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Intragroup Contact and Anxiety Among Ethnic Minority Adolescents: Considering Ethnic Identity and School Diversity Transitions

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Abstract

Everyday interactions with same-racial/ethnic others may confer positive benefits for adolescents, but the meaning of these interactions are likely influenced by individual differences and larger structural contexts. This study examined the situation-level association between contact with same-ethnic others and anxiety symptoms among a diverse sample of 306 racial/ethnic minority adolescents (*Age* = 14 years; 66 % female), based on (1) individual differences in ethnic identity centrality and (2) developmental histories of transitions in diversity between elementary, middle, and high school. The results indicated that at the level of the situation, when adolescents interacted with more same-ethnic others, they reported fewer anxiety symptoms. Further, for adolescents who had experienced a transition in school diversity, the positive benefits of contact with same-ethnic others was only conferred for those who felt that their ethnicity was very important to them. The importance of examining individual differences within larger developmental histories to understand the everyday experiences of ethnic minority adolescents are discussed.

Keywords

Intragroup contact; Diversity; Ethnic identity; Adolescence

Introduction

Interactions with others are complex, dynamic experiences that can change from moment to moment and situation to situation. One salient component of interactions that may influence how they are experienced is the race/ethnicity of the other people involved. As people move through their day, they are likely to interact with others who share their racial/ethnic group

membership, as well as others who do not. There has been research showing that the race/ethnicity of one's interaction partner impacts people's well-being, self-perceptions, and judgments of others during the interaction, with the majority of this work showing that intragroup (vs. intergroup) interactions are associated with more positive outcomes (Toosi et al. 2012).

Neither intragroup nor intergroup interactions, however, are unequivocal; people bring various characteristics to an interaction, and interactions are always embedded in an individuals' larger developmental history, both of which can influence the psychological experiences of such interactions. Individual differences such as the importance of one's race/ethnicity (e.g., racial/ethnic identity centrality) likely influence how meaningful interactions with same-racial/ethnic others are by making the interactions more or less relevant to one's self-views and well-being (Yip et al. 2013). Further, for youths, schools are important structural contexts offering varying opportunities for contact with same- and different-racial/ethnic others, depending on the diversity of the school. Experiences with these contexts are part of an individual's developmental history. Over time, consistency in school racial/ethnic diversity may provide familiarity with interacting with the same types of people, whereas inconsistency may provide familiarity with interacting with different types of people (Graham et al. 1984), both of which are likely to have implications for experiences during intragroup and intergroup interactions.

Throughout this study, we use the term "race/ethnicity" to describe experiences in which race, ethnicity, or race and ethnicity, are relevant. Race and ethnicity, and by extension, racial and ethnic identity, have historically been treated distinctly in the literature. However, recent conceptual advances to integrate these constructs so that they accurately reflect the experiences of individuals in the United States have been undertaken (see Umaña-Taylor et al. 2014, for a complete discussion of the theoretical foundations for this integration). In line with this conceptualization, we use the broad and inclusive terms "race/ethnicity" throughout this article when referring to general constructs. Notable exceptions are made when citing specific previous work that has focused solely on racial or ethnic identity; in such cases, we use the authors' original terms.

Theoretical Foundations

We use the *process-person-context-time* model drawn from ecological systems theory as an organizing theoretical framework for the current study (Bronfenbrenner and Morris 1998). This model highlights proximal processes, or direct and regular interactions with one's environment, as primary components of development. Consistent with that notion, we capture situation-level snapshots of experiences by examining how interactions with same-racial/ethnic others are meaningful experiences for adolescents' anxiety symptoms. Second, the model includes considerations of the person, or those individual characteristics that one brings to a situation that are active forces on proximal processes. Thus, in our work we consider how the importance of race/ethnicity to adolescents' overall sense of self (e.g., centrality; Sellers et al. 1998) may influence the way that interacting with same-racial/ethnic others is related to situational anxiety symptoms. Finally, the model highlights the influence of distal contexts in which individuals are embedded. To capture these contexts, we examine

how long-term opportunities for intragroup contact across elementary, middle, and high school influence the relationship between situational intragroup contact and anxiety symptoms.

