

Inter-Relations Between Ethnic-Racial Discrimination and Ethnic-Racial Identity Among Early Adolescents

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The authors examined whether the longitudinal inter-relations between ethnic-racial discrimination and ethnic-racial identity vary according to the perpetrator of discrimination. The authors used three waves of data from early adolescents ($n = 387$; ages 11–12 at Wave 1) to assess the strength and direction of relations between perceived discrimination from non-school adults and peers vis-à-vis ethnic-racial identity exploration, commitment, private regard, and public regard. Cross-lagged autoregressive path analyses showed that more frequent discrimination, regardless of source, had reciprocal and significant longitudinal inter-relations with exploration and public regard. Peer discrimination predicted lower commitment and private regard 1 year later, whereas non-school adult discrimination did not. Implications are discussed in relation to the role of peers and ethnic-racial identity processes.

A fundamental task for ethnic-racial minority youth in the United States is to develop a positive ethnic-racial identity. Broadly, ethnic-racial identity is the part of one's social identity that is based on membership in one or more ethnic-racial groups (Verkuyten, 2016). In the literature, studies have sought to understand the content, meaning, and significance of ethnic-racial identity (content models) as well the processes through which ethnic-racial identity develops (process models; Galliher, Rivas-Drake, & Dubow, 2017; Umaña-Taylor et al., 2014). Over the course of adolescence, most youth develop positive ethnic-racial identities, characterized by a sense of belonging, favorable attitudes, and commitment to their group (Meeus, 2011). Adolescents with positive ethnic-racial identities also evidence better psychological well-being (Elmore, Mandara, & Gray, 2012; Smith & Silva, 2011; Smith & Trimble, 2016), academic achievement (Miller-Cotto & Byrnes, 2016), and physical health (Rivas-Drake et al., 2014).

While positive ethnic-racial identities are important assets for ethnic-racial minority youth, the ethnic-racial discrimination that they experience is both pervasive and harmful. The National

Academy of Sciences define ethnic-racial discrimination as differential treatment on the basis of ethnicity-race or on the basis of inadequately justified factors other than ethnicity-race that disadvantage an ethnic-racial group (National Research Council, 2004). The majority of ethnic-racial minority youth report having experienced ethnic-racial discrimination (Umaña-Taylor, 2016), and those who have experienced it more frequently report less favorable academic adjustment, greater psychological distress, and more risk-taking behaviors (Benner et al., 2018).

Both ethnic-racial identity processes and understandings of discrimination become especially salient during the transition into adolescence (Hughes, Watford, & Del Toro, 2016; Umaña-Taylor et al., 2014), a developmental period marked by expansive cognitive, social, and physical changes. Moreover, they iteratively inform each other (Yip, 2018). Studies have found that ethnic-racial discrimination prompts varied components of ethnic-racial identity (Derlan et al., 2014; Umaña-Taylor & Guimond, 2010) and that, similarly, ethnic-racial identity shapes perceptions of ethnic-racial discrimination (Sellers & Shelton, 2003). However, only recently have longitudinal studies sought to disentangle the temporal ordering of these dynamics during adolescence (Pahl & Way, 2006; Seaton, Yip, & Sellers, 2009). Due to the significance of early adolescence

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as a stage during which these processes become especially salient (Brown & Bigler, 2005; Yip, 2018), understanding the dynamic relations between ethnic-racial identity and discrimination at early adolescence seems critical for identifying how to best promote ethnic-minority youth's optimal development.

The present study examined longitudinal relations between ethnic-racial discrimination and ethnic-racial identity during adolescence, building upon existing literature regarding these relations in several ways. First, existing longitudinal studies have tested the identity–discrimination relations during middle or late adolescence (Cheon & Yip, 2019) or in mixed aged groups (Butler-Barnes, Richardson, Chavous, & Zhu, 2018). We examined these relations in youth ages 11–12 at baseline, permitting us to hone in on the period of early adolescence as one in which identity–discrimination relations may be distinct. Second, whereas prior studies have examined constructs within either the identity process or the identity content framework (see Cheon & Yip, 2019 for an exception), the present study included identity measures from both the process and the content frameworks, enabling us to address questions about whether discrimination is differentially related to identity *process* versus *content* that have emerged in prior studies (Gonzales-Backen et al., 2018; Seaton et al., 2009). Third, the importance of distinguishing peer-based discrimination from adult-based discrimination has emerged in the literature on adolescents and young adults (Benner & Wang, 2017; Del Toro & Hughes, 2019), but only a few studies have examined whether these sources of discrimination are differentially associated with ethnic-racial identity (Pahl & Way, 2006; Rivas-Drake, Hughes, & Way, 2009). Thus, an important goal of the study was to examine discrimination from peers versus adults vis-à-vis components of ethnic-racial identity during a developmental period when relationships with peers escalate in importance (Brown & Larson, 2009). Finally, the sample included Black, Dominican, and Chinese American youth, and thus we also explored ethnic-racial group differences.

Ethnic-Racial Identity vis-à-vis Ethnic-Racial Discrimination During Adolescence

The idea that varied components of ethnic-racial identity are intimately linked to individuals' ethnic-racial discrimination experiences has been evident in the literature for several decades (Branscombe, Schmitt, & Harvey, 1999; Crocker & Major, 1989;

Cross, 1995). In both ethnic-racial identity process and content literatures, multiple links have been proposed.

Developmental Process Models

Rooted in ego-identity theory (Erikson, 1968), developmental models have focused on understanding sequential processes through which youth come to develop a sense of belonging and commitment to an ethnic-racial group. Process models draw attention to two key identity concepts: exploration and commitment (Marcia, 1966; Meeus, 2017; Phinney, 1989). *Exploration* is an individuals' active search for information about the meaning of their group membership, whereas *commitment* or resolution is one's sense of clarity about what their ethnic-racial group means to them (Phinney, 1989). Both concepts have been considered vis-à-vis discrimination experiences. For instance, discrimination experiences are hypothesized to prompt identity exploration in Cross (1995)'s Nigrescence Model of Black Identity and to prompt identity commitment in Branscombe et al. (1999)'s *rejection-identification model*. In the opposing direction, in the *identification-attribution model*, identity processes are thought to predict heightened perceptions of discrimination (Gonzales-Backen et al., 2018).

To date, seven longitudinal studies of adolescents have examined relations between ethnic-racial discrimination and identity exploration (Cheon & Yip, 2019; Gonzales-Backen et al., 2018; Pahl & Way, 2006; Toomey, Umaña-Taylor, Updegraff, & Jahromi, 2013; Umaña-Taylor & Guimond, 2010; Zeiders et al., 2019). Findings from these studies have been quite mixed. Two studies reported that earlier discrimination predicted later exploration: One documented these relations among Asian American (but not Latino) high school students (Cheon & Yip, 2019) and the other documented these relations among Black and Latino high school students when discrimination originated from peers but not when it originated from adults (Pahl & Way, 2006). In neither of these studies did earlier discrimination predict later exploration. In the opposing direction, Gonzales-Backen et al. (2018) found that recent immigrant Latino middle adolescents who reported more frequent exploration perceived more ethnic-racial discrimination 1 year later, but earlier discrimination did not predict later exploration. No relations between ethnic-racial discrimination and exploration emerged in either direction among Mexican origin adolescent mothers (Toomey et al., 2013; Zeiders et al., 2019), and

Umaña-Taylor and Guimond (2010) similarly found no longitudinal relations between discrimination and exploration among Latino ninth and tenth graders.

In studies of identity commitment and resolution, the literature is similarly inconclusive. In Zeiders et al. (2019)'s study, Mexican origin adolescent mothers who reported higher discrimination reported lower commitment later on, but earlier commitment did not predict later discrimination. In contrast, in Cheon and Yip (2019)'s study, relations between more frequent ethnic-racial discrimination and greater identity commitment were reciprocal, but only among Asian (as opposed to Latino) students and only in within-person (as opposed to between person) analyses. In yet another pattern, Gonzales-Backen et al. (2018) found that recent immigrant adolescents who reported greater identity commitment reported less (rather than more) discrimination later on, in both within- and between-person analyses. However, Umaña-Taylor and Guimond (2010) found that discrimination was unrelated to identity commitment among Latino ninth and tenth grade adolescents.

In sum, although an understanding of the interrelations between youth's discrimination experiences and their identity processes is critical for promoting positive development across contexts, researchers' knowledge about the nature of these relations longitudinally is based on a small literature that has yielded conflicting findings. Moreover, studies have been vastly different in terms of population studied (age, ethnicity-race, region, immigrant status, school context), interval between assessment, analytic approach, and measurement. Moreover, several studies were based on samples with unique characteristics that may render identity processes unique (e.g., Mexican origin adolescent mothers, recent immigrant teens). Overall, then, although one can conclude that mechanisms linking identity and discrimination from varied frameworks can occur (e.g., proof of existence), one task for researchers is to disentangle the boundaries of when particular linking mechanisms are more or less likely.

