threats" and "I monitor my own behavior

to make sure I don't attract attention" (response scale: 1 = almost never, 5 = almost always). Seven of the items are oriented towards monitoring others for threat in social situations, and the other three focus on modifying one's own behaviors to avoid potential threat. As such, this questionnaire was divided into two subscales assessing two different relational schemas associated with vigilance: social vigilance towards the self ($\alpha = .78$) and social vigilance towards others ($\alpha = .86$). For each subscale, responses for each participant were averaged (possible range: 1-5), with higher scores indicating greater social vigilance.

Cynicism and Hostile Attribution Bias. Dispositional cynicism, or general distrust of others, and hostile attribution bias, or the tendency to interpret others' behaviors as having hostile intent, were assessed via 25 items from the Cook-Medley Hostility Scale (Cook & Medley, 1954). The original Cook-Medley scale is a 50-item measure developed initially as a scale for the Minnesota Multiphasic Personality Inventory, which was later identified as encompassing 6 subsets including cynicism and hostile attribution bias (Barefoot et al., 1989). The 25 items used in the present study include those such as "It is safer to trust nobody" and "I often wonder what hidden reason another person may have for doing something nice for me". Participants indicated whether they believe these statements to be false (coded 0) or true (coded 1). For both the subscales of cynicism ($\alpha = .73$) and hostile attribution bias ($\alpha = .71$), responses for each participant were averaged (possible range: 0-1), with higher final scores indicating greater cynicism or hostile attribution bias.

Beliefs in a Just World. Beliefs that the world is just or fair were assessed using eight items from the Belief in a Just World Scale (Rubin & Peplau, 1975). Sample items

include: “I feel that people get what they deserve” and “I feel that the world treats people fairly” (response scale: 1 = strongly disagree, 6 = strongly agree). The mean of item responses for each participant was calculated (possible range: 1-6), with higher final scores reflecting beliefs that the world is just ($\alpha = .84$).

Depressive Symptoms

Depressive symptoms experienced over the past 2 weeks were assessed using the Center for Epidemiological Studies Depression Scale-Revised (CESD-R; Eaton et al., 2004), an 18-item scale revised from the original measure developed by Radloff (1977). The CESD-R is designed to assess the cognitive, emotional, and biobehavioral symptomology of depression. Sample items include “I could not shake off the blues” and “I was tired all the time”. For each item, participants reported their responses on a 5-point scale (1 = zero or less than one day last week, 5 = nearly every day for two weeks). Responses to all 18 items were averaged for each participant (possible range: 1-5), with higher scores indicating more depressive symptoms ($\alpha = .94$).

Analytic Plan

Preliminary analyses examined whether reported exposure to discrimination, depressive symptoms, and relational schemas varied by age, gender, race, birth place, and educational attainment, as well as stressful life events. Further, differences in discrimination, depressive symptoms, and relational schemas by recruitment site were investigated. These analyses were conducted to establish possible covariates for analyses related to primary hypothesis testing. Correlations among discrimination, depression, and relational schemas were also examined.

Given the theoretical and empirical shared variance among the nine relational

schemas used to assess social cognition, an exploratory factor analysis was conducted to discern whether the nine measures of relational schemas loaded onto specific factors reflecting various dimensions of social cognition. This method used principle factor analysis extraction with varimax rotation. Factor scores were extracted and used in subsequent mediation analyses.

Primary hypothesis testing involved parallel mediation to examine whether the dimensions of social cognition, as measured by extracted factor scores, mediated the relation between exposure to interpersonal discrimination and depressive symptoms. Analyses were performed using protocols recommended by Hayes (2018). Ordinary least squares path analyses were conducted (SPSS Version 23, 2017) using the PROCESS macro (Model 4). This method approximates coefficients using percentile bootstrapping. As there is tendency for the distribution of indirect effects to be non-normal, bootstrapping methodology, which does not assume a normal sampling distribution, is preferable (Edwards & Lambert, 2007; MacKinnon et al., 2004). Variables in the models were standardized.

The first set of mediational analyses involved testing an unadjusted model that examined the indirect effects of domains of social cognition on the association between exposure to discrimination and depressive symptoms. The second mediational model included covariates known to be associated with the predictor, mediator, or outcome variables such as age, gender, race, exposure to life stress, and site of recruitment. The final set of mediational analyses were exploratory and tested for differential indirect effects of the specific relational schemas composing those social-cognitive domains which emerged as significant mediators in the primary adjusted mediational analyses.

Results

Characteristics of the Sample

In total, 306 racially and ethnically diverse adults were recruited for the two studies, including 154 participants for Study 1 and 152 participants for Study 2. Participants who did not provide data on interpersonal discrimination exposure, depressive symptoms, relational schemas, or demographic characteristics were excluded from analyses, resulting in a consolidated analytic sample of 278 participants. Participants excluded from analyses ($n = 28$) did not differ from those in the analytic sample based on age, gender, race, birth place, or educational attainment ($p > .05$).

Table 1 provides demographic information for both the consolidated sample and the subsamples of each individual study. In the consolidated sample, participants ranged in age from 18 to 85 years old ($M = 30$, $SD = 13.70$), though participants in subsample 1 were significantly younger ($M = 20$, $SD = 1.42$) than those in subsample 2 ($M = 40$, $SD = 13.04$; $t(140) = -18.11$, $p < .001$). Approximately 63% of all participants were female. Gender distribution among the two subsamples did not significantly differ (subsample 1: 59% female; subsample 2: 67% female; $p > .05$). Most participants identified as either Black (47%) or White (22%). The distribution of represented races/ethnicities varied between the two subsamples ($X^2(5, N=278) = 24.68$, $p < .001$), with more participants identifying as White and Asian in subsample 1, and more participants identifying as Latinx and as an Other race in subsample 2. A greater percentage of participants in subsample 1 endorsed having been born in the United States than in subsample 2 ($X^2(1, N=257) = 23.16$, $p < .001$). Additionally, the distribution of educational attainment differed significantly between the two subsamples ($X^2(1, N=273) = 34.08$, $p < .001$), with

participants in subsample 2 more equally distributed among the three education categories (high school graduate or less, some college or vocational school, and college graduate) than those in subsample 1.