Examining opportunities for intragroup contact in school settings is supported by macrostructural theory, which suggests that social structures influence interpersonal relationships via opportunities for contact with dissimilar others (Blau 1977). That is, the nature and quality of interpersonal relationships are influenced by *opportunities for contact* with other-racial/ethnic individuals, with the diversity of any given context largely determining that opportunity for an individual (Fitzpatrick and Hwang 1992). For individuals in highly diverse settings, opportunities for contact with dissimilar others increase (Blau 1977). In the current study, we place these structural opportunities for contact with other- and same-racial/ethnic individuals in a developmental framework by examining the influence of person-centered experiences of school diversity (e.g., an adolescents' minority or majority status relative to the diversity of his/her school) across time. It is expected that varying opportunities for contact with same-racial/ethnic peers will be influential for adolescents' interactions with same-racial/ethnic others.

Although researchers have previously examined how individual and situational factors influence intergroup contact, very little research has been done on how these factors influence intragroup contact. To this end, the current research examines the relationship between intragroup (i.e., same-race/ethnicity) contact and an indicator of psychological stress (i.e., anxiety symptoms) for racial/ethnic minority adolescents in their everyday lives. In examining these relationships, we take into account both individual factors (i.e., racial/ethnic identity centrality) and developmental histories of consistency in contextual settings over time (i.e., school diversity transitions) that may influence this relationship. We focus on the experiences of racial/ethnic minority adolescents in particular, as societal structures and limited proximal and distal opportunities for contact with same-racial/ethnic others are believed to make these experiences particularly relevant for minorities.

Proximal Processes: Intragroup Contact and Anxiety

Adolescents show preferences for (Bellmore et al. 2007) and interact more with (Hamm 2000) same-racial/ethnic peers and friends. During adolescence, when the role and influence of peers is heightened (Erikson 1968), these preferences may be particularly meaningful for individual functioning. Specifically, intragroup (vs. intergroup) interactions are generally less stress-provoking for racial/ethnic minorities, with anxiety as a key measure of stress (Richeson and Shelton 2007). In addition, research on the effects of school transitions on adolescent adjustment has found feelings of anxiety to be related to the racial/ethnic composition of the school (Benner and Graham 2009). There is additional evidence that same-racial/ethnic others are beneficial for racial/ethnic identity development, as in-group members provide racial socializing experiences (Tatum 2004; Umaña-Taylor and Fine 2004; Yip et al. 2010). With few exceptions, the majority of research with racial/ethnic minorities has used survey methodology or lab-based experiments to show that people experience less stress when interacting with same-racial/ethnic others. Although informative, these methods do not capture moment-to-moment experiences in daily life. In the current study, anxiety is

conceptualized as it occurs at a situational level, varying from situation to situation based on aspects of the context and the individual (Rossi and Pourtois 2012). Moreover, because intragroup contact is generally compared to intergroup contact, previous research has often failed to take into consideration the variability due to individual differences in the experiences of intragroup interactions for racial/ethnic minority adolescents. As such, while we predict that interacting with same-racial/ethnic others will be associated with low levels of situational anxiety symptoms, we also acknowledge that racial/ethnic identity centrality is likely to influence this relationship.

Individual Influences: Racial/Ethnic Identity Centrality as a Moderator

Racial/ethnic identity is a multidimensional construct, including developmental processes that change over time, and aspects of content that define one's racial/ethnic identity at a given point in time (see Umaña-Taylor et al. 2014). Foundational theory on the content of racial/ethnic identity suggests that centrality, the importance of one's racial/ethnic identity to an overall sense of self, is one particular component that has implications for interactions with in-group members (Sellers et al. 1997). We focus specifically on centrality in the current study which has been theoretically and empirically linked to group contact. For example, it has been shown that for African Americans, a higher level of racial centrality is associated with higher levels of intragroup contact (Sellers, et al. 1997). Furthermore, Asian American college students who have high levels of centrality report being more aware of their race/ethnicity on days they are surrounded by more Asians (Yip 2005). Similarly, Asian American adolescents who have high levels of centrality report feeling more positive about their racial/ethnic group than their peers with low centrality on days that they were surrounded by more Asians, particularly when they are underrepresented in their school settings (Yip et al. 2013). However, research has not yet considered how centrality may influence the relationship between intragroup contact and non-identity outcomes, such as anxiety symptoms.