Identity Content Models

Studies of ethnic-racial identity content have a foundation in Social Identity Theory, which emphasizes the importance of group membership and social category knowledge for establishing a coherent sense of self (Turner, Brown, & Tajfel, 1979) and as a referent for feelings of inclusion and

affirmation (Ashmore, Deaux, & McLaughlin-Volpe, 2004; Luhtanen & Crocker, 1992). Scholars studying ethnic-racial identity within this framework have featured how central particular social categories are to one's sense of self (centrality), how salient they are across contexts (salience), and in two evaluative components—private and public regard (Luhtanen & Crocker, 1992; Sellers, Rowley, Chavous, Shelton, & Smith, 1997). *Private regard* (also referred to as affirmation) references one's personal evaluations of one's ethnic-racial group, whereas *public regard* captures one's perceptions of others' evaluations of one's group (Sellers et al., 1997). In the present study, we focused on the two evaluative components, private and public regard, which have each been theorized to be associated with discrimination, albeit in varied ways.

Existing frameworks variously suggest that discrimination would lead to and result from less favorable private regard. In Cooley (1902)'s concept of *the looking glass self*, an individual's self-concept will reflect how they believe others' view them, based on the nature of interactions with others in society (i.e., more frequent discrimination would predict lower regard). In the rejection-identification model (Branscombe et al., 1999), however, more frequent discrimination is thought to lead to more favorable views of one's own group (higher private regard), whereas in the identification-attribution model (Gonzales-Backen et al., 2018), more favorable private regard is thought to increase the likelihood of perceiving discrimination.

Findings from longitudinal studies of private regard and discrimination during adolescence have been mixed. More frequent discrimination was not significantly associated with lower private regard later on in several studies of African American, Latino, and/or Asian adolescents (Butler-Barnes et al., 2018; Cheon & Yip, 2019; Pahl & Way, 2006; Sellers & Shelton, 2003). In the Cheon and Yip (2019) study, however, higher private regard predicted lower perceived discrimination later on among Latino (but not Asian) students, suggesting that favorable in-group views reduced the likelihood of perceiving discrimination. In contrast, Zeiders et al. (2019) reported that Mexican origin adolescent mothers who experienced more frequent discrimination reported lower private regard the next year, but private regard did not predict perceived discrimination. Finally, studies have documented longitudinal relations between more frequent discrimination and lower private regard among some groups but not others, including mid-to-late adolescent Latino boys (but not girls;

Umaña-Taylor & Guimond, 2010), African American late (but not middle adolescents; Seaton et al., 2009), and Chinese early (but not late) adolescents (Hou, Kim, Wang, Shen, & Orozco-Lapray, 2015).

Regarding public regard, scholars have suggested both that discrimination experiences increase awareness of low public regard and individuals who have lower public regard may be more likely to perceive ambiguous situations as ethnic-racial discrimination. Four longitudinal studies have examined the relation between discrimination and public regard during adolescence. Seaton et al. (2009) found that African American middle adolescents who reported more discrimination reported lower public regard 1 year later. In addition, between the second and third assessments, those who reported lower public regard reported higher discrimination later on. Butler-Barnes et al. (2018) found that school-based discrimination was associated with lower public regard among adolescent girls but not among adolescent boys. However, non-significant relations between discrimination and public regard have also been reported among African American college freshmen (Sellers & Shelton, 2003) and among Latino high school students (Stein, Taylor, Kulish, & Gonzalez, 2017).

In sum, the small body of literature that has examined relations over time between discrimination and content components of identity have produced varied results. Notably, these studies differ from each other in critical ways, including sample characteristics (ethnic-racial background, immigrant status, stage of adolescence), sample size (from under 200 to over 1,000), study design (from two to six waves), and analytic approach (within-person vs. between-person analysis). As a result, studies have provided empirical support for multiple existing frameworks that pose contradictory propositions. Thus, substantial work is required to further understand the pattern of extant findings.

Peer Versus Non-Peer Sources of Ethnic-Racial Discrimination and Ethnic-Racial Identity

Peers are pivotal actors in adolescents' social worlds. Adolescents are more interested in spending time and fitting in with their peers than with other people with whom they have relationships (Brown & Larson, 2009), and their sense of affirmation and belonging is closely tied to peer acceptance and approval (Blakemore, 2008). Peers also play an important role in shaping adolescents' ethnic-racial identities (Umaña-Taylor et al., 2014). Studies have found that the presence of co-ethnic peers can

support and affirm youths' ethnic-racial identities (Kiang, Witkow, Baldelomar, & Fuligni, 2010; Phinney, Romero, Nava, & Huang, 2001), that a more ethnically racially diverse friend group is associated with increased exploration (Rivas-Drake, Umaña-Taylor, Schaefer, & Medina, 2017), and that schools' ethnic-racial diversity can modulate peers' influence on adolescents' identity regard (Santos, Kornienko, & Rivas-Drake, 2017).

A handful of studies have found that discrimination from peers may be especially relevant to identity processes relative to discrimination from adults. For example, more frequent discrimination from peers but not from adults has been found to predict greater exploration among ninth and tenth grade Black and Latino adolescents (Pahl & Way, 2006), less favorable private regard among Black, Latino, and Asian sixth grade adolescents (Rivas-Drake et al., 2009), and lower public regard among White, Black, and Latino high school students with an achieved identity statuses (Douglass & Umaña-Taylor, 2017). Douglass and Umaña-Taylor (2017) suggested that adolescents may be less well-equipped to disregard negative and harmful messages embedded in discrimination when such discrimination comes from peers as opposed to adults, due to the fact that peers are considered to be highly credible sources. Collectively, these studies suggest that discrimination from peers may play an especially important role in shaping adolescents' ethnic-racial identity development relative to discrimination from adults.

Ethnic-Racial Group Differences

Experiences of marginalization differ among ethnic-racial minority groups in the United States (Garcia Coll et al., 1996). Thus, relations between ethnic-racial discrimination and identity may also vary across groups. Three studies that have examined the discrimination-identity link among multiple ethnic-racial groups have found group differences. Pahl and Way (2006) found that peer discrimination was more strongly associated with identity exploration for Black youth than for their Latino peers. Cheon and Yip (2019) found inter-relations between identity process components and discrimination for Asian youth (but not for Latino youth) and inter-relations between identity content components and discrimination for Latino youth (but not for Asian youth). In Douglass and Umaña-Taylor (2017)'s study of Black, Latino, and White youth, ethnic-racial group differences were documented within identity statuses for the association between peer/adult discrimination

and public regard. Additionally, across the literature taken as a whole, different findings have emerged in studies of different ethnic-racial groups. For example, profiles of identity process components were unrelated to discrimination for Black youth (Seaton, Yip, Morgan-Lopez, & Sellers, 2012), but process components predicted discrimination for Latino youth (Gonzales-Backen et al., 2018).

The Present Study

We explored the longitudinal cross-lagged relations between ethnic-racial discrimination from peers versus adults vis-à-vis four identity components that have been central to the ethnic-racial identity literatures concerning developmental process (exploration and commitment) and content (private regard and public regard). Due to the fact that myriad and conflicting empirical findings exist on the nature of ethnic-racial discrimination–identity relations, our study was exploratory. In the present study, we had two primary goals. The first goal was to examine the temporal ordering of relations between ethnic-racial discrimination and ethnic-racial identity during early adolescence, when both become increasingly salient. We examined cross-lagged models, which are designed to estimate directional influences between variables over time by comparing the relation between variable X at Time 1 and variable Y at Time 2 to the relation between variable Y at Time 1 and variable X at Time 2. We also formally tested whether a parameter estimate for prior discrimination to later identity was reliably different from that for prior identity to later discrimination.

The second goal was to explore whether ethnic-racial discrimination from peers versus non-school adults was differentially associated with the four ethnic-racial identity components. Due to the central importance of peers in providing a sense of affirmation and belonging during early adolescence (Dumontheil, Wolf, & Blakemore, 2016; Way & Silverman, 2012), we were especially interested in exploring whether differential relations emerged for commitment and private regard, the two aspects of identity that reflect adolescents' *ethnic-racial affect*, or how "good, happy, and proud" (Rivas-Drake et al., 2014) youth feel about their ethnicity-race. Specifically, we expected that discrimination from peers would be more strongly associated with commitment and private regard compared to discrimination from adults. However, we did not necessarily expect to find such differential relations for exploration and public regard, due to the

possibility that the information contained in discrimination, regardless of its source, prompts both exploration and awareness of low public regard. We also hypothesized that early adolescents who were exploring their identities more often and had lower public regard would later report more frequent ethnic-racial discrimination from both peers and adults, under the assumption that exploration and public regard would yield greater knowledge about and awareness of the existence of discrimination.