Intraclass correlation analyses were performed using the Mixed procedure with Restricted Maximum Likelihood (REML) estimation using SAS[®] software (Version 9.4) to verify whether the distribution of the outcome variable, depressive symptoms, varied significantly between participants recruited in Study 1 and those recruited in Study 2. Results yielded an ICC value not significantly different from 0, with roughly 1% of the variation in depressive symptoms attributed to between-group differences. Due to the minimal amount of between-group variance, the samples were consolidated for use in subsequent analyses.

Preliminary Analyses of Possible Covariates: Sociodemographic and Stress— Related Variations in Discrimination, Depression, and Relational Schemas

Preliminary analyses were conducted to investigate whether interpersonal discrimination exposure, depressive symptoms, and relational schemas differed according to age, gender, race, birth place, educational attainment, reported life stress, and site of recruitment (i.e., subsample).

Variations by Age

Bivariate zero-order correlations were conducted to examine the association between age and the main study variables. Age was found to be negatively correlated with the main predictor variable, reported discrimination ($r(278) = -.13, p < .05$); the main outcome variable, depressive symptoms ($r(278) = -.18, p < .05$), as well as most relational schemas including stereotype confirmation concern ($r(278) = -.25, p < .001$),

own group conformity pressure ($r(278) = -.21, p < .001$), social vigilance towards others ($r(278) = -.13, p < .05$), social constraints from individuals of other races ($r(278) = -.22, p < .001$), and cynicism ($r(278) = -.13, p < .05$). Age was positively correlated with beliefs in a just world ($r(278) = .14, p < .05$).

Variations by Gender

An independent-samples t-test was conducted to examine gender differences in the main study variables. Results of the analyses revealed no differences between men and women in reported discrimination, depressive symptoms, or any of the relational schemas.

Variations by Race

To assess for differences in the main study variables by racial group, a one-way MANOVA was performed. Due to the relatively small size of participants identifying as Latinx ($n=36$), Asian ($n=28$), Native American ($n=5$), or Other race ($n=18$), these race groups were combined to test for differences between Black participants, White participants, and participants of all Other races. Post-hoc adjusted univariate tests using Bonferroni's procedure were conducted to examine differences between pairs of racial groups. The results of post-hoc pairwise comparisons are presented in Table 3.

There was a statistically significant difference in reported discrimination based on race, $F(2, 275) = 9.66, p < .001$; partial $\eta^2 = .07$. Post-hoc analyses revealed that Black participants reported higher levels of discrimination than White participants, but did not differ in reports of discrimination from participants of Other races. No differences in level of depressive symptoms by race were observed, $F(2, 275) = 0.69, p = .50$, partial $\eta^2 = .01$.

No race differences were observed in a number of relational schemas including stereotype confirmation concern, social vigilance towards the self, social constraints from same-race or other-race individuals, cynicism, or hostile attribution bias. There was an effect of race on own-group conformity pressure ($F(2, 275) = 3.13, p < .05$; partial $\eta^2 = .02$), though no pairwise comparisons between race groups emerged as significant. Additionally, there was a significant difference in social vigilance towards others based on race, $F(2, 275) = 3.28, p < .05$; partial $\eta^2 = .02$. Specifically, Black participants reported being more socially vigilant towards others than participants of Other races, though neither group differed from White participants. There was also a significant difference in beliefs in a just world based on race ($F(2, 275) = 4.48, p < .05$; partial $\eta^2 = .03$), such that Black participants reported less beliefs in a just world than White participants.

Variations by Birth Place

An independent-samples t-test was conducted to examine differences in the main study variables by birth place. Results of the analyses revealed no differences in reported discrimination, depressive symptoms, or any of the relational schemas between participants born in the U.S. and those who were not.

Variations by Educational Attainment

A one-way MANOVA was conducted to assess for differences in the main study variables by educational attainment. Results of the analyses revealed no differences in reported discrimination, depressive symptoms, or any of the relational schemas between participants with a high school education or less, those who completed some college, and those who are college graduates.

Variations by Site of Recruitment

A one-way MANOVA was conducted to assess for differences in the main study variables between participants recruited in Study 1 (the college subsample) and those recruited from Study 2 (the hospital subsample). The results of post-hoc pairwise comparisons are depicted in Table 4.

Analyses revealed no significant differences in reported discrimination ($F(1, 276) = 0.23, p = .63$; partial $\eta^2 = .001$), or depressive symptoms ($F(1, 276) = 0.23, p = 2.57$; partial $\eta^2 = .01$), by recruitment site. No site differences were observed in a number of relational schemas including social vigilance towards the self and towards others, social constraints from same-race individuals, cynicism, hostile attribution bias, or beliefs in a just world. There was a statistically significant difference in stereotype confirmation concern based on recruitment site ($F(1, 276) = 12.94, p < .001$; partial $\eta^2 = .05$) such that subsample 1 reported more stereotype confirmation concern than subsample 2. Likewise, there was a statistically significant difference in own-group conformity pressure by site of recruitment ($F(1, 276) = 16.19, p < .001$; partial $\eta^2 = .06$) such that participants in subsample 1 reported more pressure than those in subsample 2. Additionally, there was an effect of recruitment site on perceived social constraints from individuals of other races ($F(1, 276) = 11.51, p < .05$; partial $\eta^2 = .04$) with subsample 1 reporting more social constraints than subsample 2.

Variations by Life Stress

Bivariate zero-order correlations were conducted to examine the association between life stress and the main study variables. Life stress was found to be positively correlated with discrimination ($r(278) = .33, p < .001$) and depressive symptoms ($r(278) =$

.27, $p < .001$). Life stress was also positively associated with a number of relational schemas including stereotype confirmation concern ($r(278) = .24, p < .001$), own group conformity pressure ($r(278) = .15, p < .05$), social vigilance towards the self ($r(278) = .15, p < .05$), social vigilance towards other ($r(278) = .19, p < .001$), social constraints from same race individuals ($r(278) = .25, p < .001$), social constraints from other race individuals ($r(278) = -.16, p < .001$), hostile attribution bias ($r(278) = .25, p < .001$), but not cynicism or beliefs in a just world.