Based on the notion that racial/ethnic identity centrality is a lens through which the world is experienced (Sellers et al. 1998), we expect that centrality will moderate how situational intragroup interactions are related to anxiety symptoms. If an adolescent's racial/ethnic group is central to the way he/she views the self and others, then it should render adolescents more reactive to the presence of same-racial/ethnic others (Tajfel and Turner 1979). This is believed to be particularly true during adolescence, when the importance of other social groups is particularly high (Steinberg and Silverberg 1986), especially as they relate to self-perceptions (Tarrant et al. 2001). Therefore, we predict that, for racial/ethnic minority adolescents who report that race/ethnicity is central to their identity, interacting with other same-racial/ethnic others will be associated with lower levels of situational anxiety symptoms. The presence of in-group members should be comforting to adolescents who are connected to their group. However, for minority adolescents who report that race/ethnicity is less central to their overall identity, we predict that interacting with other same-racial/ethnic others will be unrelated to their levels of situational anxiety symptoms. If the in-group is less relevant to how adolescents view the self, it should have little impact on their psychological stress. It is also understood that the individual effect of centrality and these situational

processes are taking place in larger contextual settings and developmental histories. As such, we also consider how transitions in school context histories influence these relationships.

Context Over Time: Developmental Histories of School Diversity Transitions

Despite our relatively rich understanding of intergroup and intragroup contact, very little attention has been paid to how group contact experiences are embedded in individual experiences of larger structural contexts. As youth age, they accumulate experiences that comprise their unique developmental histories, histories marked by the contexts that they experience (Bronfenbrenner and Morris 1998). Indeed, schools are one of the most influential non-familial settings for youth development (Duncan and Raudenbush 1999). Research suggests that individuals are sensitive to the racial/ethnic composition of their schools, an effect observed across all primary school settings (Juvonen et al. 2006; McGlothlin and Killen 2005; Tatum 2004; Umaña-Taylor 2004; Yip et al. 2013, 2010). The racial/ethnic composition of a student body affords different opportunities for contact with same- and other-ethnic individuals (Blau 1977; Fitzpatrick and Hwang 1992); for example, a Black youth in a predominantly White high school would have less opportunity for contact with other Blacks than a Black youth in a predominantly Black school.

By the time they enter high school, adolescents have likely experienced a series of varying school contexts. Pettigrew (1998) argued that we must consider such group contact experiences over time, and how structural influences and experiences over time influence contact experiences in tandem. The cumulative effects of school settings from elementary to high school are important because they relate to experiences and opportunities to interact with same- and other-racial/ethnic peers. Generally, the racial/ethnic composition of schools changes from elementary to high school, with trends showing increased diversity as smaller, homogeneous schools are merged to create larger, more heterogeneous schools (Frankenberg and Orfield 2007; Orfield 2001). Overall, previous research suggests that the disruptive nature of transitions is amplified when there is a significant change in the racial/ethnic composition of the schools (Benner and Graham 2007, 2009). For example, African American and Latino students experience particularly negative outcomes post-transition when they move into a high school where there are fewer same-racial/ethnic peers in the student body than their middle school (Benner and Graham 2009). These transitions in general, and transitions in diversity in particular, are difficult for youth due to a mismatch between the demands of the setting and the capacity of the adolescent to meet those demands (Benner and Graham 2009; Eccles 2004; Eccles et al. 1991). That is, experiencing an inconsistent transition leaves adolescents unfamiliar with their new context, and we expect that this unfamiliarity with their larger context will have an impact on how more proximal interactions are experienced.