Finally, because our sample included Black, Dominican, and Chinese American youth, we explored ethnic-racial group differences. Because no unified pattern emerged among studies that have found ethnic-racial group differences in relations between discrimination and identity (Cheon & Yip, 2019; Douglass & Umaña-Taylor, 2017; Pahl & Way, 2006), we did not generate a priori hypotheses regarding group differences; thus, these analyses were exploratory.

The present study had several strengths that may shed light on existing inconsistencies in several ways. First, the inclusion of identity constructs from both process and content models enabled us to examine whether inconsistencies across studies are a function of different identity frameworks underlying different studies. Second, the inclusion of youth from multiple ethnic-racial groups, including African American, Dominican, and Chinese enabled us to examine whether some of the inconsistencies across studies are a function of differential processes in different ethnic-racial groups. Third, rather than drawing inferences about directionality by comparing the size or significance of cross-lagged paths, we formally tested whether or not these paths were reliably different. Finally, whereas prior studies have examined discrimination–identity relations longitudinally over the course of mid- and late-adolescence, the fact that our sample was uniformly 11–12 years of age at baseline permitted us to partially investigate whether such inconsistencies may be attributed to age-specific patterns.

Method

Participants

The early adolescents in the present study participated in the Early Adolescent Cohort (EAC) study of the Center for Research on Culture, Development, and Education at New York University. The EAC study was a large mixed methods longitudinal study of adolescents' experiences across peer, school, family, and

neighborhood contexts during the middle school years, which has been described elsewhere (Hughes et al., 2008). The analytic sample consisted of 387 adolescents who identified as Black ($n = 149$; 38.5%), Dominican American ($n = 114$; 29.5%), and Chinese American ($n = 124$; 32.0%; see Supporting Information for exclusionary criteria). Table 1 presents the demographic characteristics for each ethnic-racial group by sex, maternal education, school, and immigrant status. There were no differences in the gender composition of adolescents from the three ethnic-racial groups, $\chi^2(2) = 2.47, p = ns$. Relative to Black and Dominican American youth, Chinese American youth were more likely to come from households with mothers who were less well educated, $F(2, 388) = 9.38, p < .001$. Black and Dominican American youth in the sample were represented at all six schools, and Chinese American youth were represented at three of the six schools. Black youth were significantly more likely to identify as native-origin (third generation) than were their Dominican American and Chinese American peers, $\chi^2(2) = 165.74, p < .001$.

Procedure

The procedure for the present study is described in detail elsewhere (Hughes et al., 2008). Principal investigators first identified public middle schools in which at least three of the four ethnic-racial

groups initially targeted for the larger study (i.e., Black, Dominican American, Chinese American, and White) constituted 20% or more of the student population. Each of the six schools we initially approached agreed to participate in the study and all had a sixth-through-eighth-grade structure. We recruited students in all non-English as a second language sixth grade classrooms at the first assessment. For the seventh and eighth grade assessments, we permitted non-participating students to enter the study. Research assistants distributed and collected consent forms for a 2- to 3-week period in students' homeroom classes. The principal investigators provided students with a small non-monetary incentive for their participation. Overall, 77% of recruited adolescents returned parental consent forms and 78% of those had affirmative parental consent. We administered surveys in the spring of sixth, seventh, and eighth grades during two class periods that the school principal and teachers deemed appropriate. We collected data from two cohorts of adolescents; Cohort 1 was recruited in 2005 when students were sixth graders ($n = 188$), and Cohort 2 included adolescents recruited as sixth graders in 2006 ($n = 199$).

Measures

Ethnic-Racial Identity Exploration

We used a four-item measure, derived from the Multigroup Ethnic Identity Measure (MEIM; Phinney, 1992), to assess ethnic-racial identity exploration. Adolescents indicated the extent to which they questioned or sought information about their ethnicity-race using a 5-point Likert scale (e.g., "In order to learn more about my ethnic/racial background, I have often talked to other people about my ethnic/racial group"; 1 = *strongly disagree*, 5 = *strongly agree*). Internal consistency/reliability of the four-item measure was adequate across the three waves of study for each ethnic-racial group ($\alpha_{\text{time-range}}$ Black = .66-.84; $\alpha_{\text{time-range}}$ Dominican = .69-.75; $\alpha_{\text{time-range}}$ Chinese = .70-.81). A confirmatory factor analysis of the four items across the three waves indicated configural invariance as indicated by the acceptable fit indices, comparative fit index (CFI) = .97; root mean square error of approximation (RMSEA) = .04, 90% CI [.03, .06]. A chi-square difference test indicated that constraining the factor loadings to be equivalent across time did not diminish model fit, indicating metric invariance, $\Delta\chi^2(6) = 10.18, p = ns$. We assessed exploration using an observed mean score across the four items,

Table 1
Demographic Characteristics in Percent of the Analytic sample
($n = 387$) Presented by Ethnicity-Race

Demographic characteristics	Black ($n = 149$)	Dominican ($n = 114$)	Chinese ($n = 124$)
Gender			
%Girls	56.4	50.0	47.6
%Boys	43.6	50.0	52.4
Schools (diversity score)			
%School 1 (0.74)	2.0	0.9	15.3
%School 2 (0.69)	45.0	36.8	8.1
%School 3 (0.44)	25.5	5.3	0.0
%School 4 (0.33)	9.4	8.8	75.8
%School 5 (0.70)	10.7	19.3	0.8
%School 6 (0.50)	7.4	28.9	0.0
Maternal education			
%Less than high school	4.0	11.4	17.7
%High school	23.5	24.6	34.7
%Some college	19.5	14.0	10.5
%Bachelors or beyond	53.0	50.0	37.1
Generation status			
%Native-origin	66.4	6.1	4.8
%Immigrant-origin	33.6	93.9	95.2

which were coded such that higher values indicated more exploration.

Ethnic-Racial Identity Commitment

We assessed commitment using a four-item measure derived from the MEIM identity achievement subscale, which assessed ethnic-racial identity commitment and affirmation (Phinney, 1992). We omitted the three affirmation items from the original seven-item achievement measure because they were redundant with items that assessed private regard (e.g., "I am happy that I am a member of the ethnic/racial group I belong to"). Thus, the items captured the construct of commitment only (e.g., "I have a strong sense of belonging to my own ethnic/racial group"). Students rated each item on a 5-point Likert scale (1 = *strongly disagree*, 5 = *strongly agree*). The internal consistency/reliability was adequate across the three waves of study for each ethnic-racial group ($\alpha_{\text{time-range}}$ Black = .83–.85; $\alpha_{\text{time-range}}$ Dominican = .88–.89; $\alpha_{\text{time-range}}$ Chinese = .77–.85). A confirmatory factor analysis of these items across the three assessments indicated configural invariance, CFI = .98; RMSEA = .06, 90% CI [.04, .07]. A chi-square difference test indicated metric invariance, as constraining the factor loadings to be equivalent across time did not result in a significant decrement in model fit, $\Delta\chi^2(6) = 6.44$, $p = ns$. The measure was a unit-weighted mean score across the four items, which were coded such that higher values indicated higher commitment.

Private Regard

We used the private regard subscale of the Multidimensional Inventory of Black Identity (MIBI)-Teen (Scottham, Sellers, & Nguy en, 2008) which consisted of three items, with minor revisions such that references to "Black" were re-worded as references to "my ethnic/racial group." Students rated items on a 5-point Likert scale (e.g., "I feel good about people from my ethnic/racial group"; 1 = *strongly disagree*, 5 = *strongly agree*). The internal consistency/reliability was acceptable across the three assessments for each ethnic-racial group ($\alpha_{\text{time-range}}$ Black = .76–.78; $\alpha_{\text{time-range}}$ Dominican = .81–.85; $\alpha_{\text{time-range}}$ Chinese = .79–.87). A confirmatory factor analysis indicated configural invariance across the three assessments, CFI = .99; RMSEA = .04, 90% CI [.02, .06]. A chi-square difference test indicated metric invariance as factor loadings constrained to be equivalent across time did not result in a significant decrement in model fit,

$\Delta\chi^2(4) = 5.97$, $p = ns$. The resulting measure was an observed mean score of the three items, which were coded such that higher values indicated positive evaluations toward one's ethnic-racial group.

