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EMPIRICAL ARTICLE

Everyday discrimination, emotion, and daily interactions during adolescence

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Abstract

The present study examined whether everyday discrimination relates to the frequency of adolescents' positive and negative daily social interactions and whether these associations are driven by anger and positive emotion. Adolescents ($N = 334$) participated in a three-wave longitudinal study, in which they completed surveys regarding everyday discrimination, anger, and positive emotion, as well as 15 daily reports of conflict and getting along with friends and family. Higher everyday discrimination was related to more daily conflicts and fewer experiences of getting along with other people. Longitudinal models also provided preliminary evidence that everyday discrimination was associated with daily conflicts 4 years later indirectly through anger. Overall, results suggest everyday discrimination relates to adolescents' daily experiences, potentially through differences in emotion.

KEYWORDS
conflict, everyday discrimination, social interactions

INTRODUCTION

The deleterious effects of everyday discrimination on health and well-being are apparent during childhood and adolescence (Benner et al., 2018; Grollman, 2012). Everyday discrimination involves chronic exposure to day-to-day stressors due to bias, such as receiving poorer treatment, being negatively viewed or stereotyped, or being threatened by other people (Williams et al., 2003). These experiences constitute one means by which systems of power and

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privilege including racism and sexism systematically disadvantage adolescents with marginalized social identities (e.g., Price et al., 2019; Seaton et al., 2010). Such experiences may be consequential for emotional well-being during adolescence, when youth are still developing emotion regulatory strategies, and negative emotion during adolescence can precipitate poorer health and social relationships later in development (e.g., O'Connor et al., 2017; Srinivas et al., 2020). Yet, relatively limited research has examined whether everyday discrimination can persist to negatively impact adolescents' social interactions, such as the frequency of negative and positive daily experiences with close friends and family. The present study investigated the temporal pathways by which everyday discrimination relates to emotion and daily social interactions in adolescents.

Everyday discrimination and well-being during adolescence

Unfortunately, adolescents from racially diverse backgrounds often experience everyday discrimination and its negative consequences for well-being. Youth experience marginalization related to varied social identities and the intersection between different social identities (Benner et al., 2018). In line with the Integrative Model, experiences of discrimination related to socially constructed systems of power (e.g., racism and sexism) can negatively impact youths' developmental outcomes, including their socioemotional competencies and daily well-being (Coll et al., 1996). According to this model, because youth are actively engaging with their environment, the detrimental effects of discrimination and marginalization can have downstream consequences for children that shape their day-to-day social interactions with family members and potentially other people including peers and adults at school (Coll et al., 1996). For instance, research suggests that discrimination can prompt individuals to view or experience social interactions with friends and family more negatively (e.g., Brondolo et al., 2016). Yet, limited empirical research has examined the associations between discrimination and daily social interactions in adolescents.

Everyday discrimination may be particularly consequential for well-being and salient during adolescence. Adolescents experience a shift from family obligations to a greater emphasis on academic and work-related demands and developing newfound independence, and many struggle with this transition and are highly vulnerable to psychopathology and loneliness (Arnett, 2004). Although families remain an important source of social connection and support, following the onset of puberty youth spend an increasing amount of time away from home and with their peers (Forbes & Dahl, 2010). They expand their social sphere, which can increase their exposure to discrimination and awareness of societal biases (Benner & Graham, 2011; Huynh & Fuligni, 2012; Seider et al., 2020). Likewise, the development of social status-based identities including racial and gender identity continues throughout adolescence and can prompt youth to be cognizant of and sensitive to everyday discrimination during this period (e.g., Ruble et al., 2004).

In addition to this heightened salience, adolescents' emotional responses to discrimination may be enhanced because of pubertal changes. Adolescents tend to show enhanced emotional intensity and reactivity to rejection (Bailen et al., 2019; Sebastian et al., 2010). They may also struggle to regulate emotional responses because neural regions involved in emotion regulation continue to develop throughout adolescence (e.g., Steinberg et al., 2018). Prior studies and meta-analyses have indicated that discrimination is related to more negative emotion among adolescents, although limited research has examined its implications for positive emotion and social well-being (e.g., Benner et al., 2018; Park et al., 2017).

Adolescents are also highly responsive to social interactions because neural regions involved in social cognition also develop during this period (Forbes & Dahl, 2010). Negative daily social interactions broadly are associated with greater depressive symptoms, physical complaints, and poorer emotional well-being among adolescents and college students (Fiori & Consedine, 2013; Telzer & Fuligni, 2013). Adolescents spend much of their time having positive interactions with friends and family (Montemayor, 1982), but competing academic and work-related demands can limit adolescents' time for positive social interactions. During this period of shifting social demands, it is possible that everyday discrimination may carryover to negatively impact daily social interactions with other people, although this pathway has not been explored among adolescents.

Associations between everyday discrimination, emotion, and daily social interactions

The Reserve Capacity Model posits that groups with lower status in society experience more daily hassles, which can manifest in more negative emotion and greater emotional responses to stress (Gallo & Matthews, 2003). In line with this model, everyday discrimination can be an especially toxic, pervasive stressor that can change day-to-day state and even trait emotion in adults (Brondolo et al., 2008; Broudy et al., 2007; Schmitt et al., 2002). People generally experience negative emotion following unfairness or bias (Matta et al., 2014; Miller, 2001). Likewise, people commonly respond to varied forms of everyday discrimination with negative emotions, most notably anger (Schmitt et al., 2002; Swim et al., 2001, 2003). In addition to these acute responses, repeated instances of everyday discrimination throughout one's life may foster greater trait anger. Individuals regularly encounter systems of oppression, including racism, that are embedded in society at interpersonal and institutional levels, and over time youth who experience more frequent everyday discrimination may show higher levels of anger (Cheadle & Whitbeck, 2011; Park et al., 2017), which can impose risk for poorer long-term health and engagement in poor health behaviors (Siegler et al., 1992). For instance, racial discrimination has been related to greater substance use through increases in anger (e.g., Gibbons et al., 2010).

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In addition to impacting emotion, stress related to everyday discrimination and marginalization may spill over to negatively impact adolescents' daily social interactions with other people (Inzlicht & Kang, 2010), although research in this area has been relatively limited. People often require greater cognitive and psychosocial resources to cope with discrimination and related stressors, leaving fewer resources available for other daily experiences (e.g., Joseph et al., 2020; Walker et al., 2021). This reduction in available resources has been posited to interfere with daily experiences with other people and consequently result in more negative social interactions (Brondolo et al., 2018). Chronic oppression and discrimination may prompt individuals to become vigilant for potentially negative social interactions (Brondolo et al., 2005, 2018). As a result, they may preemptively disengage from interactions that could result in discrimination, which may also preclude the opportunity for positive social interactions. Such associations may be impactful during adolescence, when youth are highly responsive to both threatening and rewarding experiences (Bailen et al., 2019; Sebastian et al., 2010).

Adults who experience more chronic discrimination report more negative interpersonal events such as conflict (Broudy et al., 2007; Ong et al., 2009; Sutin et al., 2016). Furthermore, more frequent experiences of discrimination among adults have been consistently related to poorer romantic and parent–child relationship quality (e.g., Cao et al., 2017; Doyle & Molix, 2014). These differences in relationship quality may be attributable to poorer social interactions. Indeed, a prior study of Mexican children found that children have greater internalizing and externalizing behaviors and more aversive social interactions on days when parents experience discrimination (Gassman-Pines, 2015). Another study found that Latine adolescents who experience more discrimination tend to also experience greater family conflict and lower familism (Ponting et al., 2018). Further research is needed to determine whether youth of other racial backgrounds who experience discrimination may similarly be positioned to have more negative social interactions, as well as the pathways by which discrimination may influence these interactions.

Although research regarding everyday discrimination has traditionally focused on its associations with negative emotion and negative daily experiences, everyday discrimination may also reduce positive emotions and the frequency of positive daily interactions. Both positive and negative dimensions of events are fundamental aspects of people's daily experiences (Zautra et al., 2005). Positive emotions are not merely the absence of negative emotion; these emotions, including joy, happiness, and enthusiasm, indicate psychological flourishing and can promote psychosocial resources to facilitate social connection (Fredrickson, 2001). Therefore, positive emotion and positive daily social interactions are understudied but potentially important outcomes that may be impacted by everyday discrimination among adolescents.