We focus on transitions in school diversity from elementary to middle school, and from middle school to high school. We examine how experiences of (in) consistencies in racial/ethnic composition moderate the relationship between intragroup contact and anxiety symptoms, along with individual differences in racial/ethnic centrality. We predict that, for adolescents who have experienced inconsistencies in being a minority or majority member in their schools and feel that their ethnicity is not important to them, interacting with same-

ethnic/racial peers will be unrelated to situational anxiety. For these adolescents who have low centrality, the exposure to various ethnic groups that comes with inconsistencies in school composition will make intragroup interactions less relevant. For adolescents who have experienced inconsistencies in school composition and feel that their ethnicity is important to them, the presence of same-ethnic/racial peers will be associated with lower situational anxiety. For adolescents who have high centrality, intragroup interactions will be relevant, despite the various opportunities for contact with out-group members.

We also predict that developmental histories that involve racial/ethnic consistencies in school context will influence situational experiences of interacting with same-racial/ethnic others. Consistent with previous findings on the positive experiences of intragroup contact (Bellmore et al. 2007; Hamm 2000; Masson and Verkuyten 2006), we predict that for individuals who have experienced racial/ethnic consistency across school contexts, intragroup contact will be negatively related to situational anxiety symptoms regardless of individual levels of centrality. That is, we expect that individual differences in centrality will not impact experiences of intragroup contact, and therefore these experiences will be positive (e.g., anxiety-reducing) when adolescents have had consistent opportunities for contact with out-group members.

Present Study

The present study is framed in ecological systems and macrostructural theories to explore how adolescents' interactions with same-racial/ethnic others is related to situational anxiety symptoms, and how that relationship may vary based on individual differences in racial/ethnic identity and contextual transitions in diversity of school contexts. To examine these issues, we first descriptively explore adolescents' past and current opportunities for contact with same-racial/ethnic peers by exploring individual statuses relative to the racial/ethnic composition of their elementary, middle, and high school environments (e.g., minority group member, majority group member, and heterogeneous settings). In examining situational contact with same-racial/ethnic peers, we predict that interacting with same-racial/ethnic peers will be associated with fewer anxiety symptoms in that moment. Additionally, we anticipate that this relationship will be moderated by individual differences in racial/ethnic identity, such that interacting with same-racial/ethnic peers will be negatively related to anxiety in that moment for adolescents high (vs. low) in racial/ethnic identity centrality. Next, we anticipate that these relationships will also be moderated by adolescents' history of transitions across school contexts; interacting with same-racial/ethnic others will be negatively related to anxiety in that moment for adolescents who feel that their race/ethnicity is very important and who experienced a transition in the diversity of their school contexts. In sum, we take a highly contextualized approach to consider how both long-term structural considerations and current individual traits influence racial/ethnic minority youths' interactions with ingroup members.

Method

Participants

Participants were a diverse sample of 306 racial/ethnic minority adolescents ($M_{age} = 14.16$, $SD = .43$, 201 females) drawn from a larger sample of 405 adolescents who participated in the Youth Experiences Study. Because the current study focuses on racial/ethnic minorities, participants were excluded if they identified primarily as White ($n = 94$) or did not specify their ethnicity ($n = 5$). Of the remaining sample, 45 % ($n = 139$) reported that they were Asian or Asian American, 33 % ($n = 102$) reported that they were Hispanic or Latino, 16 % ($n = 49$) reported that they were Black, African American, or West Indian, and 5 % ($n = 16$) reported another race/ethnicity (e.g., American Indian, Native Hawaiian or Other) in an open-ended question about primary race/ethnicity. Some participants (22 %) indicated belonging to more than one racial/ethnic minority group. And some (19 %) were born outside of the US; age of immigration ranged from 6 months to 14 years, and the largest proportion immigrated from China (7 %). Most participants did not know their parents' highest level of education (39 %) or indicated that their parents completed high school (19 %).