Public Regard

We assessed public regard using three items from the MIBI-Teen (Scottham et al., 2008). Adolescents indicated the extent to which they felt others value their group on a 5-point Likert scale (e.g., "A lot of people don't expect my ethnic/racial group to do well in life"; 1 = *strongly disagree*, 5 = *strongly agree*). The internal consistency was adequate across the three waves of the study and across the three ethnic-racial groups ($\alpha_{\text{time-range}}$ Black = .76–.87; $\alpha_{\text{time-range}}$ Dominican = .74–.86; $\alpha_{\text{time-range}}$ Chinese = .79–.85). Fit indices from a confirmatory factor analysis met the criteria for configural invariance across the three assessments, CFI = .99; RMSEA = .02, 90% CI [.00, .04]. A chi-square difference test indicated metric invariance, as constraining the factor loadings to be equivalent across time did not result in a significant decrement in model fit, $\Delta\chi^2(4) = 1.67$, $p = ns$. The resulting measure was a unit-weighted average of the three items, which were coded such that higher values indicated adolescents' perceived positive evaluations of others toward one's ethnic-racial group.

Ethnic-Racial Discrimination

Items assessing perceived ethnic-racial discrimination were adapted from measures used in prior studies (Greene, Way, & Pahl, 2006; Hughes, Del Toro, Harding, Way, & Rarick, 2016; Hughes & Johnson, 2001; Williams, Neighbors, & Jackson, 2003). Adolescents responded to items that assessed varied manifestations of covert and overt discrimination. We used the term *covert discrimination* to refer to perceptions that one has been the target of often unconscious negative attitudes and stereotypes pertaining to one's ethnic-racial group (e.g., others seeming uncomfortable around or afraid of you because of race or ethnicity), whereas we use the term *overt discrimination* to refer to instances of concrete and visible discrimination (e.g., name calling, bullying). The wording of items explicitly specified the source of ethnic-racial discrimination (peers, adults in school, adults outside of school), but items regarding different sources appeared in separate parts of the survey. The measure of discrimination from adults in school had substantial missing data in sixth grade as well as a low mean

and variance across waves, and thus we excluded it from the analysis. Missingness stemmed from instances in which (a) a teacher remained present in the classroom during survey administration or (b) research assistants ran out of time during survey administration and did not complete all measures in the protocol. For these reasons, we used items pertaining to ethnic-racial discrimination from peers and non-school adults in the present analysis. For each measure, adolescents rated items on a 5-point Likert scale (0 = *never*; 4 = *all the time*). An exploratory factor analysis using the sixth-grade assessment indicated that a three-factor solution best represented the data, with 16 items pertaining to non-school adults loading on a single factor and 18 items pertaining to peers loading on two separate factors representing overt (nine items) and covert (nine items) ethnic-racial discrimination, CFI = .99; RMSEA = .03, 90% CI [.02, .03]. However, measures of covert and overt types of peer ethnic-racial discrimination were highly correlated at each wave (r -range = .75–.82). Moreover, preliminary analyses revealed that the final results did not vary by type of peer ethnic-racial discrimination. Thus, we combined items pertaining to overt and covert peer ethnic-racial discrimination into a single measure. Internal consistency/reliability across the three ethnic-racial groups was adequate for the measure of discrimination from peers ($\alpha_{\text{time-range Black}} = .93-.98$; $\alpha_{\text{time-range Dominican}} = .93-.97$; $\alpha_{\text{time-range Chinese}} = .95-.97$) and for the measure of ethnic-racial discrimination from non-school adults ($\alpha_{\text{time-range Black}} = .95-.96$; $\alpha_{\text{time-range Dominican}} = .94-.95$; $\alpha_{\text{time-range Chinese}} = .92-.97$). High scores on each measure indicated more frequent perceptions of ethnic-racial discrimination. In prior work, trajectories of these measures of discrimination predicted academic, behavioral, and psychological adjustment (Hughes, Del Toro et al., 2016).

Ethnicity-Race

Adolescents indicated their ethnicity-race multiple times throughout the survey in each of the 3 years using both open-ended (e.g., "Please write down the ethnic-racial group you identify with most often") and closed-ended formats (e.g., "Are you . . . White, Black or African American, Dominican or Dominican American, Puerto Rican, Mexican or Mexican American, Chinese or Chinese American, Other ethnicity-race"). The majority of responses were consistent across time, but coders resolved inconsistencies by categorizing adolescents according to the self-label they used most often. As

an example, Dominican American adolescent's responses ranged from D.R., Dominican Republic, Dominican American but all were coded as Dominican American. One adolescent self-identified as "African American" and "Dominican" in varied waves but was coded as "Dominican" in accordance with the mothers' identification of her child as being "Dominican."

Covariates

In all primary analyses, we adjusted for demographic variables that have been associated with measures of ethnic-racial identity, ethnic-racial discrimination, or both in prior studies. Including statistical controls for these variables in the autoregressive models reduced the possibility that the ethnic-racial discrimination-identity relations were due to an unmeasured third variable. Demographic controls included sex (0 = *girl*; 1 = *boy*), cohort (1 = *Cohort 1*; 2 = *Cohort 2*), immigration status (0 = *both biological parents and the adolescent were US born*; 1 = *at least one biological parent or the adolescent was born abroad*), and maternal education (1 = *less than a high school degree*; 4 = *a bachelor's degree or more advanced*). We also included the ethnic-racial diversity index (Benner & Graham, 2011), which represents the probability of youth interacting with student-peers of different ethnic-racial groups (0 = *greater ethnic-racial homogeneity*, 1 = *greater ethnic-racial heterogeneity*). Notably, due to the fact that school records only provided information on whether students were Black, Asian, White, or Latino, the diversity index was based on those pan-ethnic categories. Finally, we included Rosenberg (1965)'s measure of self-esteem as a covariate in all analyses, due to the fact that self-esteem has been associated with both perceived discrimination (Harris-Britt, Valrie, Kurtz-Costes, & Rowley, 2007; Verkuyten, 1998) and with components of ethnic-racial identity (Umaña-Taylor, Vargas-Chanes, Garcia, & Gonzales-Backen, 2008). We used self-esteem as measured in the sixth grade because, on average, adolescents showed no change in self-esteem across the three waves.

Missing Data

Missing data is a common challenge in many longitudinal studies, including the present study. Among the analytic sample of 387, 240 adolescents (61.5%) contributed data at all three waves, whereas 147 (28.5%) contributed data for only two waves. Among those with two waves of data, 77 (52%) were recruited in seventh grade and returned to the

study in eighth grade. An additional 21 adolescents (15%) participated in sixth grade, did not participate in seventh grade, but returned in eighth grade. In all, 49 adolescents participated in sixth and seventh grades but did not return to the study in eighth grade. These two groups, one with all data and the other with two waves of data, were retained in the study as they were able to contribute to the longitudinal parameter estimates. Independent samples *t* tests comparing the 240 early adolescents with complete data to the 147 early adolescents with two waves of data on all major constructs at each wave plus covariates indicated that the two groups of students differed reliably in one of the 25 independent samples *t* tests: students with complete data reported greater exploration in the eighth-grade ($M = 2.79$, $SE = .06$) than their peers with incomplete data at the same assessment ($M = 2.57$, $SE = .08$), $t(332) = 2.13$, $p < .05$. According to Baraldi and Enders (2010), multiple imputation and full information maximum likelihood (FIML) perform better than other missing data approaches (e.g., listwise deletion of cases with missing values, or singly imputing missing values) in the context of missing at random. Results using FIML were similar to those using multiple imputation; thus, FIML results were retained and presented. Specifically, we retained all 387 using maximum likelihood with robust standard errors, which simultaneously estimates parameters using all available data and estimates robust standard errors in the context of non-normally distributed

data (Asparouhov & Muthén, 2010), which is the case for adolescents' self-reports of ethnic-racial discrimination in the present study.