Mechanisms relating everyday discrimination to emotion and daily social interactions

It is possible that everyday discrimination may influence adolescents' daily social interactions by shaping emotion. Youth who experience more everyday discrimination may experience poorer emotional well-being (i.e., higher levels of negative emotion, lower levels of positive emotion), which can worsen daily social interactions. Negative emotions in daily life can proliferate further stressors including interpersonal conflicts (Sears et al., 2018). Although anger is a normative response to unjust treatment, other people may view these expressions of anger negatively (Friedman et al., 2004; Perry-Parrish et al., 2017; Yoo et al., 2011). Consequently, anger associated with discrimination may lead to more negative interactions with other people (e.g., Motro et al., 2016). In turn, reductions in positive emotion can also cause adolescents to negatively appraise their daily social experience and to savor their time with friends and family less (Hamilton et al., 2017; Lyubomirsky & Tucker, 1998; Nelis et al., 2016).

In support of this theoretical pathway, parents' discrimination has been related to more depressive symptoms and, thereby, poorer parent–child relationship quality (Zhao & White, 2022). Similar associations may emerge between adolescents' experiences of discrimination and more negative social interactions through negative emotion. Further, everyday discrimination has been related to more aggressive behaviors among both adults and adolescents, with associations in adolescents explained by increases in anger (Lavner et al., 2018; Sittner Hartshorn et al., 2012). In this way, poorer well-being associated with discrimination may also spillover to negatively impact daily social interactions. Yet, temporal pathways linking everyday discrimination to more negative and fewer positive daily interactions through changes in emotion have not been previously tested among adolescents.

Researchers have also proposed an alternative pathway: Discrimination may relate to emotion indirectly through its effects on daily social interactions (Brondolo et al., 2008). People who experience racial discrimination tend to have more frequent daily hassles and other negative events and may also negatively appraise their social interactions (Ong et al., 2009). Daily studies consistently suggest that these negative experiences elicit distress, and individuals who experience greater discrimination tend to be more emotionally affected by daily stressors (Leger et al., 2022). Reductions in positive social interactions with friends and family can similarly contribute to poorer emotional well-being during adolescence (Telzer & Fuligni, 2013). Over time, experiencing more negative interactions or fewer positive interactions may prompt individuals to have poorer emotional well-being over time, although this model has not been empirically examined among adolescents. Taken together, longitudinal data are needed to determine whether everyday discrimination

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relates to social interactions indirectly through emotion, whether everyday discrimination relates to emotion indirectly through social interactions, or whether both pathways occur simultaneously.

Present study

The present study assessed the associations between everyday discrimination, emotion, and daily social interactions during middle to late adolescence, when youth tend to be increasingly aware of discrimination and stigma (Benner & Graham, 2011; Huynh & Fuligni, 2012; Seider et al., 2020) and are highly invested in their social relationships and developing independence (Forbes & Dahl, 2010). Racially minoritized youth experience discrimination related to racism, although youth can experience discrimination because of other systems of oppression (e.g., sexism, xenophobia, classism) in line with the Integrative Model (Coll et al., 1996; Seaton et al., 2018). Therefore, the present study recruited a sample of predominately Asian American, Latine, and white adolescents to complete a three-wave longitudinal study, with each wave 2 years apart. Adolescents reported everyday discrimination, anger, and positive emotion at each wave. Participants also completed a two-week daily protocol at each wave for which they reported their positive and negative social interactions with family, friends, and adults at school each day.

We used multilevel models to assess whether adolescents who reported more everyday discrimination over the past year experienced more frequent daily conflicts and fewer instances of getting along with other people. We also examined whether adolescents who reported more everyday discrimination over the past year reported greater anger in line with prior research (e.g., Park et al., 2017) and reduced positive emotion, which has been less consistently examined. We explored whether associations differed by race and gender due to racism and sexism, such that effects of everyday discrimination may be stronger for racially minoritized (i.e., Asian American and Latine) and female adolescents relative to white and male adolescents, respectively.

Next, we used mediation models to examine whether everyday discrimination relates to social interactions indirectly through emotion, or vice versa. Preliminary concurrent multilevel mediation analyses tested whether everyday discrimination over the past year was related to daily social interactions through differences in emotion. Although directionality cannot be inferred from concurrent associations, this framework can inform whether associations are explained by shared variance (i.e., whether everyday discrimination is associated with social interactions and emotion in similar ways). To better assess temporal causality, we tested both longitudinal change models and longitudinal models. Longitudinal change models tested whether changes in everyday discrimination were related to changes in social interactions over 2 years, and whether this association was explained by changes in emotion. To capitalize on the three-wave longitudinal design, we tested the degree to which everyday discrimination at ages 15–16 was related to social interactions at ages 19–20 indirectly through emotion at ages 17–18. Although we hypothesized that everyday discrimination would relate to social interactions indirectly through emotion, researchers have posited that everyday discrimination could relate to emotion indirectly through its effects on social interactions (Brondolo et al., 2008). Therefore, longitudinal change models and longitudinal models also tested whether associations between everyday discrimination and emotion were explained indirectly by social interactions.

METHODS

Participants

The current analyses included 334 adolescents who completed at least one wave of data collection in a three-wave longitudinal study of family health and well-being and provided sufficient data (i.e., reported demographic information in the study and reported discrimination, emotion, and daily social interactions in at least one wave) for the questions of interest. Initially, 316 participants were recruited in the 10th and 11th grades via in-class presentations, flyers, and mailings at four public high schools in the greater Los Angeles area between October 2011, and June 2012. Of these 316 participants, 226 (73.14%) completed the second wave of data collection 2 years later, and 166 (52.53% of first-wave participants, 73.45% of second-wave participants) completed the third wave of data collection an additional 2 years later. This accelerated longitudinal design captured observations from youth each year from 10th grade to 3 years post-high school in the dataset. During the second wave, the sample was replenished with an additional 34 participants (26 12th-grade students and eight youth one-year post-high school). These participants were either recruited from one of the same high schools as the other youth in this study ($n = 19$) or recruited after completing another study within the greater Los Angeles area that involved a similar procedure (i.e., surveys and daily checklist measures; $n = 15$). In total, 250 and 180 participants completed the second and third waves of data, respectively, and participants on average completed 2.13 (SD = 0.84) waves of the study. Participants were excluded from the present analyses if they were missing reports of age ($N = 13$), as all analyses controlled for age, or were missing reports of everyday discrimination at all three waves ($N = 3$). Participants were not missing data on any other variables. Of the adolescents in the analytic sample, 307 were recruited during the first wave of data collection, and 27 enrolled during the second wave.

Adolescents were predominately from Latine (42.22%), white (29.94%), and Asian American (22.16%) backgrounds. A smaller percentage of youth had Middle Eastern, African American, and biracial backgrounds (5.68%). There was a slight majority of female adolescents (56.29%), and

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participants were socioeconomically diverse. Primary caregivers reported the education achieved by each of the adolescent's parents, and parental education was averaged across parents when possible (*1 = some elementary school; 2 = completed elementary school; 3 = some junior high school; 4 = completed junior high school; 5 = some high school; 6 = graduated from high school; 7 = trade or vocational school; 8 = some college; 9 = graduated from college; 10 = some medical, law, or graduate school; 11 = graduated from medical, law, or graduate school*). Participants averaged slightly more than vocational school ($M = 7.18$, $SD = 1.87$), with slightly less than half of families (41.63%) averaging a college degree or higher among both parents (Table S1). Previous papers from this study have examined how everyday discrimination relates to adolescents' health, sleep difficulties, and diurnal cortisol (Huynh et al., 2016, 2021; Majeno et al., 2018).

Procedure

Adolescents were recruited from 10th and 11th-grade classrooms via flyers, mailed letters, and classroom presentations. Families who indicated interest received additional information over the phone, and an in-home visit was scheduled after parents provided verbal consent. Adolescents completed psychosocial questionnaires once per wave at the home visit, although they had the option to do so online during the third wave. They received $50, $75, and $120 as compensation for the first, second, and third waves of data collection, respectively. After the home visit, participants also completed a series of 15 daily checklists, including one optional practice day. Participants were instructed to complete the checklists at bedtime each night and received an electronic stamper to mark the exact date and time when the checklist was completed. Checklists listed a series of daily activities, among other items, and participants checked off those they had experienced that day. Compliance for the 15 days was high across all waves, with 98% of checklists completed before noon the following day. Participants additionally received two movie theater passes at each wave for on-time completion of the daily checklists. All procedures were approved by the University of California, Los Angeles Institutional Review Board.

Survey measures

See Table S2 for a summary of study variables and measures. Inter-item alpha reliabilities are provided for the full sample and for each gender and racial group in Tables S3–S5.