Procedure

Data on the racial composition of all New York City public high schools were obtained from the Department of Education (DOE). Based on these data, five similar-sized and academically-comparable schools were selected to represent a predominantly Asian school, a predominantly White school, a predominantly Hispanic school and two racially heterogeneous schools (see Table 1). Due to the diversity of the NYC area, "predominantly" is defined by a single group representing at least 40 % of the school's student population. In the heterogeneous schools, no group represented more than 40 % of the school's population. Parental consent and youth assent letters were sent home to all 9th graders in the fall of 2008 and 2009, drawing in two cohorts (Cohort 1 $n = 189$, Cohort 2 $n = 117$). All students in each school were welcome to participate. Participation began in 9th grade, where the current data are drawn from. Participants were administered pre-surveys in groups of 10–30 students, and then given a cellular phone to complete five randomly prompted experience sampling reports per day for the next 7 days, totaling 35 surveys. Because participants were prompted at unknown times, missing data were inevitable. On average, participants completed 17 ($SD = 9$, range from 1 to 34) surveys. Participants also completed a nightly survey and a post-survey when they returned their phones; the nightly and post-diary data are not relevant to our research questions, and as such they will not be discussed further. Participants were compensated \$50 after completing the study. Data from the Youth Experiences Study have been published elsewhere (Shelton et al., in press; Yip et al. 2013; Yip 2014a, b), but the research questions and findings do not overlap with the current work.

Measures

Individual Measures—Participants completed the following person-level measures in the pre-diary survey along with several other measures not relevant to the present research questions.

Racial/Ethnic Self-label: Participants responded to the prompt “In terms of race/ethnicity, I consider my primary group to be....” We used these responses to code racial/ethnic self-identification into five general racial/ethnic categories that matched the reporting of race and ethnicity by the NYC DOE, including American Indian, Black, Hispanic, Asian/Pacific Islander, and Other/Not Reported. Coding was completed by two independent researchers ($K = .94$), and any inconsistencies were discussed and resolved.

School Group Status: Participants reported the name and city borough of the elementary and middle school they attended. Based on data available on the NYC DOE website about the percentage of White, Black, American Indian, Asian, Hispanic, and Other students attending each public school, we coded the racial/ethnic composition of each school. Next, we determined the proportion of same versus different race/ethnicity students in each participants’ schools. Based on participants’ responses to the open-ended racial/ethnic self-label and the demographic characteristics of each school attended, we considered participants as *statistical majority group members* if they self-identified with a racial/ethnic group that comprised at least 40 % of the student body in that particular school. We considered participants as *statistical minority group members* if they attended a school where a racial/ethnic group different from their own identification comprised at least 40 % of the student body. Finally, we considered participants to be in *heterogeneous schools* if no single group comprised at least 40 % of the student body. This process was conducted for each elementary, middle, and high school, as reviewed below. School responses that could not be traced were due to inadequate information, such as private or parochial schools without publically available information, or schools outside of the US.

Elementary School: Of participants’ responses, 83 % ($n = 252$) could be traced. Responses indicated that participants attended 101 different elementary schools, where 36 % ($n = 110$) were in the statistical minority, 43 % ($n = 132$) of participants were in the statistical majority, and 3 % ($n = 10$) were in heterogeneous schools.

Middle/Junior High School: Of participants’ responses, 87 % ($n = 266$) could be traced. Responses indicated that participants attended 60 different middle or junior high schools where 27 % ($n = 83$) were in the statistical minority, 35 % ($n = 106$) were in the statistical majority, and 25 % ($n = 77$) were in heterogeneous schools.

High School: Since participants were recruited from high schools, we did not have any missing high school data. While the high schools that participants were recruited from were selected to vary systematically by the majority population in each, participation was open to all students. Across the five high schools, 30 % ($n = 92$) of participants were in the statistical minority, 29 % ($n = 88$) were in the statistical majority, and 42 % ($n = 126$) were in heterogeneous schools.