Associations among Discrimination, Depressive Symptoms, and Relational Schemas

Bivariate zero-order correlational analyses were conducted to investigate relations among the predictor, outcome, and mediating variables. Results of these analyses are presented in Table 5. Discrimination was positively correlated with depressive symptoms. Discrimination was also positively associated with measures of relational schemas including stereotype confirmation concern, own-group conformity pressure, social vigilance, social constraints, cynicism, hostile attribution bias, and was negatively correlated with beliefs in a just world. Additionally, a majority of the nine relational schemas were correlated with one another.

Given the strong association between discrimination and life stress, partial correlations between discrimination, the nine relational schemas, and depressive symptoms, controlling for life stress, were conducted. The results of these analyses, presented in Table 6, indicate that discrimination remained associated with all measures of relational schemas, and depressive symptoms, even after accounting for life stress.

Exploratory Factor Analysis

Given the shared variance between the nine measures of relational schemas, a

factor analysis was conducted to discern whether these measures loaded onto specific factors reflecting various dimensions of social cognition. Exploratory factor analysis was performed using principle factor analysis extraction using varimax rotation. Results of the Kaiser-Meyer-Olkin Measure of Sampling Adequacy indicated that the variables were fit for conducting factor analysis. Factors with Eigenvalues greater than one were retained.

Results of this analysis identified a 3-factor structure accounting for 61% of the total variance. These three dimensions of social cognitions emerged as follows: concerns about rejection and invalidation (four schema measures), social vigilance (two schema measures), and mistrust (two schema measures). The structure is presented in Table 7. All relational schema variables had factor loadings greater than .5, with the exception of the schema beliefs in a just world, which did not effectively load on to any factor. As a result, this schema was excluded from subsequent analyses. Factor scores for the three dimensions of social cognition were extracted and used in mediational analyses pertaining to primary hypothesis testing.

Mediation Analyses

Parallel mediation analysis with 10,000 iterations of bootstrapping (Hayes, 2018) assessed whether the three dimensions of social cognition mediated the influence of exposure to interpersonal discrimination on depressive symptoms. The first model examined the indirect effects of concerns about rejection and invalidation, social vigilance, and mistrust, without controlling for any other variables. The second mediational model incorporated the covariates of age, race, gender, life stress, and recruitment site. As variations by age, race, site of recruitment, and life stress were observed in the predictor or outcomes variables, these variables were included as

covariates in analyses. Race was entered into the model by creating two dummy variables using Black race as the reference group. Though gender did not appear to have an effect on the predictor, outcome, or mediator variables in preliminary analyses, it was added as a covariate in the second model because of prior literature suggesting that women are more likely to report symptoms of depression compared to men (Salk et al., 2019). Further mediational analyses, controlling for relevant covariates, were performed to discern the differential influences of the relational schemas composing those dimensions of social cognition exhibiting significant indirect effects.

Unadjusted Mediation Model

Results of the unadjusted mediation model are presented in Figure 1. The total effect of the unadjusted model was significant ($c = .30$, $SE = .06$; 95% CI: .19, .41). Analyses revealed significant indirect effect of concerns about rejection and invalidation ($a_1b_1 = .14$, $SE = .04$, 95% CI: .07, .23), social vigilance ($a_2b_2 = .03$, $SE = .02$, 95% CI: .002, .06), and mistrust ($a_3b_3 = .05$, $SE = .02$, 95% CI: .01, .09) on the relation between discrimination and depressive symptoms. The direct effect of discrimination on depressive symptoms, removing the influence of the mediators, was not significant ($c' = .08$, $SE = .06$; 95% CI: -.04, .20).

Adjusted Mediation Model

Results of the primary adjusted mediation model are presented in Figure 2. The total effect of the adjusted model, controlling for the covariates race, age, gender, recruitment site, and life stress, was significant ($c = .23$, $SE = .06$; 95% CI: .10, .35). The indirect effect of concerns about rejection and invalidation remained significant ($a_1b_1 = .10$, $SE = .03$, 95% CI: .05, .17). After accounting for the influence of covariates, social

vigilance no longer presented indirect effects on the relation between interpersonal discrimination and depressive symptoms ($a_2b_2 = .02$, $SE = .01$, 95% CI: $-.003$, $.05$). However, the indirect effect of mistrust remained significant, controlling for covariates ($a_3b_3 = .05$, $SE = .02$, 95% CI: $.01$, $.09$). Likewise, the direct effect of discrimination on depressive symptoms, removing the influence of the mediators and covariates, was not significant ($c' = .06$, $SE = .07$; 95% CI: $-.07$, $.19$).

When examining the differential effects of the four relational schemas within the domain of concerns about rejection and invalidation (see Figure 3), only stereotype confirmation concern revealed significant indirect effects ($a_1b_1 = .04$, $SE = .02$, 95% CI: $.002$, $.08$). Within the domain of mistrust (see Figure 4), only hostile attribution bias had significant indirect effects ($a_2b_2 = .06$, $SE = .03$, 95% CI: $.02$, $.12$). When the adjusted model was run with all six schemas composing the domains of concerns about rejection and invalidation and mistrust simultaneously, only hostile attribution bias emerged to have significant indirect effects ($a_6b_6 = .05$, $SE = .03$, 95% CI: $.007$, $.10$). These results (presented in Figure 5) suggest that hostile attribution bias is the most salient social-cognitive factor accounting for the relation between exposure to discrimination and depressive symptoms.

Discussion

This study provides evidence for a social-cognitive model linking exposure to interpersonal racial discrimination and psychological distress. Findings from this study suggest that experiences of discrimination experienced throughout the lifetime may lead to meaningful changes in the ways one thinks about others and the social world around them, thereby contributing to symptoms of depression. Exposure to discrimination was related to a number of domains of social cognition including concerns about rejection and invalidation, increased vigilance of others in social situations, and greater general mistrust. Importantly however, only concerns about rejection and invalidation and mistrust were associated with depressive symptoms, suggesting that these two domains may be salient social-cognitive mechanisms by which exposure to discrimination may contribute to depressive symptoms. Within the domain of rejection and invalidation, only stereotype confirmation concern had significant indirect effects, whereas within the domain of mistrust, only hostile attribution bias had significant indirect effects. When both domains were assessed simultaneously, hostile attribution bias emerged as the driving relational schema in the association between discrimination and symptoms of depression.