Everyday discrimination

Participants completed the Everyday Discrimination Scale as part of the psychosocial questionnaire (Williams et al., 1997). Participants reported how often they experienced 10 forms of everyday discrimination over the past year using a four-point scale (*1 = never, 2 = once, 3 = 2 or 3 times, 4 = 4 or more times*; e.g., "You are called names or insulted."; "You receive poorer service than other people at restaurants or stores."). This scale comprehensively measures forms of perceived everyday discrimination, regardless of attribution, and thereby avoids issues of participants under-reporting their experiences due to ambiguity regarding the specific reason (e.g., racial, sex) for the negative social experience (e.g., Williams et al., 2003, 2008). It also allows for participants to report experiences that are influenced by more than one social identity, as discrimination often relates to multiple aspects of a person's identity in line with intersectionality theory (Price et al., 2019). This approach is beneficial because otherwise participants can be frustrated by being forced to attribute discrimination to a specific identity and consequently underreport their experiences of discrimination (e.g., Harnois et al., 2020).

Previous studies have validated that this scale measures everyday discrimination consistently across non-Hispanic Asian, Black, Latine, and white individuals (Kim et al., 2014). Further, higher rates of discrimination broadly on this scale have been found to correspond with poorer mental health in racially diverse adolescents, irrespective of attribution (e.g., Price et al., 2019; Seaton et al., 2010). The mean of the reported frequencies was taken across the 10 items, and the scale had good internal consistency in each wave for the full sample (αs = .84–.87) and across gender and racial groups (Tables S3–S5).

Anger

Participants reported how angry they generally feel and how they respond when angry using the Trait Anger Inventory on the psychosocial questionnaire (Spielberger, 1999). Participants rated 10 items (e.g., "I have a fiery temper" and "When I get frustrated, I feel like hitting someone") on a scale from *1* (*Almost never*) to *5* (*Almost always*). A mean was taken across items, and the scale had good internal consistency in each wave (αs = .84–.88).

Positive emotion

Participants reported their positive emotion using the joviality subscale of the PANAS-X as part of the psychosocial questionnaire (Watson et al., 1988). Participants rated the degree to which they experienced 10 positive feelings (e.g., "delightful" and "happy") over the past week on a scale from *1* (*very slightly or not at all*) to *5* (*extremely*). A mean was taken across items, and items showed excellent internal consistency in each wave (αs = .96–.97).

Daily social interactions

In each daily checklist, participants reported whether they "argued with your mother or father about something,"

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"argued with another family member about something," had "an argument with a close friend or partner," "had an argument or were punished by an adult at school," and were "punished or disciplined by parents" (1 = yes, 0 = no). A sum was calculated per day, such that participants could have a value of five if they experienced all five incidents per day. Then, an average of daily conflicts was computed across all days for each person. The average total of daily events across 2 weeks has been used to index differences in daily assistance (Telzer & Fuligni, 2009). These items have been related to higher levels of depressive symptoms and daily distress in previous studies of daily life (e.g., Telzer & Fuligni, 2013).

Participants also reported whether they "got along with parents," "got along with other family members," "got along with adults at school," and "got along with your friends" each day (1 = yes, 0 = no). A sum was calculated per day, such that participants could have a value of four if they experienced all four per day. Then, an average of daily getting along with other people was computed across all days for each wave for each person, as has been done in previous diary research (Telzer & Fuligni, 2009). These items have been previously used in daily checklists, predicting less daily distress, especially among female adolescents (Telzer & Fuligni, 2009, 2013). Because only one item assessed interactions with adults at school for each scale, analyses were repeated omitting these items. This resulted in an identical pattern of results, so results are presented using the full scales.

ANALYTIC PLAN

All analyses were conducted in Stata 16.1. First, separate two-level multi-level models with waves nested within adolescents were used to assess whether everyday discrimination was associated with anger, positive emotion, frequency of daily conflicts, and frequency of getting along with other people (Equation 1). We used multilevel models with random intercepts and allowed the effects of age and everyday discrimination to vary randomly across participants. Multilevel models consistently used maximum likelihood to account for missing data and allowed for missing data at the level of waves, incorporating data from whichever waves participants completed. Participants missing wave-varying data at all waves (i.e., age, everyday discrimination) were excluded from the analytic sample, as described above. Multilevel models were used because they are generally robust to distributional properties of variables, use all available data, allow for individual differences in elapsed time between waves, and allow for each adolescent to have their own estimated intercept and slopes for variables of interest, as opposed to assuming uniformity across all adolescents (Schielzeth et al., 2020). The accelerated longitudinal design also captured all ages between the 10th grade and three-year post-high school in the dataset, with up to three observations per participant. Multilevel models can leverage this design by testing the linear effects of age and age-related variables across observations from both cohorts and from all waves of data simultaneously.

Everyday discrimination was grand-mean centered in all analyses to leverage all available data (i.e., partitioning variance within versus between adolescents would preclude participants who completed only a single wave of data collection from contributing to within-person estimates of associations). This method pooled across between- and within-person associations to examine overall associations between everyday discrimination, anger, positive emotion, and negative and positive daily social interactions. Grand mean centering was used because the accelerated longitudinal design resulted in participants completing 1–3 assessments given the high level of attrition across the college transition ($M = 2.13$, $SD = 0.84$), limiting ability to reliably disaggregate variance. Analytically these models specifically tested whether more frequent everyday discrimination (related to either relative increases or having high levels on average) is related to emotion and social interactions in the same year across middle to late adolescence. Associations can be interpreted similar to those estimated in a regression analysis, with the understanding that the multilevel models account for shared variance across observations from the same participant (see Enders & Tofighi, 2007; Sommet & Morselli, 2017 for rationales regarding centering in multilevel modeling).

Associations between emotion and social interactions were also tested, with anger predicting frequency of conflicts, and positive emotion predicting frequency of getting along (Equation 2). Similar to the models of everyday discrimination, anger and positive emotion were treated as random slopes and were grand-mean centered in all analyses. Exploratory models tested differences in patterns of associations between Asian American, Latine, and white participants, as well as between male and female participants. Moderation by race was tested with Latine, the largest racial group in the sample, as the reference group, and again with white as the reference group because of evidence that White youth tend to experience less discrimination than racially minoritized youth (Douglass & Umaña-Taylor, 2017) and that discrimination may be more related to poorer health and well-being among racially minoritized than white individuals (Lehrer et al., 2020; Park & Kim, 2023; Van Dyke et al., 2016). This modeling tested all contrasts between Asian American, Latine, and white youth. Significant interactions were followed-up with simple slopes probed at each level of race or gender.

Models controlled for gender (male = –1, female = 1), parental education (grand-mean centered), race (dummy coded, with Latine [most prevalent group in the sample] as the reference group), and age (grand-mean centered). So that all participants could be in the analysis, participants who were not of Asian American, Latine, or white backgrounds were dummy coded as a separate grouping, which resulted in three dummy-coded variables (Asian American, white,

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Different Ethnicities including Middle Eastern, African American, or biracial).

Equations 1 and 2 (Concurrent Associations):

$$\text{Emotion}/\widehat{\text{Social Interactions}}_{ij} = \beta_0 + u_{0j} + \left(\beta_1 + u_{1j}\right)\left(\text{Everyday Discrimination}\right) + \beta_2\left(\text{Parents' Education}\right) + \beta_3\left(\text{Race/Ethnicity}\right) + \beta_4(\text{Gender}) + \left(\beta_5 + u_{3j}\right)\left(\text{Age}\right) \quad (1)$$

$$\text{Social } \widehat{\text{Interactions}}_{ij} = \beta_0 + u_{0j} + \left(\beta_1 + u_{1j}\right)(\text{Emotion}) + \beta_2\left(\text{Parents' Education}\right) + \beta_3\left(\text{Race/Ethnicity}\right) + \beta_4(\text{Gender}) + \left(\beta_5 + u_{3j}\right)\left(\text{Age}\right) \quad (2)$$

Next, mediation models tested whether everyday discrimination over the past year was related to social interactions indirectly through emotion, and whether everyday discrimination was associated with emotion indirectly through social interactions, both concurrently and over time. See Table S6 and Figure S1 for a summary of all mediation models. Two-level multilevel mediation models following the framework suggested by Krull et al. (2016) tested whether everyday discrimination experienced over the past year was related to daily social interactions indirectly through anger and positive emotion during the same wave. Briefly, multilevel mediation is similar to mediation in ordinary least squares regression and tests whether the indirect effect—measured as the product of the *a* path and the *b* path—significantly differs from 0 using percentile bootstrapped confidence intervals (see Krull et al., 2016 for additional information). In line with the other analyses, this method conflates estimates across variance within and between individuals (Preacher et al., 2010). These concurrent mediation models tested the same-wave associations between emotion and daily social interactions to determine whether everyday discrimination experienced over the past year may impact daily social interactions and emotion through similar pathways (Equation 3) and incorporated all waves of data. We examined the indirect effect of everyday discrimination on daily conflicts through anger in one model, and the indirect effect of everyday discrimination on getting along with other people through positive emotion in a separate model, with all variables measured at the same wave.