Racial/Ethnic Identity: As others have done, we adapted the centrality subscale of the Multidimensional Inventory of Black Identity (MIBI; Sellers, et al. 1997) for use with a multi-ethnic sample (Fuligni et al. 2005). Centrality measures the importance of race/ethnicity to overall self-concept and includes seven items (e.g., In general, my race/ethnicity is an important part of my self-image; $M = 4.32$, $SD = .91$, $\alpha = .70$). Participants responded

on a seven-point scale ranging from “strongly disagree” to “strongly agree” where higher scores indicate more agreement. An adapted version of the private regard subscale was also included as a control measure, as previous research has shown that centrality and private regard are highly related, though independent, constructs (e.g., Sellers et al. 1997; Shelton and Sellers 2000; Yip et al. 2013). Private regard measures feelings about being a member of one’s racial/ethnic group, and participants responded to 7 private regard items (e.g., I feel good about people from my racial/ethnic group; $M = 5.25$, $SD = 0.93$, $\alpha = .72$) using the same response scale as the centrality subscale.

Situational Measures—Five times a day, at unknown intervals, participants completed the following situation-level measures along with several other measures not relevant to the present research questions.

Intragroup Interaction: To assess the amount of contact with same-racial/ethnic others in a given situation, participants responded to the question “How many of the people who you are interacting with are the same race/ethnicity as you?” ($M = 2.91$, $SD = 0.89$). Responses included 1 = ‘None 0 %’, 2 = ‘About 25 %’, 3 = ‘About 50 %’, 4 = ‘About 75 %’, 5 = ‘All 100 %’.

Anxious Mood: To assess situational anxiety symptoms, participants completed an abbreviated version of the tension-anxiety subscale of the Profile of Mood States (POMS; McNair et al. 1971). We adapted four items tapping feelings at that particular moment (e.g., “How on edge do you feel right now?”) ($M = 0.94$, $SD = 0.62$, $\alpha = .89$). Participants responded on a 5-point scale ranging from “not at all” (0) to “extremely” (4).

Results

Data Analysis Overview

Growth Mixture Modeling (GMM) in MPlus 7.1 (Muthen and Muthen 1998–2012) was employed to examine potential patterns in school group status relative to the racial/ethnic diversity of adolescents’ school settings from elementary school through high school. GMM is a person-centered approach that allows for the emergence of meaningful subgroups of individuals (i.e., latent classes) in time-based data (Jung and Wickrama 2008). In the present study, GMM examined how school diversity settings over time (within-person) differed across adolescents (between-person). Missing data in MPlus were handled using Full Information Maximum Likelihood (FIML), a method that uses all available data to estimate parameters using a log-likelihood function, such that some of the cases (i.e., those with complete data) contribute more information than others (i.e., those with incomplete data). FIML is recognized as the least biased approach for handling missing data (Enders 2010).

Once school diversity classes were uncovered, hierarchical linear modeling (Raudenbush et al. 2004) was employed to examine the situational relationship between intragroup interactions and anxiety symptoms. The potential moderating capacity of individual differences in school status experience and racial/ethnic centrality were also explored. HLM is ideally-suited for repeated measures data since it accounts for nested data, and it differentially weights responses to account for missing data within individuals. Missing data

at Level 1 were handled by HLM by weighting individual estimates according to empirical Bayes theory.

Before proceeding with the primary analyses, correlations among the key study variables were examined. Means were computed across situation-level variables in order to estimate correlations. Results found that centrality was positively associated with intragroup contact ($r = .13, p < .05$), and intragroup contacted was negatively correlated with anxiety symptoms ($r = -.25, p < .001$). Centrality and situation-level anxiety symptoms were uncorrelated ($r = -.05, n.s.$).