These associations appear robust as they held even after accounting for a number of different demographic characteristics and recruitment site. Further, the indirect effects of social cognition on the relation between discrimination and depressive symptoms remained significant even after accounting exposure to general stressful events experienced throughout the lifetime. This finding suggests that the experience of

discrimination, as an interpersonal stressor, is uniquely disruptive to social cognition above and beyond the toll of general life stress.

Racial/ethnic discrimination emerges in social contexts that include structural racism and cultural prejudice (Jones, 2000; Lewis et al., 2006). These contexts normalize and reinforce discriminatory behavior. Discrimination enacted against various racial or ethnic groups may be quantitatively or qualitatively different. However, the experience of interpersonal discrimination, ultimately, is a form of interpersonal rejection. According to Beck's cognitive-triad model of depression (1976), certain relational schemas, such as expectations of rejection, invalidation, or harm from others, are developed as a result of past experiences, and serve as precursors to depression. Therefore, exposure to interpersonal rejection founded in racial bias may also drive the development and activation of schemas that reflect anticipation of social threat and harm in future social interactions that reflect symptoms of depression.

This study is novel in that it takes into account multiple spheres of social cognition when examining the depressionogenic effects of discrimination in a racially and socioeconomically diverse sample. Prior research has frequently assessed the mediational role of only one or two proxy measures of social cognition or relational schemas at a time. For example, past studies have found that social vigilance (Himmelstein et al., 2014), social constraints on disclosure of stigma-related stress (Lewis et al., 2006), and mistrust (Liu et al., 2013) served as significant mediators in the association between discrimination exposure and depression or negative mood. Other relational schemas, such as general rejection sensitivity (Henson et al., 2013; Mendoza-Denton et al., 2002), stereotype confirmation concern (Pinel, 1999; Contrada et al., 2001)

and own-group conformity pressure (Contrada et al., 2001) have also been implicated in these processes. However, these relational schemas have frequently been conceptualized as outcomes, rather than factors within mediational models.

We argue it is warranted to investigate the collective toll of exposure to discrimination on social cognition. As this study incorporated multiple measures of relational schemas to denote various facets of social cognition, we were able to parse out the most salient mechanism that seems to underlie the observed association of discrimination to symptoms of depression: hostile attribution bias. Ultimately, exposure to interpersonal discrimination may contribute to expectations that others will act maliciously, that others will be harmful and rejecting, and therefore skepticism of others in social situations is warranted, which may culminate in depression.

Implications

Research Implications

Findings from this study suggest that experiences of interpersonal discrimination fundamentally shape the way individuals see the world, their place in the social world, and their relationships with others. In line with prior research (reviewed in Brondolo et al. 2016), our results indicate that repeated exposure to discrimination over the lifetime can contribute to schemas concerning expectations of being rejected or hurt by others, and greater mistrust of others. Adopting an integrated social-cognitive framework may aid in future research examining the bidirectional relations between exposure to discrimination and negative relational schemas.

Negative relational schemas may drive the development of depressive symptoms by undermining interpersonal relationships (Levy et al., 2001). Prior studies indicate that

negative relational schemas consisting of expectations of rejection (Mendoza-Denton, 2002; Ong et al., 2009; Broudy et al., 2007) may shape subsequent perceptions of racial bias in inter-group social exchanges. As a result of such schemas, members of racial/ethnic minority groups may be less likely to engage in interactions with members of other racial groups to protect themselves from further harm. Though personally protective, such behaviors may reproduce and continually substantiate negative schemas about others in reference to oneself, prevent the ability to reduce inter-racial anxiety, and ultimately contribute to a self-perpetuating social-cognitive cycle.

Clinical Implications

Exposure to discrimination critically shapes understanding of the social world and therefore likely poses meaningful challenges to mental health. As such, clinicians ought to keep in mind that psychological well-being is impacted by contextual factors like racial or ethnic identity and exposure to discrimination. Prior research has found that a majority of racial/ethnic minority clients seeking psychotherapeutic treatment from White providers would like to discuss issues related to racial identity and racism in more depth, and with greater frequency, in treatment than they currently do, and that they perceive White providers to be hesitant or unwilling to discuss such issues (Chang & Berk, 2010). Clients who perceive their psychotherapy providers to be less willing to talk about such issues tend to be less satisfied with the therapeutic process and report poorer outcomes in psychological treatment (Meyer & Zane, 2013; Chang & Berk, 2010). Therefore, assessing for experiences of discrimination, becoming comfortable in talking about these experiences, and creating treatment plans with an understanding of the pervasiveness of

racism-based stress, is likely critical to fostering positive therapeutic alliances and providing good clinical care to individuals belonging to socially disadvantaged groups.

To this end, findings from this study may help guide both individual and community-level interventions aimed at mitigating the negative mental health effects of interpersonal discrimination. Future interventions, directed both towards perpetrators and victims of racial/ethnic discrimination, may benefit from using social-cognitive processes as a framing tool to provide psycho-education on the consequences discriminatory behaviors can pose to social relationships, social capital, and overall well-being. As relational schemas largely function at an automatic, subconscious level, interventions aimed at recognizing such schemas, and their differential utility in various contexts, may serve to be uniquely beneficial in psychological interventions.

Limitations

The vast majority of literature in the field has been limited to cross-sectional studies (Paradies et al., 2015). Likewise, the cross-sectional design of this study limits our ability to draw conclusions about potential causal effects presented in the model. Future longitudinal data would help distinguish how pathways among exposure to discrimination, social cognition, and mental health develop over time. Though we hypothesize that exposure to discrimination leads to changes in social cognition, undermines interpersonal relationships, and subsequently culminates in depressive symptoms, these processes may feature important, bidirectional effects described in the sections above.