Equation 3 (Concurrent Model [testing associations within the same wave, coefficients aggregated across waves]):

$$\text{Social } \widehat{\text{Interactions}}_{ij} = \beta_0 + u_{0j} + \left(\beta_1 + u_{1j}\right)\left(\text{Anger/Positive Emotion}\right) + \left(\beta_2 + u_{2j}\right)\left(\text{Everyday Discrimination}\right) + \beta_3\left(\text{Parents' Education}\right) + \beta_4\left(\text{Race/Ethnicity}\right) + \beta_5(\text{Gender}) + \left(\beta_6 + u_{3j}\right)\left(\text{Age}\right) \quad (3)$$

Because temporality cannot be inferred from concurrent mediation models, longitudinal change models examined whether changes in everyday discrimination over the past year were associated with a change in the outcome since the prior wave, as measured by predicting these outcomes at the same wave while controlling for measures at the previous wave (i.e., testing associations between variables at the second or third wave, controlling for all measures at the previous wave). Given the low number of within-person assessments, rather than centering values at the person mean, we employed residualized change models to examine associations between residualized changes in everyday discrimination, emotion, and social interactions across 2 years. Residualized change mediation models account for the shared variance across the two assessments to test whether associations between changes in frequency of everyday discrimination over the past year and changes in social interactions across 2 years were explained by changes in emotion, as well as whether associations between changes in frequency of everyday discrimination over the past year and changes in emotion were explained by changes in daily social interactions across 2 years. These models provided a more rigorous test of pathways relative to the concurrent mediation models by assessing whether dynamic changes in experiences were related to one another across 2 years (i.e., since the prior wave; Equation 4). Because these models included only participants who completed two consecutive waves of data collection, only 188 participants contributed to these analyses, each with two to three total observations ($M = 2.56$, $SD = 0.50$).

Equation 4 (Longitudinal Change Model [testing whether the association between residualized changes in everyday discrimination at Wave T and residualized changes in social interaction is accounted for by residualized changes in emotion at Wave T while controlling for everyday discrimination, emotion, and social interactions at Wave T-1]):

$$\begin{aligned}\text{Social } \widehat{\text{Interactions}}_{ij} = {} & \beta_0 + u_{0j} + \left(\beta_1 + u_{1j}\right)\left(\text{Anger/Positive Emotion}\right) + \left(\beta_2 + u_{2j}\right)\left(\text{Everyday Discrimination}\right) \\ & + \beta_3(\text{Previous Wave Social Interactions}) + \beta_4\left(\text{Previous Wave Anger/Positive Emotion}\right) \\ & + \beta_5\left(\text{Previous Wave Everyday Discrimination}\right) + \beta_6\left(\text{Parents' Education}\right) + \beta_7\left(\text{Race/Ethnicity}\right) \\ & + \beta_8(\text{Gender}) + \left(\beta_9 + u_{3j}\right)\left(\text{Age}\right)\end{aligned} \quad (4)$$

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Finally, to fully leverage the three-wave design, analyses tested associations across waves. As a robust temporal test of the hypothesized pathway, models tested whether everyday discrimination at the first wave was associated with social interactions 4 years later at the third wave indirectly through emotion 2 years later at the second wave, and associated with emotion at the third wave indirectly through social interactions at the second wave. Whereas the longitudinal change models assessed whether changes in social interaction and emotion were sensitive to everyday discrimination, these models tested whether everyday discrimination is prospectively related to social interactions and emotion. Models were repeated controlling for lagged outcomes (i.e., emotion at the first wave and social interactions at the first and second waves). These models incorporated data from each of the three waves of the study (i.e., one indirect effect per participant) and were therefore tested in a regression framework, and the degree of mediation was tested using bootstrapped percentile confidence intervals of the indirect effect. Full-information maximum likelihood was used to estimate missing data and include all 334 participants in these models, and this method has shown low bias even with high levels of missing data (Xiao & Bulut, 2020).

RESULTS

Participation analyses

Adolescents could participate in three waves of data collection if they entered the study during the first wave or in two waves of data collection if they entered the study during the second wave. To assess differences in attrition, multilevel models tested whether the percent of possible waves completed predicted time-varying study variables, over and above age. Participation rates did not differ by everyday discrimination, anger, conflicts, or positive emotion ($ps = .23–.94$). Participants who reported getting along with other people more often participated in more possible waves of data collection, $B = 0.09$, SE = 0.04, $p = .012$. There were no gender differences in participation, $t(332) = 1.45$, $p = .15$. Adolescents with higher parental education participated in more possible waves of the study ($r[332] = .13$, $p = .02$), and those with Asian American backgrounds participated in fewer possible waves, $F(3,330) = 5.39$, $p = .001$.

Because the longitudinal models required participants to complete multiple study waves, we compared participants who completed two waves with those who completed only one wave, and participants who completed all three waves with those who did not. No differences emerged with respect to everyday discrimination, anger, positive emotion, daily frequency of conflicts, and daily frequency of getting along. In line with the previously described analyses, female participants were more likely than male participants to complete all three waves of data collection, $\chi^2(1) = 5.28$, $p = .022$. Participants who only completed one wave of data collection had lower parents' education compared to participants who completed either two or three waves of data collection ($t[332] = 2.43$, $p = .016$), and a significantly smaller portion of the sample comprised Asian American participants in the two-wave and three-wave longitudinal models compared to the concurrent models due to attrition, $\chi^2(3) > 10.00$, $ps < .02$.

Descriptive statistics and growth models

At study entry, everyday discrimination was infrequent, with participants on average reporting that they experienced each incident less than once a year ($M = 1.73$, SD = 0.60). Participants were low in anger ($M = 1.78$, SD = 0.55) and high in positive emotion ($M = 3.67$, SD = 0.95). On a daily basis, they reported having few conflicts ($M = 0.33$, SD = 0.39) and having multiple positive social interactions with other people ($M = 2.39$, SD = 0.83). Descriptive statistics for variables at each wave are provided for the full sample (Table S3) and by race and gender (Tables S4 and S5), and correlations between variables at each wave are presented in Tables S7.

Fully unconditional models were tested for everyday discrimination, emotion, and daily social interactions so that the intraclass correlation coefficient (ICC) could be calculated for each variable (Table S3). Results indicated that 43% of variance in everyday discrimination, 36% of variance in positive emotion, 58% of variance in anger, 30% of variance in frequency of daily conflicts, and 38% of variance in frequency of getting along with other people was explained by the participant. An additional descriptive model predicted everyday discrimination over the past year (the primary predictor of interest) from demographic factors (i.e., age, race, gender, and parents' education), although everyday discrimination was not related to any of these variables (Table 1, Column 1).

Although models examined the average number of negative and positive social interactions (i.e., frequency of conflicts and getting along with other people) across days, descriptive models were used to calculate how often adolescents had social interactions with different people: family members, friends, and adults at school. When examining with whom youth were interacting, we found that participants both argued with and got along with family members most frequently and with adults at school least frequently (Figure S2). Adolescents' reports of conflicts and getting along with family and friends dropped most greatly between the second and third waves of the study (i.e., ages 19–20, after most participants had graduated from high school). We examined age-related differences in rates of daily social interactions across recipients by testing three-level multilevel models (interactions nested within waves nested within adolescents). This analysis revealed that the frequency of conflicts with family members ($B = -1.58$, SE = 0.20, $p < .001$, $f^2 = .02$) decreased more with age relative to conflicts with adults at school ($B = -0.76$, SE = 0.20, $p < .001$, $f^2 = .01$), whereas frequency of conflicts with friends did not change with age ($B = -0.19$, SE = 0.20, $p = .339$). The frequency of getting along with adults at school ($B = -5.11$, SE = 0.38, $p < .001$, $f^2 = .11$),

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TABLE 1 Everyday discrimination as a function of covariates, and daily frequency of conflicts, daily frequency of getting along with other people, anger, and positive emotion as a function of everyday discrimination and covariates.