Analytic Approach

We conducted all analyses in Mplus Version 8.3 (Muthén & Muthén, 1998–2019). We first examined descriptive data on all key study variables at each assessment, including means, standard deviations, zero-order correlations, and ethnic-racial group differences. To examine the longitudinal relations between peer versus adult ethnic-racial discrimination and each component of ethnic-racial identity, we estimated four cross-lagged and autoregressive path models, one for each identity component (Maxwell, Cole, & Mitchell, 2011; see Figure 1 for a visual depiction). Separate models were estimated to maintain model parsimony and because we had insufficient statistical power to simultaneously account for all components of identity in a single equation. Each model included autoregressive paths for each construct, covariation among the three constructs within each wave, and cross-lagged paths among peer ethnic-racial discrimination, non-school adult ethnic-racial discrimination, and each identity component. In Supporting Information, we reported our approach in model construction prior to testing the primary research questions. To examine the temporal ordering between discrimination and identity, we tested whether constraining the cross-lagged paths between two constructs to be

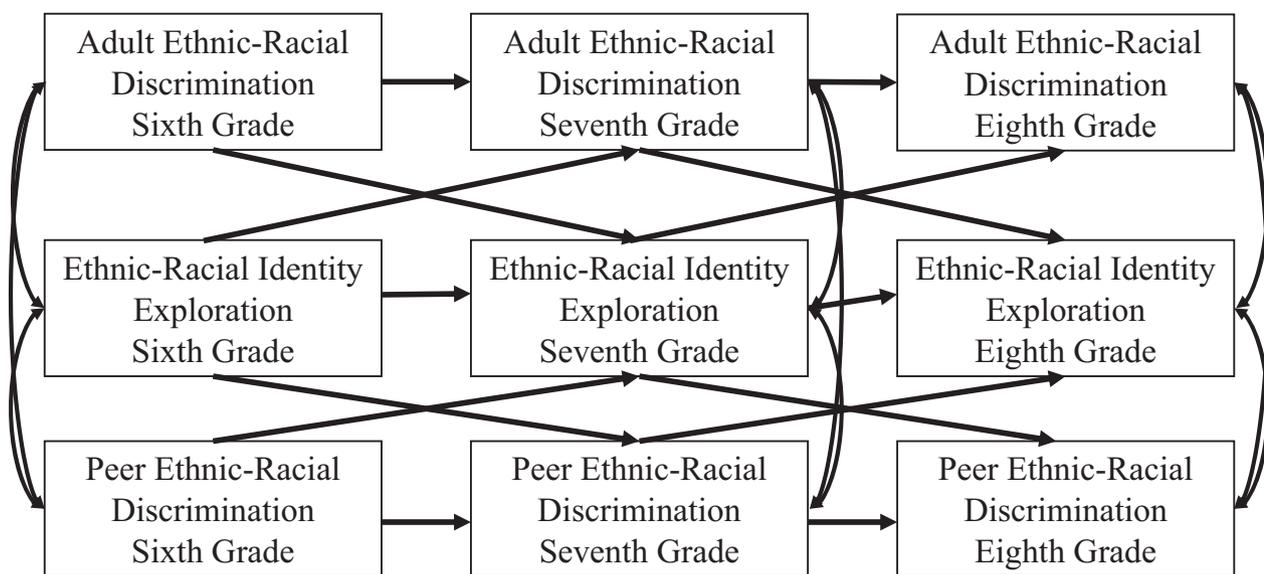


Figure 1. A visual depiction of a cross-lagged and autoregressive path model that examines the inter-relations among adult ethnic-racial discrimination, ethnic-racial identity exploration, and peer ethnic-racial discrimination.

equivalent to one another resulted in a significant decrement to model fit. Next, to examine the relative importance of discrimination from peers versus adults on identity components, we tested whether the path between adult discrimination and an identity component differed reliably from that between peer discrimination and an identity component, by determining whether constraining these paths to be equivalent yielded a significant decrement in model fit. Finally, we tested whether the final models in the last step varied by early adolescents' ethnicity-race using multi-group analyses with adolescents' ethnicity-race as the grouping variable. In all model comparisons, we performed chi-square difference tests to detect significant decrements in model fit. We evaluated all final models using the following criteria: RMSEA values less than .08, CFI above .90, and SRMR values below .09 indicate an acceptable model (Hu & Bentler, 1999).

Results

Descriptive Results

Table 2 shows means and standard errors for the study variables for each ethnic-racial group each year; Table 3 shows the zero-order bivariate correlations among these study variables. Adolescents reported relatively infrequent ethnic-racial discrimination from non-school adults or peers. Within year and within

ethnic-racial group, the reported frequency of ethnic-racial discrimination from adults did not differ reliably from the reported frequency of ethnic-racial discrimination from peers. On average, adolescents also reported infrequent identity exploration, with mean scores below the scale mid-point, but they reported relatively high commitment, private regard, and public regard. Table 2 shows the ethnic-racial group differences in ethnic-racial discrimination and identity constructs, which we have been described elsewhere (Hughes, Del Toro, & Way, 2017; Hughes, Harding, Niwa, Del Toro, & Way, 2017).

Cross-Lagged and Autoregressive Path Models: Ethnic-Racial Identity and Ethnic-Racial Discrimination

Table 4 shows the coefficients from each of the four final models in which we tested cross-lagged relations between components of ethnic-racial identity and perceived discrimination from adults and peers over time. Freely estimated parameters are included in Table S2.

Identity Exploration and Ethnic-Racial Discrimination

As Table 4 shows, in the final model for ethnic-racial identity exploration, early adolescents who reported more frequent ethnic-racial discrimination from both peers and adults reported higher levels of identity exploration 1 year later. Additionally,

Table 2
Means and Standard Errors of Study Variables by Ethnicity-Race

	Black	Dominican	Chinese	F-tests
Peer ethnic-racial discrimination sixth grade	0.40 (.06) _a	0.21 (.05) _a	0.64 (.08) _b	$F(2, 300) = 10.43, p < .001$
Peer ethnic-racial discrimination seventh grade	0.59 (.06) _a	0.30 (.06) _b	0.47 (.06) _{a, b}	$F(2, 354) = 6.16, p < .01$
Peer ethnic-racial discrimination eighth grade	0.56 (.07)	0.41 (.06)	0.41 (.05)	$F(2, 332) = 1.96, p = ns$
Adult ethnic-racial discrimination sixth grade	0.56 (.07) _a	0.25 (.05) _b	0.49 (.06) _a	$F(2, 293) = 6.64, p < .01$
Adult ethnic-racial discrimination seventh grade	0.70 (.07) _a	0.34 (.06) _b	0.45 (.05) _b	$F(2, 360) = 8.87, p < .001$
Adult ethnic-racial discrimination eighth grade	0.69 (.07) _a	0.49 (.06) _{a, b}	0.46 (.06) _b	$F(2, 329) = 3.83, p < .05$
Exploration sixth grade	2.86 (.09) _a	2.74 (.10) _{a, b}	2.53 (.08) _b	$F(2, 302) = 3.55, p < .05$
Exploration seventh grade	2.81 (.08)	2.92 (.08)	2.66 (.06)	$F(2, 352) = 2.89, p < .10$
Exploration eighth grade	2.71 (.08)	2.85 (.08)	2.65 (.08)	$F(2, 331) = 1.63, p = ns$
Commitment sixth grade	3.82 (.09) _a	3.96 (.11) _a	3.32 (.09) _b	$F(2, 301) = 11.25, p < .001$
Commitment seventh grade	3.71 (.09) _a	3.99 (.08) _b	3.42 (.07) _c	$F(2, 353) = 12.37, p < .001$
Commitment eighth grade	3.74 (.08) _a	3.90 (.10) _a	3.42 (.07) _b	$F(2, 331) = 8.78, p < .01$
Private regard sixth grade	4.45 (.07) _a	4.59 (.07) _a	4.16 (.08) _b	$F(2, 301) = 8.78, p < .001$
Private regard seventh grade	4.30 (.07) _a	4.48 (.08) _a	4.01 (.08) _b	$F(2, 356) = 8.61, p < .001$
Private regard eighth grade	4.26 (.07) _{a, b}	4.49 (.09) _a	4.13 (.07) _b	$F(2, 329) = 5.90, p < .01$
Public regard sixth grade	3.40 (.11) _a	4.07 (.09) _b	3.69 (.10) _a	$F(2, 301) = 9.69, p < .001$
Public regard seventh grade	3.45 (.10) _a	4.03 (.09) _b	3.86 (.07) _b	$F(2, 356) = 10.90, p < .001$
Public regard eighth grade	3.30 (.09) _a	3.80 (.10) _b	3.99 (.06) _b	$F(2, 330) = 16.62, p < .001$

Note. Different subscripts within rows indicate significant difference between ethnicity-race at the $p < .05$ level.