Additionally, the sample for this study was relatively small and featured participants recruited from New York City, a racially and economically diverse

geographic area. Findings from this study may not be generalizable to individuals residing in other regions of the country that may be less socioeconomically diverse. Some prior research suggests White individuals living in the Southern United States tend to hold more racist implicit bias than White individuals living in other regions of the country, which may result in them perpetrating more overt discriminatory behaviors (Payne et al., 2019). Other studies have found higher levels of cultural racism, as measured by discriminatory internet searches, among residents of the rural Northeast and South as compared to other geographic regions (Chae et al., 2015). However, a nationally representative Pew Research Center survey (2013) found that Black individuals living in urban areas are more likely to perceive they are treated less fairly than White people in a variety of contexts such as at work, in receiving health care, and when dealing with the police than Black individuals residing in suburban or rural areas. Therefore, more research is needed to distinguish the quantitative and qualitative differences in experiences of racial/ethnic discrimination experienced by those living in various environments or geographic regions, and the effects of exposure on social cognition and symptoms of depression.

Conclusion

This study is the first of its kind to empirically test a social-cognitive model examining the psychological consequences of exposure to racial/ethnic discrimination in a racially and socioeconomically diverse sample. Concerns about rejection and invalidation and mistrust appear to be driving factors for the association between interpersonal discrimination exposure and symptoms of depression. Findings from this study suggest that experiences of interpersonal discrimination are uniquely harmful to the

ways one views the social world and their relationships with others, above and beyond the effect of general life stress, which may foster psychological distress.

APPENDICES

Table 1

Demographic Characteristics of the Consolidated Sample, Subsample 1, and Subsample 2

Characteristic	Consolidated Sample <i>N</i> (% of 278)	Subsample 1 <i>n</i> (% of 140)	Subsample 2 <i>n</i> (% of 138)
Gender			
Female	175 (63%)	83 (59%)	92 (67%)
Male	103 (37%)	57 (41%)	46 (33%)
Race			
Black	131 (47%)	67 (48%)	64 (46%)
White	60 (22%)	37 (26%)*	23 (17%)
Latinx	36 (13%)	9 (6%)*	27 (19%)
Asian	28 (10%)	21 (15%)*	7 (5%)
Other	18 (7%)	5 (4%)*	13 (9%)
Native American	5 (2%)	1 (1%)	4 (3%)
Birth Place			
U.S.A.	193 (69%)	106 (89%)*	87 (63%)
Other	64 (23%)	13 (11%)*	51 (37%)
Education			
H.S. Graduate or less	79 (28%)	31 (23%)*	48 (35%)
Some College	158 (57%)	103 (73%)*	55 (41%)
College Graduate	36 (13%)	6 (4%)*	30 (24%)
Age (years)			
Mean (<i>SD</i>)	30 (13.70)	20 (1.42)*	40 (13.04)

Note. Subsample 1 includes students recruited from a large, private university. Subsample 2 includes patients and health care professionals recruited from a community medical center.

* significantly different from subsample 2

Table 2*Descriptive Statistics for Main Study Variables*

Variable	Mean (SD)	Possible Range	Observed Range
Discrimination	1.73 (.60)	1.00-5.00	1.00-3.94
Depressive Symptoms	1.79 (0.77)	1.00-5.00	1.00-4.89
Stereotype confirmation concern	2.57 (1.47)	1.00-7.00	1.00-7.00
Own group conformity pressure	2.55 (1.56)	1.00-7.00	1.00-7.00
Social vigilance (towards self)	3.25 (1.08)	1.00-5.00	1.00-5.00
Social vigilance (towards others)	2.98 (0.97)	1.00-5.00	1.00-5.00
Social constraints (same race)	2.44 (0.91)	1.00-5.00	1.00-5.00
Social constraints (other race)	2.72 (1.06)	1.00-5.00	1.00-5.00
Cynicism	0.57 (0.22)	0.00-1.00	0.00-1.00
Hostile Attribution Bias	0.41 (0.23)	0.00-1.00	1.00-1.00
Beliefs in a just world	2.62 (0.99)	1.00-6.00	1.00-6.00

Table 3

Pairwise Mean Comparisons in Predictor, Outcome, and Mediating Variables between Racial Groups

Variable	Black (<i>n</i> = 131)	White (<i>n</i> = 60)	Other (<i>n</i> = 87)
Discrimination	1.86 (0.55) ^b	1.47 (0.55) ^a	1.70 (0.63)
Depressive Symptoms	1.79 (0.72)	1.89 (0.87)	1.74 (0.76)
Stereotype Confirmation Concern	2.71 (0.13)	2.35 (0.19)	2.50 (1.52)
Own-Group Conformity Pressure	2.79 (0.13)	2.35 (0.20)	2.31 (1.60)
Social Vigilance (towards self)	3.30 (0.09)	3.40 (0.14)	3.06 (1.12)
Social Vigilance (towards others)	3.09 (0.08) ^c	3.07 (0.12)	2.76 (1.02) ^a
Social Constraints (same race)	2.41 (0.08)	2.42 (0.12)	2.49 (0.89)
Social Constraints (other race)	2.82 (0.09)	2.60 (0.14)	2.64 (0.94)
Cynicism	.59 (0.02)	.57 (0.03)	0.56 (0.21)
Hostile Attribution Bias	0.43 (0.02)	0.28 (0.03)	0.41 (0.24)
Beliefs in Just World	2.44 (0.09) ^b	2.84 (0.13) ^a	2.75 (1.07)

Note. The racial categories Asian, Latinx, Native American, or Other have been collapsed into the category “Other”.