	Everyday discrimination		Daily conflicts		Getting along		Anger		Positive emotion	
	B	SE	*B*	SE	*B*	SE	*B*	SE	*B*	SE
Intercept	1.77***	0.04	0.32***	0.02	2.23***	0.06	1.76***	0.04	3.76***	0.07
Everyday discrimination	–	–	0.10***	0.02	−0.14**	0.05	0.29***	0.03	−0.20**	0.06
Age	0.02	0.01	−0.04***	0.01	−0.16***	0.02	−0.03***	0.01	0.00	0.02
Parental education	0.01	0.02	0.02	0.01	0.00	0.02	0.03*	0.01	0.01	0.03
Female	0.00	0.03	0.04**	0.02	0.09*	0.04	0.00	0.03	−0.03	0.04
Asian American	0.04	0.08	−0.17***	0.04	−0.41***	0.10	0.03	0.07	−0.19	0.12
White	−0.12	0.07	−0.04	0.04	0.09	0.10	−0.05	0.06	−0.14	0.11
Different identity	0.04	0.13	0.00	0.07	−0.03	0.17	0.17	0.11	−0.40*	0.19

Note: *$p < .05$, ** $p < .01$, *** $p < .001$. Everyday discrimination, age, and parental education were grand-mean centered; female was effect-coded (−1 = male, 1 = female), and race was dummy coded with Latine (sample majority) as the reference group.

family members ($B = -3.68$, SE = 0.38, $p < .001$, $f^2 = .04$), and friends all decreased with age ($B = -3.10$, SE = 0.38, $p < .001$, $f^2 = .02$), in that order of magnitude.

Concurrent links between everyday discrimination, emotion, and daily interactions

Multilevel models tested whether everyday discrimination over the past year was related to daily social interactions and anger and positive emotion, after controlling for demographic factors. Greater everyday discrimination over the past year was associated with a higher frequency of conflicts (Table 1, Column 2, $f^2 = .04$) and a lower frequency of getting along with other people (Table 1, Column 3, $f^2 = .02$). Regarding emotion, more everyday discrimination over the past year was associated with greater anger (Table 1, Column 4, $f^2 = .14$) and lower positive emotion (Table 1, Column 5, $f^2 = .02$). Across models, adolescents reported fewer conflicts, fewer instances of getting along with other people, and less anger as they aged over the study interval, but did not report changes in positive emotion (see Table S3 for mean values of study variables at each wave). Greater parental education was associated with more anger, female adolescents experienced conflicts and getting along with other people more often than male adolescents, and Asian American youth reported fewer conflicts and getting along with other people less often than their Latine peers.

Exploratory models tested differences in associations by race and gender. No differences emerged in associations between everyday discrimination and emotion (i.e., anger, positive emotion) or frequency of getting along. However, the association between everyday discrimination and conflicts was stronger among Latine adolescents relative to white adolescents ($B = -0.11$, SE = 0.05, $p = .027$) but not relative to Asian American adolescents ($B = -0.11$, SE = 0.06, $p = .080$). Everyday discrimination was related to more frequent conflicts among Latine adolescents, $B = 0.15$, SE = 0.03, $p < .001$, $f^2 = .08$, but this association was not significant among Asian American or white adolescents, $ps > .29$.

Models also examined associations between emotion and social interactions. As hypothesized, higher anger was associated with having more frequent daily conflicts with other people ($B = 0.13$, SE = 0.03, $p < .001$, $f^2 = .06$), and higher positive emotion was associated with getting along with other people more frequently ($B = 0.11$, SE = 0.03, $p = .001$, $f^2 = .02$). Because anger and positive emotion could theoretically both affect social interactions in distinct ways, models were repeated with both as predictors. When anger and positive emotion were tested as simultaneous predictors of daily conflicts, anger was a significant predictor ($B = 0.09$, SE = 0.02, $p < .001$, $f^2 = .05$) and positive emotion was not ($B = -0.01$, SE = 0.01, $p = .170$). In turn, when anger and positive emotion were tested as simultaneous predictors of daily frequency of getting along with other people, positive emotion was a significant predictor ($B = 0.07$, SE = 0.02, $p = .005$, $f^2 = .02$) and anger was not ($B = 0.00$, SE = 0.05, $p = .948$). Taken together, same-valence associations between emotion and social interaction were supported, whereas the cross-valence associations were not. When testing for moderation, neither differences by race nor gender emerged in associations between emotion and daily interactions, all $ps > .10$.

Mediation pathways

Concurrent mediation models examined whether everyday discrimination over the past year was associated with daily social interactions indirectly through anger and positive emotion during the same year. These models specifically tested the degree to which the associations between everyday discrimination and daily social interactions (i.e., models presented in Table 1, Columns 2–3) were reduced by including either anger or positive emotion as an additional predictor within the same model. As shown in Figure 1, greater everyday discrimination over the past year was related to more daily conflicts indirectly through increased anger ($ab = 0.027$, SE = −0.0004, 95% Confidence Interval [CI] [0.01, 0.05], 25.9% of total effect) and to fewer experiences

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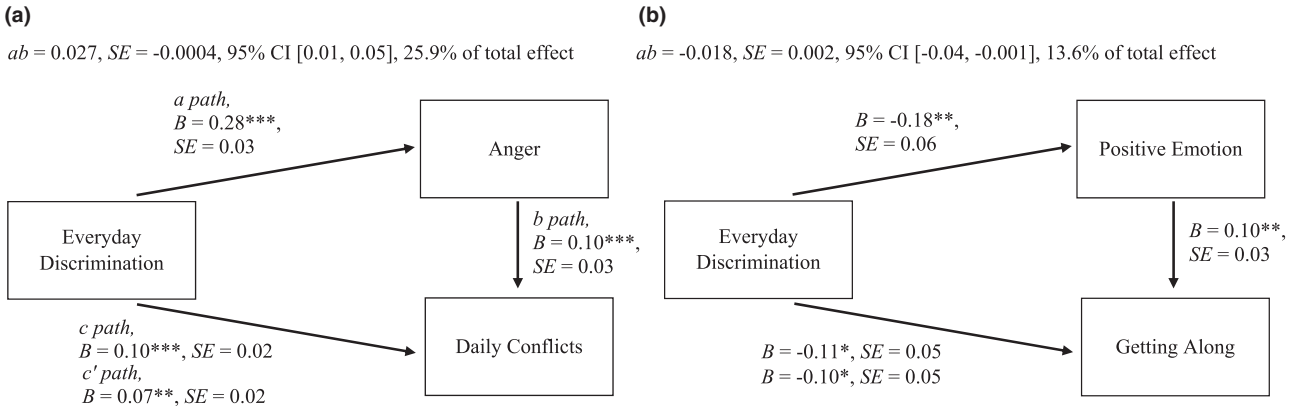

FIGURE 1 Concurrent mediation models assessing the indirect effect of everyday discrimination on daily social interactions through emotion at the same wave (a, b). Models controlled for age, gender, parental education, and race. Models include estimates from each wave (i.e., associations between predictors and outcomes at the same wave, using data from wave 1, wave 2, and wave 3). Paths are labeled in model a. $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$. CI = Confidence Interval. The alternative models of everyday discrimination predicting emotion indirectly through daily interactions were not tested given that concurrent mediation models do not allow for directional inference.

of getting along with other people indirectly through decreased positive emotion (*ab* = −0.018, SE = 0.002, 95% CI [−0.04, −0.001], 13.6% of total effect).

Longitudinal change models examined whether changes in everyday discrimination accounted for changes in daily interactions across a two-year period indirectly through changes in emotion. Specifically, these models tested whether everyday discrimination was related to daily social interactions at the same wave, controlling for everyday discrimination and frequency of daily social interactions from the previous wave. Everyday discrimination over the past year was significantly related to changes in daily conflicts over 2 years indirectly through anger (*ab* = 0.021, SE = 0.010, 95% CI [0.005, 0.04], 43.7% of total effect). Although changes in everyday discrimination were not directly related to changes in conflicts, increases in anger over 2 years were associated with increased frequency of daily conflicts and the association between changes in everyday discrimination and change in frequency of daily conflicts over a two-year interval was significantly attenuated by accounting for changes in anger (Figure 2a). In contrast to the results from the concurrent model, the indirect effect of changes in everyday discrimination on changes in getting along with other people through changes in positive emotion was narrowly not significant, as the 95% confidence interval included zero (*ab* = −0.016, SE = 0.014, 95% CI [−0.05, 0.008], 33.2% of total effect; Figure 2b). To better assess temporal causality, we also tested whether changes in everyday discrimination were related to changes in anger and positive emotion over 2 years indirectly through changes in daily social interactions. In both cases, the 95% confidence interval included zero, indicating these pathways were not significant (Figures 2c,d).