Table 3
Zero-Order Bivariate Correlations Among All Key Study Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. Peer ethnic-racial discrimination sixth grade	1																	
2. Peer ethnic-racial discrimination seventh grade	.33	1																
3. Peer ethnic-racial discrimination eighth grade	.23	.46	1															
4. Adult ethnic-racial discrimination sixth grade	.41	.29	.26	1														
5. Adult ethnic-racial discrimination seventh grade	.27	.61	.27	.39	1													
6. Adult ethnic-racial discrimination eighth grade	.29	.46	.69	.31	.39	1												
7. Exploration sixth grade	.07	.11	.12	.11	.10	.44	1											
8. Exploration seventh grade	.02	.11	.08	.10	.15	.45	.44	1										
9. Exploration eighth grade	.07	.06	.10	.15	.07	.60	.45	.52	1									
10. Commitment sixth grade	.04	.02	.02	.14	.03	.38	.60	.38	.39	1								
11. Commitment seventh grade	-.11	-.09	-.02	.06	-.05	.41	.38	.58	.39	.49	1							
12. Commitment eighth grade	.01	-.05	-.08	-.08	.02	.29	.31	.35	.54	.52	.54	1						
13. Private regard sixth grade	-.12	.03	.03	.04	-.04	.25	.29	.22	.22	.45	.33	.33	1					
14. Private regard seventh grade	-.22	-.11	-.07	-.07	-.04	.21	.25	.28	.15	.33	.51	.34	.36	1				
15. Private regard eighth grade	.02	-.10	-.19	.09	-.08	-.17	.21	.28	.28	.34	.44	.57	.37	.41	1			
16. Public regard sixth grade	-.35	-.21	-.18	-.48	-.29	-.23	.17	-.10	-.09	-.13	-.06	-.05	.01	.02	-.08	1		
17. Public regard seventh grade	-.25	-.45	-.29	-.30	-.55	-.39	.12	-.17	-.06	-.04	.01	.04	-.03	.04	.10	.39	1	
18. Public regard eighth grade	-.12	-.29	-.40	-.22	-.37	-.55	-.16	-.18	-.12	-.08	-.02	.00	-.02	-.02	.19	.34	.54	1

Note. Bolded values are significant at $p < .05$; non-bolded values indicate $p > .05$.

Table 4

Unstandardized Coefficients (SEs) for Cross-Lagged Paths for All Four Cross-Lagged Path Models Examining the Inter-Relations Between Each Source of Ethnic-Racial Discrimination and a Domain of Ethnic-Racial Identity

	B	SE	p Value
Model 1: Ethnic-racial discrimination and identity exploration			
Cross-lagged inter-relations ($t - 1 \rightarrow t$)			
Exploration \rightarrow peer ethnic-racial discrimination	.04	.02	< .05
Exploration \rightarrow adult ethnic-racial discrimination	.04	.02	< .05
Peer ethnic-racial discrimination \rightarrow exploration	.04	.02	< .05
Adult ethnic-racial discrimination \rightarrow exploration	.04	.02	< .05
Model fit: $\chi^2(25) = 43.21, p < .05, RMSEA = .04$ 90% [.02, .06], CFI = .98, TLI = .89, SRMR = .04			
Model 2: Ethnic-racial discrimination and identity commitment			
Cross-lagged inter-relations ($t - 1 \rightarrow t$)			
Commitment \rightarrow peer ethnic-racial discrimination	.00	.02	<i>ns</i>
Commitment \rightarrow adult ethnic-racial discrimination	.00	.02	<i>ns</i>
Peer ethnic-racial discrimination \rightarrow commitment	-.16	.06	< .01
Adult ethnic-racial discrimination \rightarrow commitment	.08	.05	<i>ns</i>
Model fit: $\chi^2(20) = 35.37, p < .05, RMSEA = .05$ 90% [.02, .07], CFI = .98, TLI = .89, SRMR = .03			
Model 3: Ethnic-racial discrimination and private regard			
Cross-lagged inter-relations ($t - 1 \rightarrow t$)			
Private regard \rightarrow peer ethnic-racial discrimination	.04	.04	<i>ns</i>
Private regard \rightarrow adult ethnic-racial discrimination	-.01	.03	<i>ns</i>
Peer ethnic-racial discrimination \rightarrow private regard	-.15	.07	< .05
Adult ethnic-racial discrimination \rightarrow private regard	-.01	.03	<i>ns</i>
Model fit: $\chi^2(22) = 36.80, p < .05, RMSEA = .04$ 90% [.01, .06], CFI = .98, TLI = .89, SRMR = .04			
Model 4: Ethnic-racial discrimination and public regard			
Cross-lagged inter-relations ($t - 1 \rightarrow t$)			
Public regard \rightarrow peer ethnic-racial discrimination	-.09	.02	< .001
Public regard \rightarrow adult ethnic-racial discrimination	-.09	.02	< .001
Peer ethnic-racial discrimination \rightarrow public regard	-.09	.02	< .001
Adult ethnic-racial discrimination \rightarrow public regard	-.09	.02	< .001
Model fit: $\chi^2(23) = 29.322, p = ns, RMSEA = .03$ 90% [.00, .05], CFI = .99, TLI = .96, SRMR = .02			

Note. RMSEA = root mean square error of approximation; CFI = comparative fit index; TLI = Tucker-Lewis index; SRMR = standardized root mean squared residual.

adolescents who perceived more frequent identity exploration reported more frequent ethnic-racial discrimination from peers and adults. Thus, in the final model, relations between ethnic-racial discrimination and exploration were reciprocal. In the subsequent analysis that tested equality constraints, there was no significant decrement in model fit when we constrained the parameter estimates from earlier adult and peer ethnic-racial discrimination to exploration 1 year later to be equal to parameter estimates from earlier exploration to adult and peer ethnic-racial discrimination 1 year later, $\Delta\chi^2(1) = 0.91, p = ns$, and $\Delta\chi^2(1) = 0.31, p = ns$, indicating that neither directional path was dominant. That is, prior discrimination was as likely to result in higher exploration later on as exploration was to result in higher perceived discrimination later on. Similarly, the cross-lagged paths for adult compared to peer discrimination vis-à-vis

exploration could be constrained to equality in both directions without a significant change in model fit, $\Delta\chi^2(1) = 2.94, p = ns$. Thus, relations between ethnic-racial discrimination and exploration did not vary by source of ethnic-racial discrimination. Finally, a chi-square test suggested that, in comparison to a model with these paths allowed to be freely estimated within each ethnic-racial group, a model with these results constrained to be equivalent across ethnic-racial groups did not result in a significant decrement in model fit, $\Delta\chi^2(23) = 20.92, p = ns$, suggesting that the results did not differ by adolescents' ethnicity-race.

Identity Commitment and Ethnic-Racial Discrimination

The second panel of Table 4 shows that, in the final model, ethnic-racial identity commitment was unrelated to perceived ethnic-racial discrimination

from peers or adults 1 year later. However, those who reported more frequent peer (but not adult) ethnic-racial discrimination reported lower identity commitment 1 year later. In the subsequent analyses, constraining the cross-lagged path from earlier peer ethnic-racial discrimination to later commitment to be equal to that from earlier commitment to later peer ethnic-racial discrimination resulted in a significant decrement in model fit, $\Delta\chi^2(1) = 7.33$, $p < .01$, indicating that the path between earlier peer discrimination and later commitment was stronger. In addition, constraining the parameter estimate for the paths from peer versus adult ethnic-racial discrimination to subsequent commitment resulted in a significant decrement in model fit, $\Delta\chi^2(1) = 6.42$, $p < .05$, indicating that peer discrimination was a significantly stronger predictor of commitment compared to discrimination from non-school adults. A chi-square test suggested that a model with these results constrained to be equivalent across ethnic-racial groups, in reference to a model with freely estimated pathways within ethnic-racial groups, did not lead to a significant decrement in model fit, $\Delta\chi^2(21) = 23.21$, $p = ns$, suggesting that these findings did not vary by adolescents' ethnicity-race.

Private Regard and Ethnic-Racial Discrimination

As shown in the third panel of Table 4, adolescents' earlier private regard did not predict adolescents' perceptions of peer or adult ethnic-racial discrimination 1 year later. However, adolescents who reported more discrimination from peers reported less favorable private regard 1 year later. Constraining parameter estimates for the reciprocal cross-lagged paths between peer ethnic-racial discrimination and private regard to be equal resulted in a significant decrement in model fit, $\Delta\chi^2(1) = 7.17$, $p < .01$, indicating that the path from earlier peer discrimination to later private regard was reliably stronger than the path from earlier private regard to later peer discrimination. Additionally, the paths for peer versus adult ethnic-racial discrimination could not be constrained to equality without causing a significant decrement to model fit, $\Delta\chi^2(1) = 4.27$, $p < .05$, indicating that the parameter estimate for peer discrimination was significantly larger than that for discrimination from non-school adults. A chi-square test suggested that a model with these results constrained to be equivalent across ethnic-racial groups did not fit the data less well compared to a model with freely estimated pathways within ethnic-racial groups,

$\Delta\chi^2(21) = 17.83$, $p = ns$, suggesting that the findings did not vary by adolescents' ethnicity-race.