^a significantly different from Black-identifying participants

^b significantly different from White-identifying participants

^c significantly different from Other-identifying participants

Table 4

Pairwise Mean Comparisons in Predictor, Outcome, and Mediating Variables between Recruitment Sites

	Subsample 1 (<i>n</i> = 140)	Subsample 2 (<i>n</i> = 138)
Discrimination	1.74 (0.58)	1.71 (0.61)
Depressive Symptoms	1.87 (0.75)	1.72 (0.78)
Stereotype Confirmation Concern	2.88 (1.52)*	2.25 (1.36)
Own-Group Conformity Pressure	2.81 (1.71)*	2.18 (1.30)
Social Vigilance (towards self)	3.30 (0.98)	3.19 (1.18)
Social Vigilance (towards others)	3.10 (0.93)	1.87 (1.01)
Social Constraints (same race)	2.51 (0.87)	2.36 (0.94)
Social Constraints (other race)	2.93 (1.06)*	2.50 (1.03)
Cynicism	.60 (0.19)	.55 (0.25)
Hostile Attribution Bias	0.42 (0.23)	0.41 (0.24)
Beliefs in Just World	2.55 (0.94)	2.70 (1.03)

Note. Subsample 1 includes students recruited from a large, private university. Subsample 2 includes patients and health care professionals recruited from a community medical center.

* significantly different from subsample 2

Table 5*Bivariate Correlations among Predictor, Outcome, and Mediating Variables*

Variable	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. Discrimination	-									
2. Depressive Symptoms	.30*	-								
3. Stereotype Confirmation Concern	.38*	.33*	-							
4. Own Group Conformity Pressure	.24*	.30*	.46*	-						
5. Social Vigilance (towards self)	.16*	.27*	.14*	.09	-					
6. Social Vigilance (towards others)	.25*	.27*	.28*	.18*	.70*	-				
7. Social Constraints (same race)	.33*	.29*	.33*	.29*	.27*	.36*	-			
8. Social Constraints (other race)	.45*	.30*	.25*	.31*	.19*	.18*	.40*	-		
9. Cynicism	.28*	.25*	.30*	.20*	.25*	.35*	.19*	.20*	-	
10. Hostile Attribution Bias	.36*	.34*	.31*	.24*	.28*	.42*	.29*	.23*	.55*	-
11. Beliefs in Just World	-.20*	-.11	.02	.01	-.15*	-.13*	.03	-.15	-.02	-.03

* $p < .05$

Table 6*Partial Correlations among Predictor, Outcome, and Mediating Variables (Controlling for Life Stress)*

Variable	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. Discrimination	-									
2. Depressive Symptoms	.23*	-								
3. Stereotype Confirmation Concern	.32*	.29*	-							
4. Own Group Conformity Pressure	.21*	.28*	.43*	-						
5. Social Vigilance (towards self)	.12*	.24*	.11	.07	-					
6. Social Vigilance (towards others)	.20*	.23*	.24*	.15*	.70*	-				
7. Social Constraints (same race)	.27*	.23*	.29*	.26*	.24*	.33*	-			
8. Social Constraints (other race)	.42*	.27*	.23*	.30*	.17*	.16*	.38*	-		
9. Cynicism	.27*	.24*	.29*	.19*	.24*	.35*	.18*	.19*	-	
10. Hostile Attribution Bias	.30*	.29*	.26*	.22*	.25*	.39*	.24*	.20*	.55*	-
11. Beliefs in Just World	-.20*	-.10	.02	.02	-.15*	-.13*	.03	-.15	-.02	-.03

* $p < .05$

Table 7

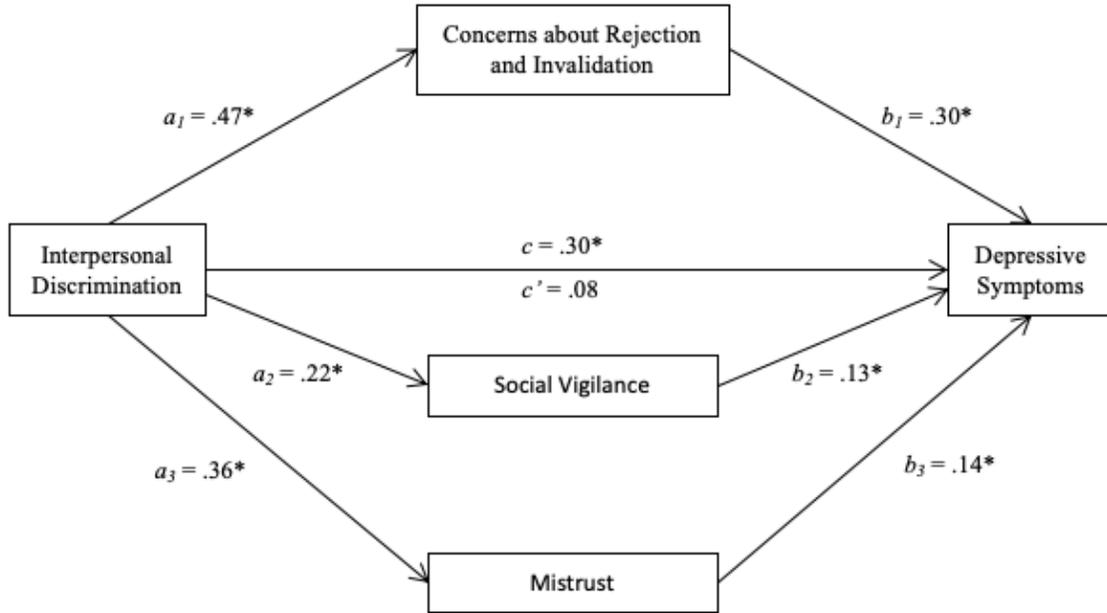
Factor Loading of the Nine Relational Schemas onto Three Dimensions of Social Cognition

Variable	Factor 1 Concerns about Rejection and Invalidation	Factor 2 Social Vigilance	Factor 3 Concerns about Mistrust
Stereotype Confirmation Concern	0.588	.	.
Own-Group Conformity Pressure	0.635	.	.
Social Constraints (same race)	0.535	.	.
Social Constraints (other race)	0.512	.	.
Social Vigilance (towards self)	.	0.793	.
Social Vigilance (towards others)	.	0.728	.
Cynicism	.	.	0.727
Hostile Attribution Bias	.	.	0.655
Beliefs in a Just World	.	.	.

Note. Exploratory factor analysis was conducted with principle factor analysis extraction using varimax rotation. Results of this analysis identified a 3-factor structure accounting for 61% of the total variance. The table above reflects values from the pattern matrix. Factor loadings less than 0.5 are not reported.