Finally, models tested temporal associations across three waves by examining associations between everyday discrimination and social interactions 4 years later indirectly through emotion 2 years later. We found that everyday discrimination was associated with conflicts 4 years later indirectly through anger 2 years later (*ab* = 0.034, SE = 0.016, 95% CI = [0.003, 0.065], 47.1% of total effect; Figure 3a). Everyday discrimination was not related to the frequency of getting along with other people 4 years later indirectly through positive emotion 2 years later (*ab* = 0.005, SE = 0.021, 95% CI [−0.04, 0.05], 2.6% of total effect; Figure 3b). Models then tested associations controlling for levels of the mediator and outcome at the prior waves. These models did not suggest that everyday discrimination was related to changes in either negative (*ab* = 0.005, SE = 0.007, 95% CI [−0.006, 0.021], 41.8% of total effect) or positive social interactions (*ab* = 0.16, SE = 0.019, 95% CI [−0.007, 0.07]) over 4 years indirectly through changes in emotion over 2 years.

Because racial differences were observed in analyses of concurrent associations, we examined whether the associations between everyday discrimination and emotion and social interactions (i.e., *a* and *b* paths) differed by race and gender. We did not observe moderation of prospective associations between everyday discrimination and any variables by race or gender, all *p*s > .10. When considering pathways from everyday discrimination to emotion indirectly through social interactions, neither the indirect effects of frequency of conflicts on anger nor of frequency of getting along with other people on positive emotion were significant (Figures 3c,d).

DISCUSSION

Although everyday discrimination can negatively impact adolescent well-being (e.g., Benner et al., 2018; Grollman, 2012), it remains unclear whether everyday discrimination also relates to adolescents' daily social interactions and whether it does so indirectly through emotion over time. Everyday discrimination may be consequential for emotion and social interactions during middle and late adolescence, when youth are both increasingly aware of discrimination and highly responsive to daily experiences (Huynh & Fuligni, 2012; Sebastian et al., 2010). Therefore, using a multi-wave daily checklist study

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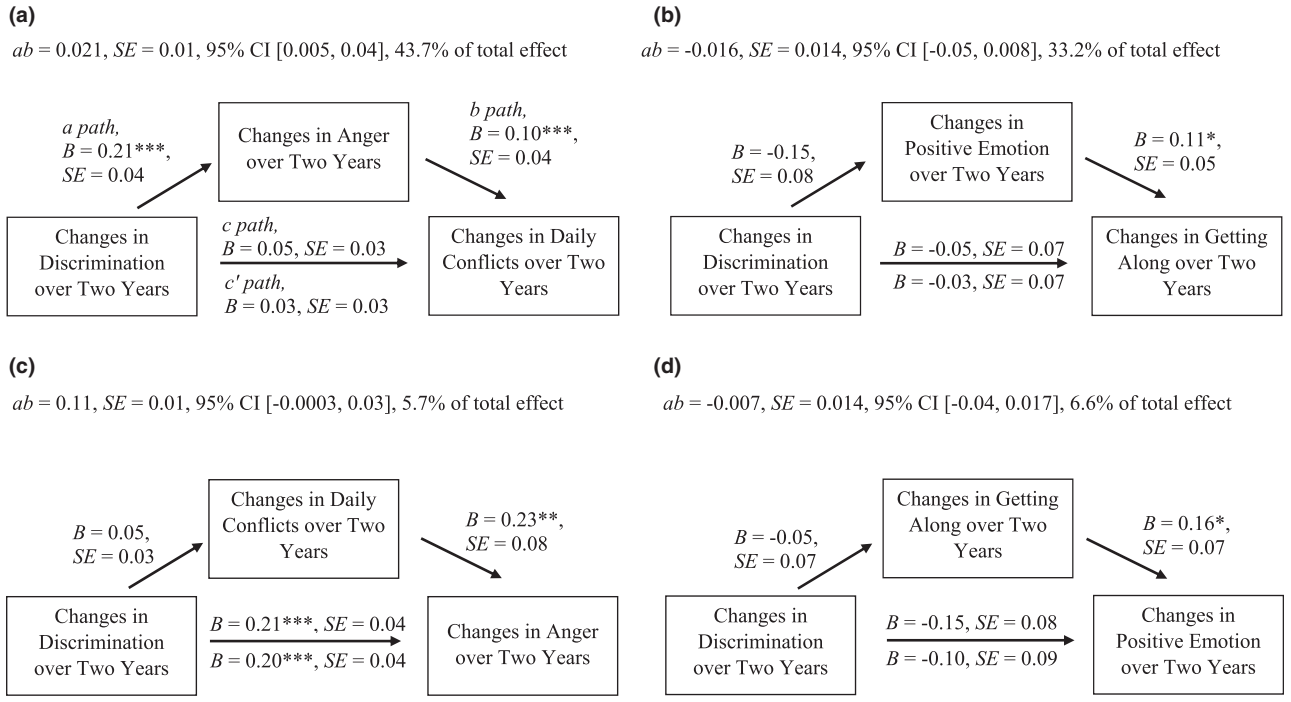

FIGURE 2 Longitudinal change models assessing the indirect effect of changes in everyday discrimination over 2 years on changes in daily social interactions across a two-year period through changes in emotion over 2 years (a, b) and the indirect effect of changes in everyday discrimination over 2 years on changes in emotion over 2 years through changes in daily social interactions over 2 years (c, d), all models covarying for everyday discrimination, emotion, and social interactions from the previous wave (i.e., Wave 1 or Wave 2). Models controlled for age, gender, race, and parental education. All variables are from the same wave (i.e., Wave 2 or Wave 3). Paths are labeled in model a. *$p < .05$, **$p < .01$, ***$p < .001$. CI = Confidence Interval.

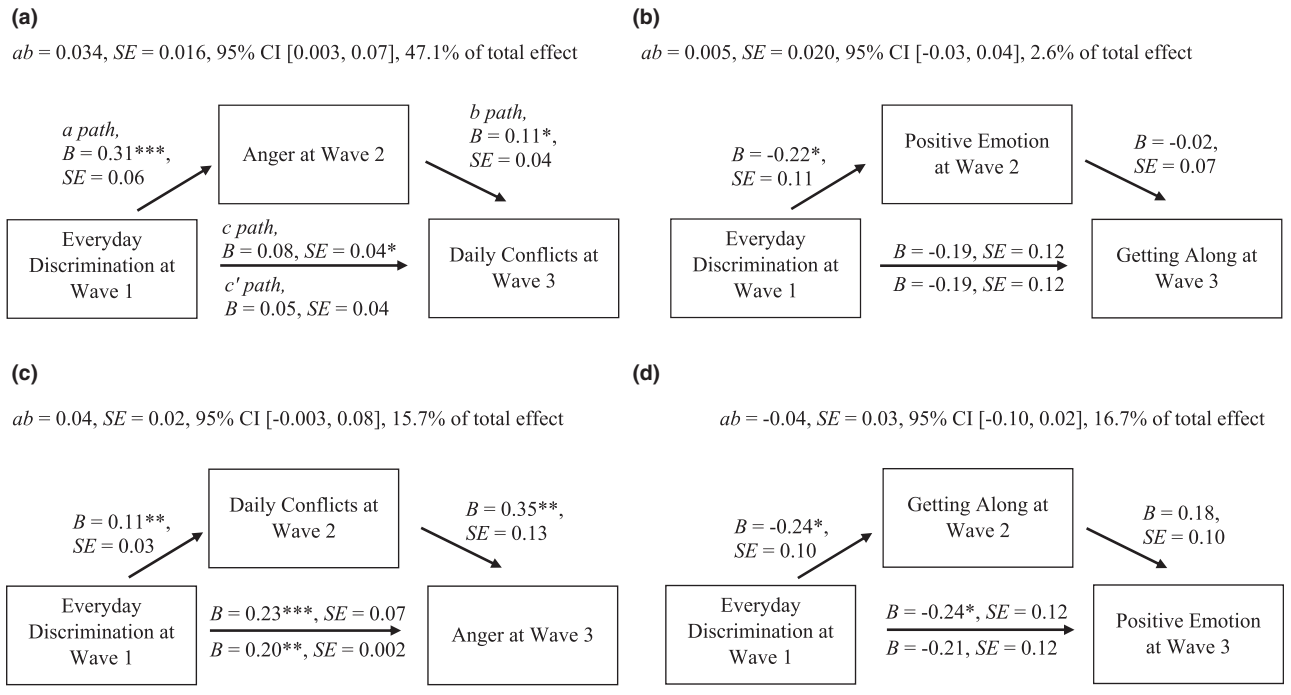

FIGURE 3 Three-wave panel mediation models assessing the indirect effect of everyday discrimination on daily social interactions through emotion (a, b) and the indirect effect of discrimination on emotion through daily social interactions (c, d). Models controlled for age, gender, race, and parental education. Models predict outcomes at Wave 3 from everyday discrimination as the primary predictor at Wave 1, using a mediator from Wave 2. Paths are labeled in model a. *$p < .05$, **$p < .01$, ***$p < .001$. CI = Confidence Interval.