Public Regard and Ethnic-Racial Discrimination

The bottom panel of Table 4 shows that relations between perceived ethnic-racial discrimination and public regard were reciprocal and of equal magnitude for peer versus adult ethnic-racial discrimination. Adolescents who reported less favorable public regard reported more ethnic-racial discrimination from peers and adults 1 year later, and those who reported more frequent ethnic-racial discrimination from peers and adults reported less favorable public regard 1 year later. None of the imposed constraints resulted in a reduction in model fit, including constraining the parameter estimates for the cross-lagged reciprocal paths, $\Delta\chi^2(1) = 1.82$, $p = ns$, the path from prior adult versus peer ethnic-racial discrimination to subsequent public regard, $\Delta\chi^2(1) = 0.00$, $p = ns$, and the path from prior public regard to subsequent adult versus peer ethnic-racial discrimination, $\Delta\chi^2(1) = 0.94$, $p = ns$. A chi-square test suggested that a model with these results constrained to be equivalent across ethnic-racial groups, in reference to a model with freely estimated pathways within ethnic-racial groups, did not reduce model fit, $\Delta\chi^2(23) = 26.36$, $p = ns$, suggesting that these findings were consistent across all three ethnic-racial groups.

Sensitivity Analyses

Due to the fact that a few adolescents ($n = 21$) only participated in the study in sixth and eighth grades, we tested in a sequential fashion whether adding 2-year cross-lagged paths and constraining these paths to be equivalent to the 1-year cross-lagged paths resulted in significant decrements to model fit. For identity exploration and public regard, adding 2-year cross-lags did not result in a significant decrement to model fit (exploration: $\Delta\chi^2(6) = 9.01$, $p = ns$; public regard: $\Delta\chi^2(6) = 6.23$, $p = ns$). Additionally, constraining these paths to be equivalent to the 1-year cross-lags did not result in a significant decrement to model fit (exploration: $\Delta\chi^2(6) = 7.78$, $p = ns$; public regard: $\Delta\chi^2(6) = 11.83$, $p = ns$), suggesting that the 1- and 2-year effects did not significantly differ. In other words, the longitudinal inter-relations between ethnic-racial discrimination and exploration, and between ethnic-racial discrimination and public regard were significant up to 2 years later. For commitment and private regard, adding 2-year cross-lags did not result in a

significant decrement to model fit (commitment: $\Delta\chi^2(6) = 10.25, p = ns$; private regard: $\Delta\chi^2(6) = 9.18, p = ns$). However, constraining these paths to be equivalent to the 1-year cross-lags resulted in a significant decrement to model fit (commitment: $\Delta\chi^2(6) = 14.23, p < .05$; private regard: $\Delta\chi^2(6) = 16.29, p < .05$), which suggests that the 1- and 2-year effects significantly differed from each other. After removing these constraints from the model, we found that none of the 2-year cross-lags emerged as significant.

To generate effect sizes, we used the command, *STDYX*, in the Output function of Mplus to generate standardized regression coefficients for the observed aforementioned significant pathways. Perceived ethnic-racial discrimination from each source was associated with a 0.05 *SD* increase in exploration 1 year later, and exploration was associated with a 0.03 *SD* increase in perceived discrimination from each source 1 year later. Perceived ethnic-racial discrimination from peers was associated with a 0.13 *SD* decrease in commitment 1 year later. Additionally, perceived ethnic-racial discrimination from peers was associated with a 0.12 *SD* decrease in private regard 1 year later. Perceived ethnic-racial discrimination from each source was associated with a 0.05 *SD* decrease in favorable public regard 1 year later; favorable public regard was associated with a 0.15 *SD* decrease in perceived discrimination from each source. The 0.05 and 0.15 effect sizes appear different because the standard deviations for public regard were larger ($SD_{\text{sixth-grade}} = 1.10$; $SD_{\text{seventh-grade}} = 1.03$; $SD_{\text{eighth-grade}} = 1.01$) than those for perceived discrimination from peers ($SD_{\text{sixth-grade}} = 0.63$; $SD_{\text{seventh-grade}} = 0.70$; $SD_{\text{eighth-grade}} = 0.71$) and adults ($SD_{\text{sixth-grade}} = 0.65$; $SD_{\text{seventh-grade}} = 0.65$; $SD_{\text{eighth-grade}} = 0.67$), but their magnitudes did not differ.

In supplemental analyses (see Supporting Information), we tested whether findings were robust to several alternate models. The pattern of findings remained the same when we adjusted for aspects of parental ethnic-racial socialization, mirroring several prior studies (Butler-Barnes et al., 2018; Umaña-Taylor & Guimond, 2010). We also explored whether gender moderated patterns of relations, which was only the case for public regard. Overall, the final models were robust to these additional covariates and between gender groups.

Discussion

The present study explored the longitudinal interrelations between ethnic-racial identity and ethnic-

racial discrimination. Specifically, we tested the strength and direction of relations between ethnic-racial discrimination and four ethnic-racial identity components, including exploration, commitment, private regard, and public regard. Multiple frameworks guided the analyses, including developmental models (e.g., Cross, 1995), which suggest that discrimination prompts greater identity exploration; the rejection-identification model (Branscombe et al., 1999), which suggests that discrimination precedes greater identity commitment and affirmation; the identification-attribution model (Gonzales-Backen et al., 2018), which suggests that identity components shape attributions to discrimination; and “the looking glass self” (Cooley, 1902), which suggests that discrimination would lead to lower private and public regard. Based on the literature on the role of peers during adolescence, we also explored whether ethnic-racial discrimination from peers versus non-school adults was differentially associated with these identity components. Finally, we explored whether relations varied across ethnic-racial groups. Below, we discuss findings relevant to each of the identity components.

In the current sample of early adolescents, longitudinal relations between ethnic-racial discrimination and identity exploration in the final model, after formally testing the equivalence of cross-lagged paths and paths from different sources, were reciprocal and supported multiple theoretical frameworks. Specifically, those who reported more frequent ethnic-racial discrimination also reported higher exploration the next year (in line with developmental process models) and those who reported more frequent exploration perceived more ethnic-racial discrimination 1 year later (in line with propositions of the identification-attribution model). Intuitively, this pattern of relations is not surprising. It seems likely that early adolescents who perceive that they are experiencing negative interactions based on ethnicity-race are more apt to talk with others or search sources of information to further clarify the meaning of their ethnic-racial group membership. It also seems likely that adolescents’ exploration of ethnic-racial dynamics in the United States would increase their propensity to attribute difficult interactions to ethnicity-race. However, although some existing studies have supported relations from prior discrimination to later exploration (Cheon & Yip, 2019; Pahl & Way, 2006) and from prior exploration to later discrimination (Gonzales-Backen et al., 2018), none of these studies reported that these relations were reciprocal. Both substantive and methodological explanations are

possible regarding the distinct findings of the present study. First, the early adolescents in the present sample were uniformly 11–12 years of age at the first assessment, several years younger than adolescents in prior studies. During this developmental stage, capabilities to perceive ethnic-racial discrimination emerge in tandem with the identity processes intended to understand the meaning of ethnicity-race (Brown & Bigler, 2005; Umaña-Taylor, 2016; Yip, 2018). Thus, it may be that processes of exploration and discrimination experiences are inseparable at this stage. From a methodological standpoint, prior studies have not formally tested whether equality constraints could be imposed on reciprocal paths, which may have also contributed to differential results.

Findings indicated that more frequent discrimination from peers and from non-school adults were similarly associated with identity exploration, in line with our expectations. In our formal test, a model in which we constrained parameter estimates for discrimination from peers and non-school adults to be equivalent fit the data as well as a model in which these parameters were permitted to vary, indicating that estimates for the consequences of ethnic-racial discrimination from these two sources did not differ reliably. Although Pahl and Way (2006) concluded that peer discrimination was a stronger predictor of exploration among Black and Latino high school students, discrimination from both peers and adults predicted exploration in their within-person analyses. Among early adolescents, who are just beginning to explore their identities and to understand discrimination, the source of discrimination may be inconsequential for the reciprocal relation between ethnic-racial discrimination and exploration.

Next, among early adolescents in the present sample, relations in the final model between discrimination and identity commitment were unidirectional and only significant when the source of discrimination was peers but not adults. Specifically, those who reported more frequent ethnic-racial discrimination from peers reported lower identity commitment later on but earlier identity commitment did not predict subsequent perceived discrimination. Thus, none of the results regarding ethnic-racial discrimination and commitment were consistent with the tenets of the rejection-identification model, in which more frequent discrimination should result in greater identity commitment (Branscombe et al., 1999) or with the tenets of the identification-attribution model (Gonzales-Backen et al., 2018), in which higher commitment should result in

perceptions of more frequent discrimination. However, Zeiders et al. (2019) also found that more frequent discrimination predicted lower commitment among adolescent Mexican mothers. It seems possible that discrimination is especially likely to be associated with lower commitment among groups who are especially sensitive or vulnerable, as both early adolescents and adolescent mothers are.