Figure 1

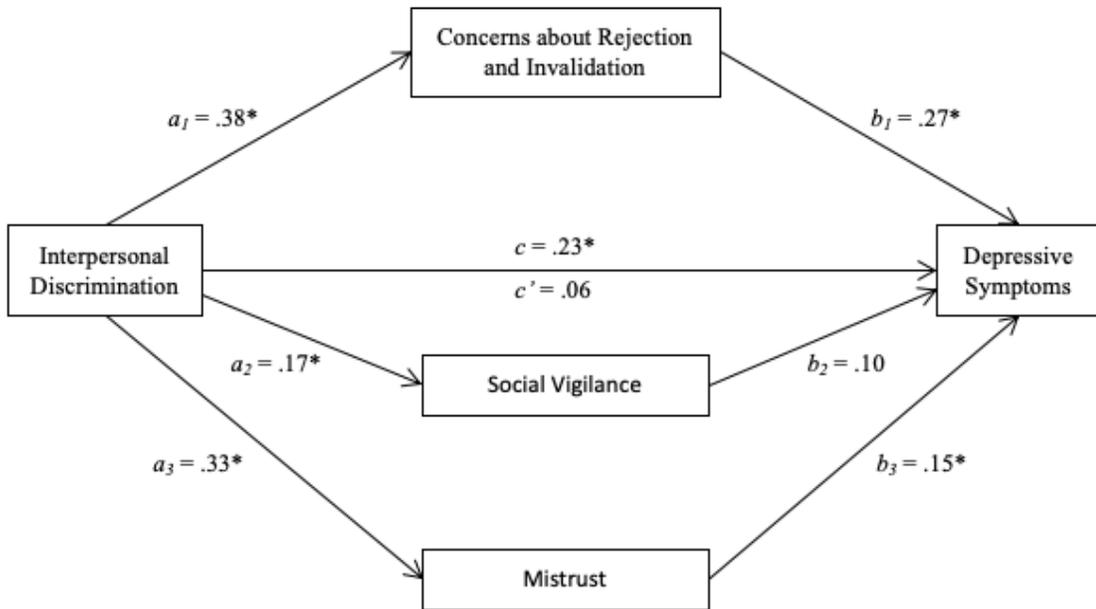
Unadjusted Mediation Model



Note. Unadjusted mediation model examining the indirect effects of concerns about rejection and invalidation, social vigilance, and mistrust on the relation of discrimination to depressive symptoms. Analyses revealed significant indirect effects of concerns about rejection and invalidation ($a_1b_1 = .14$, $SE = .04$, 95% CI: .07, .23), social vigilance ($a_2b_2 = .03$, $SE = .02$, 95% CI: .002, .06), and mistrust ($a_3b_3 = .05$, $SE = .02$, 95% CI: .01, .09).

Figure 2

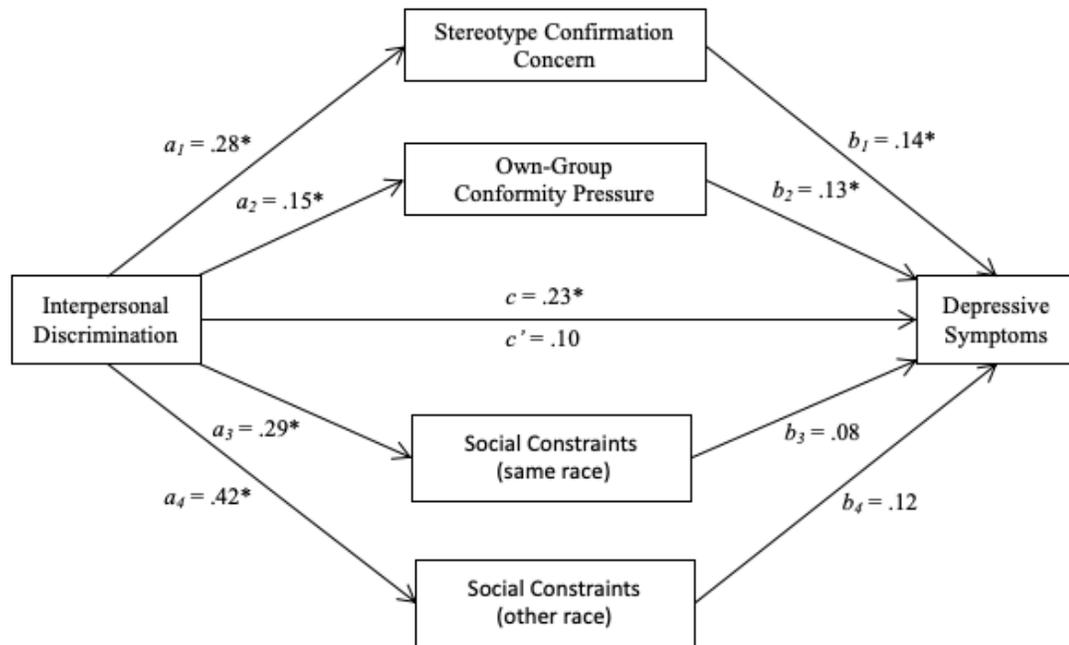
Adjusted Mediation Model



Note. Adjusted mediation model examining the indirect effects of concerns about rejection and invalidation, social vigilance, and mistrust on the relation of discrimination to depressive symptoms, controlling for age, gender, race, recruitment site, and life stress. Analyses revealed significant indirect effects of concerns about rejection and invalidation ($a_1b_1 = .10$, $SE = .03$, 95% CI: .05, .17) and mistrust ($a_3b_3 = .05$, $SE = .02$, 95% CI: .01, .09). Indirect effects via social vigilance were not significant ($a_2b_2 = .02$, $SE = .01$, 95% CI: -.003, .05).