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of predominately Asian American, Latine, and white adolescents, we examined associations between everyday discrimination, emotion, and daily social interactions and the potential pathways by which everyday discrimination relates to social interactions and emotion concurrently and over time.

Our results suggested that adolescents who experience more everyday discrimination—a metric that may be indicative of individuals' exposure to systems of power including racism—over the past year report more daily conflicts and fewer instances of getting along with other people, as well as more anger and less positive emotion, in line with prior studies in adults (e.g., Broudy et al., 2007). Mediation models then examined pathways relating everyday discrimination to daily social interactions and to changes in daily social interactions over time indirectly through emotion. We found that everyday discrimination over the past year was related to more frequent daily conflicts at the same wave indirectly through anger, and was related to fewer instances of getting along with other people at the same wave indirectly through positive emotion. Daily conflicts appeared to be sensitive to everyday discrimination, as results from longitudinal change models suggested that greater everyday discrimination was related to an increase in daily conflicts over a two-year period. Furthermore, longitudinal models revealed that everyday discrimination was prospectively related to daily conflicts 4 years later indirectly through greater anger, although this association was not maintained after accounting for prior levels of social interactions. Contrary to hypotheses, tests of temporal pathways suggested that everyday discrimination was not related to getting along with other people indirectly through positive emotion over time. Taken together, results suggested that adolescents who experience more everyday discrimination may have poorer social and emotional well-being, and that everyday discrimination may have consequences for adolescents' daily conflicts over time through anger.

Associations between everyday discrimination, emotion, and social interactions

Greater everyday discrimination over the past year was related to greater anger and more negative social interactions in adolescents, in line with research in adults (Brondolo et al., 2008; Broudy et al., 2007; Sutin et al., 2016). Everyday discrimination was also associated with less positive emotion and fewer instances of getting along, which has not been consistently found in prior studies of adults (e.g., Broudy et al., 2007). Concurrent associations between everyday discrimination and positive emotion and positive social interactions may be detectable during adolescence, when youth spend much of their time with friends and family and are highly responsive to social interactions (Bailen et al., 2019; Forbes & Dahl, 2010). Adolescents also report more positive emotion on average than adults (Bailen et al., 2019), such that associations between everyday discrimination and positive emotion and daily experiences may be particularly salient during this developmental period.

Despite being relatively infrequent, everyday discrimination may elicit emotional and behavioral changes for adolescents. People show negative emotional responses to experiences of discrimination (e.g., Swim et al., 2001, 2003). Over time, these negative experiences can influence trait emotion and daily experiences (e.g., Brondolo et al., 2008). Additionally, adolescents are still learning strategies for emotion regulation, and the inability to regulate anger may be especially maladaptive for adolescents who experience everyday discrimination. For instance, rumination is a common response to everyday discrimination that has been linked with aggression, which may contribute to anger and negative daily interpersonal events (Denson et al., 2011; Hamilton et al., 2017). Everyday discrimination can not only promote anger, but also deplete psychosocial resources which may promote one's ability to regulate other emotions in line with the Reserve Capacity Model (Gallo & Matthews, 2003; Joseph et al., 2020). Everyday discrimination may thereby undermine adolescents' ability to maintain positive well-being and daily interactions over time.

Associations between everyday discrimination and social interactions may be explained by factors beyond acute interpersonal discrimination, such as regularly encountering systems of power through cultural and institutional discrimination (Williams et al., 2003). The Integrative Model posits that systems of power can alter youths' local environments and daily experiences to thereby shape well-being (Coll et al., 1996). Everyday discrimination may index the relative insidiousness of racism and sexism, as well as other systems of oppression, in adolescents' daily lives. These everyday challenges may be particularly invalidating during adolescence, a period of exploration and identity formation (Steinberg & Morris, 2001), and institutional forms of discrimination can impact adolescent well-being in ways distinct from interpersonal discrimination (Benner & Graham, 2013).

Although most associations did not differ by race, the association between everyday discrimination and frequency of conflicts at a given wave was driven by Latine adolescents. This finding aligns with prior evidence that Mexican children have more negative social interactions on days when their parents experience discrimination (Gassman-Pines, 2015), and that Latine adolescents who experience more discrimination also report having generally higher family conflict (Ponting et al., 2018). Our findings extend this research by investigating this association in racially diverse adolescents, and finding that effects may be unique to Latine youth. Given that familism tends to be highly valued among Latine families, the consequences of everyday discrimination for social interactions with family may be larger for Latine youth relative to youth from other backgrounds.

Mediation pathways relating everyday discrimination to emotion and social interactions

Concurrent mediation pathways suggested that everyday discrimination over the past year was related to daily social

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interactions indirectly through emotion reported at the same wave. People who experience discrimination often experience more subsequent hassles and negative events, such that discrimination propagates more negative social interactions (Ong et al., 2009). Emotion can influence one's subsequent social interactions as well as their appraisal of such interactions (e.g., Hamilton et al., 2017; Lyubomirsky & Tucker, 1998). For instance, greater discrimination has been previously related to greater aggressive behaviors in adolescents through increases in anger (Sittner Hartshorn et al., 2012). Results extended past research by finding that greater everyday discrimination is similarly related to fewer positive daily social interactions at the same wave indirectly through reduced positive emotion. However, we cannot infer directionality from concurrent associations. Therefore, longitudinal change models examined whether everyday discrimination was related to changes in outcomes over time, and longitudinal models examined whether everyday discrimination was related to outcomes years later.

In addition to concurrent associations, longitudinal change models suggested that changes in everyday discrimination were related to changes in conflict indirectly through changes in anger, such that everyday discrimination and anger may have consequences for adolescents' daily social interactions over time. Changes in everyday discrimination may relate to changes in conflicts through anger over time, but not for positive emotion and getting along with other people, because anger and frustration are common responses to uncontrollable, unjust acts (Swim et al., 2001, 2003). Moreover, longitudinal models across all three waves of data revealed that everyday discrimination was related to daily conflicts 4 years later indirectly through anger 2 years later, although this pathway was no longer significant when accounting for prior levels of emotion and social interactions. Taken together, models provide preliminary evidence that everyday discrimination may relate to anger and frequency of conflicts over time and that these processes may unfold across adolescence.

It is possible that anger related to incidents of everyday discrimination can carry over to adolescents' daily experiences with other people, especially close friends and family members from whom they may seek social support. People often respond negatively to anger and can become angrier themselves, worsening interpersonal communication and collaboration and potentially promoting conflict (Friedman et al., 2004). For instance, adolescents who openly expressed anger were less liked by school peers (Perry-Parrish et al., 2017), and outward anger expression has been found to explain associations between racial discrimination and distress among Latine youth (Park et al., 2017). Therefore, adolescents who experience more everyday discrimination may have more frequent conflicts with friends and family because other people are negatively responding to their emotional expressions of anger. Friends and family members may not understand or appropriately respond to their emotional responses, which may negatively impact daily social interactions and relationship quality. As a result, adolescents may not receive social support to help them cope with negative experiences, which may further amplify negative emotion and exacerbate the impacts of everyday discrimination on well-being over time (Park et al., 2018). Racial discrimination has been found to worsen well-being by reducing social support, in line with the social support deterioration model (e.g., McNeil Smith et al., 2019). In this way, it is possible that everyday discrimination can negatively impact adolescents' mental health through its impact on emotion and daily social interactions.

It is important to note that results did not indicate that changes in anger over 2 years later accounted for associations between everyday discrimination at ages 15–16 and changes in social interactions over 4 years later. This model may not have emerged as significant because of the timing of associations. Across middle to late adolescence, youth fulfill different social roles and responsibilities and gain greater control over with whom they interact. This model presents a rigorous and potentially over-specified test of the theoretical model, as the consequences of everyday discrimination for youth social development may not extend over 4 years, and associations may emerge earlier in development or over a shorter interval.