The importance of discrimination from peers relative to discrimination from non-school adults in predicting identity commitment was consistent with our a priori hypothesis. Due to the fact that commitment is closely tied to one's core views about the self, peers may be a uniquely salient force in the development of those views during early adolescence (Douglass & Umaña-Taylor, 2016). Indeed, prior research has found that adolescents (more so than children and adults) seek acceptance and feelings of belonging in the context of relationships with their peers (Blakemore, 2008) and that peers are informative sources of adolescents' self-concepts (Santos et al., 2017). Importantly, although we attribute our findings to the salient role of peers during early adolescence, we did not examine ethnic-racial discrimination from teachers or other adults in school, and thus could not distinguish between discrimination from adolescents' close relationships (e.g., peers, adults in school, and other familiar adults) versus non-close relationships (e.g., police, store owners, and other unfamiliar adults). Thus, it is also possible that the consequences of discrimination from peers in this study is a function of having experienced discrimination from central and important relationships rather than from peers, *per se*.

Turning to private regard, findings indicated that relations between ethnic-racial discrimination and private regard, like those for identity commitment, were unidirectional and were significant for discrimination from peers but not from adults. In other words, consistent with a priori hypotheses, early adolescents who reported more frequent discrimination from peers reported lower private regard 1 year later, but discrimination from adults was unrelated to later private regard. As with identity commitment, private regard is closely tied to the personal meanings that adolescents attach to the self and to their group. Again, however, because our measure of discrimination from adults focused on non-school adults only, it is possible that findings reflect different processes for close versus non-close relationships rather than peers versus adults.

Another notable finding was that private regard was not associated with perceptions of

discrimination from peers or adults 1 year later. The unidirectional pattern of effects is not aligned with either the rejection-identification framework or the identification-attribution framework. The observed discrimination-identity relations fit best with propositions within “the looking glass self” (Cooley, 1902), which theorizes that negative interactions with salient others in society dampen one’s feelings about one’s own group. Similar findings have been reported in several other studies (Derlan et al., 2014; Hou et al., 2015; Seaton et al., 2009; Zeiders et al., 2019), although non-significant relations have been reported as well (Cheon & Yip, 2019; Sellers & Shelton, 2003). One plausible explanation for the significant finding is that early adolescence is an especially vulnerable stage such that younger adolescents are less well equipped than are older adolescents to develop positive affect in the context of diversity. Supporting this possibility, Hou et al. (2015) found that perceived discrimination during adolescence predicted lower ethnic-racial affect 4 years later, but perceived discrimination during adulthood did not predict affect 4 years later. Therefore, the nature of the discrimination-identity link may be specific to the age of participants and the perpetrator of discrimination, consistent with our argument for identity commitment.

Finally, relations between ethnic-racial discrimination and public regard were of equal magnitude across different sources as well as reciprocal. Adolescents who reported more frequent ethnic-racial discrimination from peers and from adults reported lower public regard 1 year later, and adolescents who reported lower public regard reported more frequent ethnic-racial discrimination from peers and adults 1 year later. Consistent with our a priori hypotheses, regardless of whether the perpetrator is a peer or adult, ethnic-racial discrimination experiences likely provide information to adolescents regarding their groups’ status in the eyes of others. Likewise, early adolescents who believe that others devalue their group may be more likely than their counterparts to perceive interactions as discriminatory, regardless of who the perpetrator is. The general finding that more frequent discrimination is associated with lower public regard is consistent with findings from prior cross-sectional (Rivas-Drake et al., 2009; Stevenson & Arrington, 2009) and longitudinal studies (Butler-Barnes et al., 2018; Seaton et al., 2009). The finding that adolescents with lower public regard reported more frequent discrimination from peers and adults later on reflects processes suggested in the identification-attribution model, wherein varied components of youths’ identities

may predispose perceptions of discrimination. Seaton et al. (2009) also found that African American adolescents who reported lower public regard reported more discrimination later on.

Overall, then, patterns of discrimination-identity relations in the present study differed for affective (i.e., commitment and private regard) and non-affective (i.e., exploration and public regard) components of identity in this sample of early adolescents. Longitudinal relations of discrimination to public regard and exploration were reciprocal and of equal magnitudes for peer versus non-school adult sources of discrimination. For commitment and private regard, the longitudinal relations from discrimination to identity components were reliably stronger than the longitudinal relations from identity components to discrimination. More importantly, only peer discrimination predicted these affective identity components. These patterns unlikely reflect similarities in measurement or items, as we drew measures from the MEIM (Phinney, 1992) and the MIBI-teen (Scottham et al., 2008), which were administered on different days. We also removed items that were similar to each other but in different measures, and none of the identity components were highly correlated with one another. Thus, these affective and non-affective components of ethnic-racial identity appear to operate uniquely vis-à-vis discrimination.

To our surprise, the links between perceived discrimination and identity did not differ by ethnic-racial group. Whereas prior studies have documented ethnic-racial group differences (Cheon & Yip, 2019; Douglass & Umaña-Taylor, 2017; Pahl & Way, 2006), no group differences emerged in the present study. Given the observable ethnic-racial group differences among these mid- and late-adolescent studies, it may be that the identity-discrimination link becomes more differentiated across groups as youth age. During early adolescence, as we found, youth across diverse backgrounds may respond more similarly to their discrimination experiences, and discrimination experiences may similarly shape identity processes. However, the specific effect of peer discrimination on ethnic-racial affect for all groups is expected given prior studies have found that peer groups influence youth’s identity development processes among Latino, Asian, and Black adolescent samples (Kiang et al., 2010; Phinney et al., 2001; Rivas-Drake et al., 2009). Therefore, across ethnic-racial groups, it is likely that peers, or adolescents’ close relationships, may be important sources of their ethnic-racial affect throughout adolescence.

Strengths and Limitations

Relative to the existing literature, the current study had several strengths. First, our sample consisted of youth who were all the same age at the first assessment so that we could hone in on the period of early adolescence for our inquiry. Second, we examined identity process and content in a single study; thus, our understanding of ethnic-racial identity is not limited to a single framework. We also formally tested whether cross-lagged parameter estimates could be constrained to equality, rather than relying only on whether estimates were significant or not. This provided stronger evidence for directionality and temporal ordering across identity components than does examining patterns across studies in which the sample and methods also vary. Furthermore, by including controls not only for self-esteem and peer victimization, we found our results were robust to inclusion of these concepts. Finally, our sample was not only large but ethnically/racially diverse, permitting us to test the applicability of our findings for youth from varied ethnic-racial backgrounds. Moreover, the ethnic-racial make-up of the present study that included Dominican American youth is a contribution as extant studies among Latinos are primarily based on Mexican-origin adolescents. Although these youth may have displayed unique patterns of discrimination and identity, the strength of examining these constructs among Dominican Americans should motivate future research to test whether there are reliable similarities or differences between sub-ethnic groups.

Our study was also characterized by several limitations. First, there was insufficient power to test whether foreign-/native-born status or the intersection of ethnicity-race and gender moderated the longitudinal inter-relations between ethnic-racial discrimination and identity. Second, because the study relied on self-report data, we examined adolescents' perceived ethnic-racial discrimination as opposed to ethnic-racial discrimination measured objectively. Third, although the sample of schools was chosen to answer questions of conceptual interest, the sample was not representative of New York City or of the greater national context. Lastly, we did not measure ethnic-racial centrality and other identity content components at each assessment, precluding our abilities to include such components in the present study. These limitations should be considered in scholars' future research.

Implications for Future Research

The findings in the present study provide important information for future research. Because past research found inconsistent correlates between discrimination and commitment or private regard (Hou et al., 2015; Umaña-Taylor & Guimond, 2010), future research should distinguish and specify ethnic-racial discrimination from peers separately from other sources as the combination of multiple sources into a single measure can mask or wane significant relations when one source of discrimination predicts identity and the other source does not. Additionally, the distinction between sources would also provide scholars with precision to identify possible buffering mechanisms that reduce the effects of ethnic-racial discrimination from peers on commitment and private regard. This is especially important given the emergent consensus that ethnic-racial affect can result in a myriad of positive outcomes (Rivas-Drake et al., 2014), especially in the context of ethnic-racial adversity (Yip, 2018; Yip, Wang, Mootoo, & Mirpuri, 2019). Because of these positive consequences, there is a need among researchers to investigate source-specific interventions that effectively reduce instances of discrimination from peers among young adolescents.

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Supporting Information

Additional supporting information may be found in the online version of this article at the publisher's website:

Appendix S1. Unstandardized Parameter Estimates and Standard Errors of Stability Coefficients When Performing Step-Wise Multi-Level Univariate Autoregressive Path Analyses in Adolescents' Perceived Ethnic-Racial Discrimination (from Peers and Adults) and Ethnic-Racial Identity (Exploration, Commitment, Private Regard, and Public Regard)