Figure 3

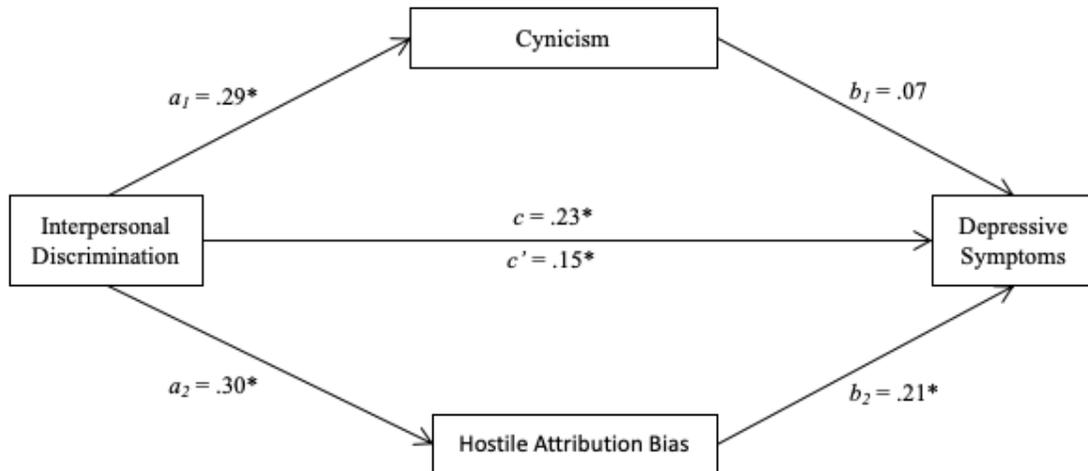
Adjusted Mediation Model: Concerns about Rejection and Invalidation Domain



Note. Adjusted mediation model examining the indirect effects of the four schemas comprising the domain of concerns about rejection and invalidation on the relation of discrimination to depressive symptoms, controlling for age, gender, race, recruitment site, and life stress. Only stereotype confirmation concern revealed significant indirect effects ($a_1b_1 = .04$, $SE = .02$, 95% CI: .002, .08). Indirect effects via own-group conformity pressure ($a_2b_2 = .02$, $SE = .01$, 95% CI: -.001, .05), social constraints from same-race individuals ($a_3b_3 = .02$, $SE = .02$, 95% CI: -.01, .06), and social constraints from individuals of other races ($a_4b_4 = .05$, $SE = .03$, 95% CI: -.002, .11) were not significant.

Figure 4

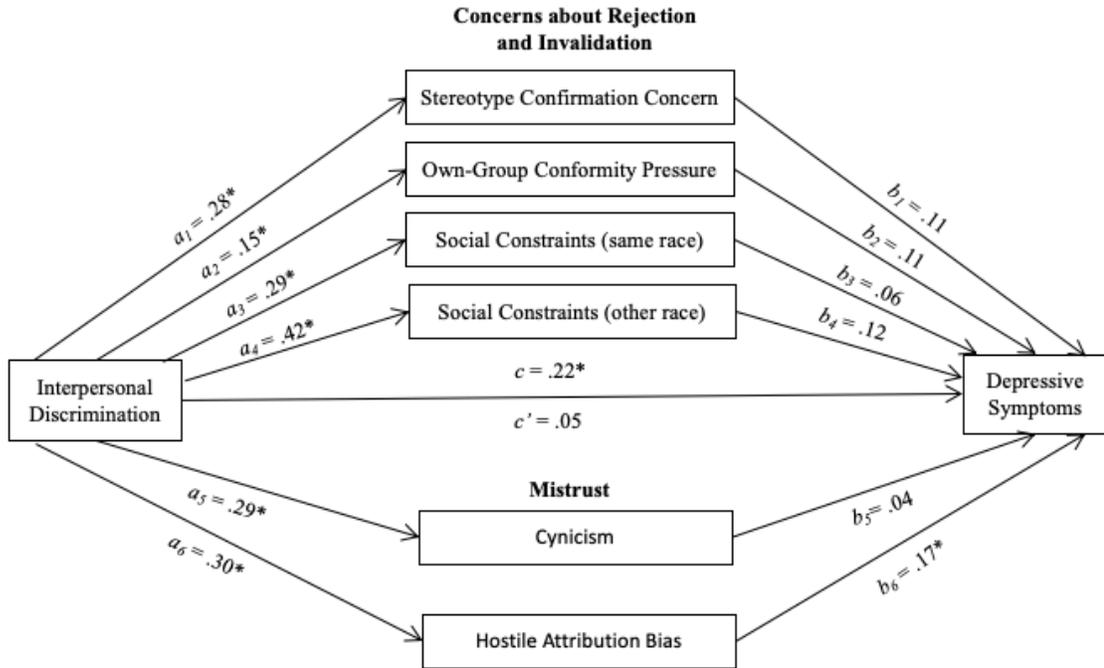
Adjusted Mediation Model: Mistrust Domain



Note. Adjusted mediation model examining the indirect effects of the two schemas comprising the domain of mistrust on the relation of discrimination to depressive symptoms, controlling for age, gender, race, recruitment site, and life stress. Only hostile attribution bias had significant indirect effects ($a_2b_2 = .06$, $SE = .03$, 95% CI: .02, .12). Indirect effects via cynicism were not significant ($a_1b_1 = .02$, $SE = .02$, 95% CI: -.01, .06).

Figure 5

Adjusted Mediation Model: Concerns about Rejection and Invalidation and Mistrust Domains



Note. Adjusted mediation model examining the specific indirect effects of the six relational schemas comprising the two domains of concerns about rejection and invalidation and mistrust on the relation of discrimination to depressive symptoms, controlling for age, gender, race, recruitment site, and life stress. Analyses revealed only hostile attribution bias emerged to have significant indirect effects ($a_6b_6 = .05$, $SE = .03$, 95% CI: .007, .10). Indirect effects via stereotype confirmation concern ($a_1b_1 = .03$, $SE = .02$, 95% CI: -.007, .07) own-group conformity pressure ($a_2b_2 = .02$, $SE = .01$, 95% CI: -.003, .05), social constraints from same-race individuals ($a_3b_3 = .02$, $SE = .02$, 95% CI: -.02, .05), social constraints from individuals of other races ($a_4b_4 = .05$, $SE = .03$, 95% CI: -.002, .11), and cynicism ($a_5b_5 = .01$, $SE = .02$, 95% CI: -.02, .05) were not significant.

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