Although our hypothesis regarding everyday discrimination relating to positive social interactions indirectly through positive emotion was not supported by longitudinal models, the longitudinal pathway relating everyday discrimination to changes in frequency of getting along with other people over 2 years indirectly through positive emotion was narrowly not significant. The present analyses provided a rigorous test of whether everyday discrimination related to social interactions concurrently and years later, during a dynamic period of social transition when other factors (e.g., moving, academic, or work stress) could influence adolescents' frequency of getting along with other people. Given the significant concurrent mediation, temporal pathways linking everyday discrimination to emotion and positive social interactions might be observed in future studies using longitudinal data across a smaller timespan, such as 1 year rather than 2 years, or using intensive longitudinal data to examine daily processes. Furthermore, the difference in findings between the positive- and negative-valence pathways may also be due to the measures of emotion administered. Specifically, trait anger was assessed, whereas positive emotion over the past two weeks was assessed. Assessment of trait emotion may be needed to identify a comparable association for positive interactions.

To further assess temporal pathways, we also tested whether changes in everyday discrimination were related to changes in emotion across 2 years indirectly through changes in daily social interactions in longitudinal change models, and to emotion 4 years later indirectly through social interactions 2 years later. Although researchers have posited that discrimination may promote negative emotion specifically through differences in daily negative events in adults (Brondolo et al., 2008; Broudy et al., 2007), we did not find

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evidence for this alternative pathway across any timescale. This pathway may be better identified on a daily basis rather than over longer timescales. Social interactions often have implications for emotion on a daily basis (Sears et al., 2018), and prior research has suggested that experiences of discrimination can enhance daily associations between experiences and emotion over time (Leger et al., 2022). Although our results suggested that everyday discrimination does not relate to longer-term changes in emotion indirectly through frequency of social interactions among adolescents, future studies can test whether everyday discrimination influences daily emotional reactivity (i.e., intensify the daily impact of social interactions on emotion) during adolescence.

Results provide preliminary evidence that everyday discrimination earlier in adolescence relates to aspects of emotion and social interactions years later. These associations may emerge during adolescence because youth experience profound socioemotional changes including shifts in demands, increased independence, and heightened investment in and sensitivity to their social relationships (Steinberg & Morris, 2001). Youth must cope with varied demands (e.g., social, academic) during adolescence, and marginalized youth must also cope with everyday discrimination. These experiences include the indignities and challenges that individuals regularly face, and may be indicative of how larger systems of power including racism and sexism negatively affect other aspects of individuals' lives including their educational and professional opportunities (Williams et al., 2003). As a result, everyday discrimination may have long-term implications for adolescents' development, including their emotion and social interactions, during this sensitive period when many are highly vulnerable to psychopathology (Arnett, 2004). Although we identified one potential pathway, future research is needed to further assess the myriad means by which everyday discrimination can impact development across adolescence.

Results have implications for how schools and local communities can foster better adjustment among racially diverse youth. Despite indexing discrete acts, this measure of everyday discrimination is thought to be indicative of individuals' daily exposure to systems of power such as racism and sexism (Williams et al., 1997). Youth cannot be expected to thrive when regularly encountering discrimination, and the onus is not on youth—particularly those with minoritized identities—to modulate how they respond to discrimination. Rather, structural supports are needed to support youth as they cope with discrimination and its far-reaching social and emotional consequences. Schools and communities can foster more equitable environments by promoting inclusion among students, particularly those from non-minoritized backgrounds, to reduce experiences of discrimination. For instance, white parents can engage in ethnic–racial socialization to promote anti-racism (Hazelbaker et al., 2022), and teachers can engage in anti-racist pedagogy to promote more equitable learning and student experiences (Curenton et al., 2022). Schools can validate students' experiences and send messages promoting diversity rather than colorblind messages. A prior study found that racially minoritized youth who attended schools with more colorblind messages tended to have more anger toward injustice (Bañales et al., 2021). Given evidence that exposure to racial diversity can reduce bias in line with the contact hypothesis (Gaias et al., 2018) and that segregation is worsening in many public school systems (Fuller et al., 2019), efforts to reduce segregation in both classrooms and neighborhoods may have lasting impacts on youth development by shaping their emotion and social interactions.

Limitations

Conclusions from this study should be understood in the context of its strengths and limitations. First, everyday discrimination was subjectively measured via self-report. Although data were collected every 2 years, scales assessed the frequency of everyday discrimination over the past year. Adolescents' experiences of everyday discrimination can vary each year, and a measure of the number of experiences for each year would better strengthen analyses, especially given the low frequency of everyday discrimination in this sample. Study implications were also limited by the measure of everyday discrimination. Although the Everyday Discrimination Scale is a well-established scale designed to measure more chronic aspects of discrimination that has been validated among racially diverse groups (Kim et al., 2014; Lewis et al., 2015; Williams et al., 1997), the scope of the scale is narrow as it does not capture other aspects of discrimination and pervasive societal phenomena such as racism and sexism more specifically. Multiple scales of discrimination and items regarding more objective experiences and structural aspects of discrimination may improve measurement and further illuminate how discrimination shapes well-being (Benner & Graham, 2013; Lewis et al., 2015).

There were also limitations of the study design. The concurrent mediation analyses involve measures collected at the same time point, such that results cannot suggest a directional pathway. Although the longitudinal change models and longitudinal models provided some evidence for sensitivity of daily conflicts to everyday discrimination and that everyday discrimination may promote more frequent conflicts across four-year period indirectly through increases in anger, further studies with intensive daily and monthly sampling are needed to better identify the timing over which this pathway occurs. It is also possible that associations between discrimination and daily conflicts are inflated because negative social interactions may center around daily experiences of discrimination. Future studies should explicitly assess the content of conflicts to rule out this possibility. Because of the study design—with up to three observations per adolescent—we could not reliably disaggregate variance at the level of years and the level of adolescents. Studies with more yearly assessments per adolescent can disaggregate associations at the level of years versus adolescents to assess whether youth have more anger and negative social interactions in years when they experience more discrimination and whether adolescents who on average experience more

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discrimination may also have more negative emotion and negative social interactions on average across adolescence.

There was also a high level of attrition across waves, and participants with lower parental education and Asian Americans participated in fewer possible waves of the study. It is possible that these participants may experience more everyday discrimination or be more vulnerable to the consequences of everyday discrimination, attenuating the observed associations in the present study. Also, participants who get along with other people less frequently had lower participation rates, which may have attenuated results regarding positive social interactions. Finally, participants were from the greater Los Angeles area. Results may not extend to racial groups not represented in the sample, and strength of associations may vary with geographic region and local community factors such as racial composition and political leaning.

Future studies and implications

Daily social interactions are dyadic, and further research can investigate the impact of everyday discrimination on adolescents' relationships with other people. For instance, although it is possible that close friends and family may negatively respond to adolescents' expressions of anger such that these individuals may experience more negative daily interactions (e.g., Friedman et al., 2004; Yoo et al., 2011), further research is needed to identify the pathways that contribute to these relationships over time. Previous research has suggested that discrimination can also influence the health of close family members (e.g., Hou et al., 2017). These effects may be related to the greater frequency of conflicts with family members that were reported by adolescents who experience more everyday discrimination in the present study.

Given the pervasive consequences of discrimination, it is possible that these youth may be positioned for poorer emotional and social well-being over time. Adolescents and adults experience anger in similar ways (Quinn et al., 2014), such that youth who report greater anger in adolescence may also report greater anger in adulthood. Among adults, discrimination can lead to less satisfying and more unstable romantic relationships through greater frequency of negative daily social interactions (e.g., Hammond & Overall, 2013; Lavner et al., 2018). It is possible that experiences of discrimination in adolescence may similarly have implications for adolescents' romantic relationships, as well as their relationships in adulthood. Further research can examine means for reducing the negative impacts of everyday discrimination on interpersonal relationships throughout development.

CONCLUSION

Study findings suggest that everyday discrimination is related to poorer psychosocial well-being with respect to both emotion and daily events among adolescents, and associations are found for both greater negative well-being and reduced positive well-being. Furthermore, results suggest that everyday discrimination relates to both conflicts and changes in conflicts over time indirectly through anger among adolescents. Associations between everyday discrimination and daily social interactions may be important during adolescence, when youth spend much of their time with friends and family. Further research can investigate the factors that promote adolescent resilience and the means by which everyday discrimination negatively impacts the emotion, well-being, and relationships of friends and family, as well as how specific forms of discrimination and systems of power may differentially impact adolescent development. By identifying how everyday discrimination impacts psychosocial well-being, research can better contextualize long-term outcomes of everyday discrimination for adolescents and the people with whom they interact and identify means to ameliorate these outcomes at a community and societal level before they progress into adulthood.

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