Latent Class Analysis—Growth Mixture Modeling solutions were evaluated based on model fit. A combination of statistical indices including the Akaike Information Criterion (AIC; Akaike 1987), the Bayesian Information Criterion (BIC; Schwartz 1978) and the sample size Adjusted Bayesian Information Criterion (ABIC; Sclove 1987) were used in tandem with entropy values and the bootstrap Lo-Mendell-Rubin test (bootstrap likelihood ratio test (BLRT); Lo et al. 2001). Additionally, the substantive usefulness of the models was evaluated to determine if additional classes produced meaningful stratification between individual experiences and included a substantial number of people to account for parsimony and interpretability (Jung and Wickrama 2008). The one class (independence) model was first explored, followed by the sequential addition of classes (see Table 2). Models with up to five classes were evaluated. With the addition of more than five classes, class membership sizes of 0 began to appear. Comparing across models, the AIC, BIC, ABIC, and entropy values collectively indicated that the four-class model fit best, and the BLRT test indicated that the addition of a fourth class provided a significantly better fit than the three-class model. Although the BLRT test indicated that the addition of a fifth class significantly improved model fit, examination of class sizes and descriptives of the fifth class suggested that functional parsimony and interpretability were not improved. Finally, class distributions and trajectories were examined, and the four-class model included distinct trajectories and considerable class sizes in each. Therefore, the four-class model was selected as the best fitting model.

Content Analysis—A content analysis of the four classes was conducted to examine the unique characteristics of each class, and the classes were named based on the predominant patterns (see Table 3). *Class 1: Early Transition to Diversity* included 11 % ($n = 34$) of adolescents who had different types of experiences in elementary school, and were all in heterogeneous settings in middle and high school, therefore including adolescents who had an early transition in diversity settings, from elementary to middle school. *Class 2: Late Transition to Diversity* included 10 % ($n = 31$) of adolescents who were minority group members in elementary and middle school, and then transitioned into a heterogeneous high school. *Class 3: Consistent Minority Experiences* included 14 % ($n = 42$) of adolescents who were consistently a member of the statistical minority in their elementary school, middle school, and high school settings. *Class 4: Consistent Majority Experiences* was the largest class and included 65 % ($n = 199$) of adolescents who were most likely to be a majority group member across elementary, middle, and high school.

Preliminary Analyses

Differences on key study variables between the classes were examined first. Results indicated no significant differences in stable centrality [$F(3,301) = .99, p = \text{n.s.}$], situational anxious mood [$F(3,301) = .15, p = \text{n.s.}$], or intragroup contact [$F(3, 290) = 1.27, p = .29$].

Hierarchical Linear Modeling

For the current research a two-level model was used to examine situation-level relationships (Level 1) within individuals (Level 2). Although school diversity is conventionally considered a Level 3 variable, the school diversity classes herein represent individual differences in adolescents' school contexts rather than static school-level data (see Benner and Graham 2009). In other words, as with any individual difference variable, school diversity history is a characteristic of the adolescent, and not his/her school, and is therefore included as a Level 2 variable. Unconditional models with situational anxiety symptoms and intragroup interactions were conducted first to examine variability across Level 1 and Level 2. For situational anxiety symptoms, 47 % of variability was accounted for within-individuals (Level 1), and 53 % of variability was accounted for between-individuals (Level 2). For intragroup interactions, 31 % of variability was accounted for within-individuals, and 69 % of variability was accounted for between-individuals. These analyses show that for both anxiety symptoms and intragroup interactions, situational and individual characteristics are important for understanding how these variables differ over time.

Control Variables—To account for the repeated measures, within- and between-day time effects were adjusted: order of random prompts (1–5), day of study (1–7), and day type (weekday, weekend) were initially included at Level 1 in all models. Order of random prompts and day of study were removed after they were not significant and did not significantly impact any findings. Day type was retained, as results indicated adolescents felt fewer situational anxiety symptoms on weekends ($b = -.03, SE = .01, p < .01$). Gender, immigration status, and cohort were initially considered as control variables at Level 2; gender and immigration status were removed after they were non-significant and did not significantly impact any of the findings. Cohort was retained, as results indicated that adolescents in the first cohort reported more situational anxiety symptoms ($b = .09, SE = .04, p < .05$). Private regard was also included to more accurately isolate the effects of how important one's race/ethnicity is to their sense of self (i.e., the construct of interest, centrality), regardless of how positively or negatively one feels about it.

Intragroup Contact and Anxiety as a Function of School Diversity Transition and Racial/Ethnic Identity

Initially, the Level-1 relationship between situational intragroup interactions and situational anxiety symptoms was considered. As predicted, situational intragroup interactions were negatively associated with situational anxiety symptoms ($b = -.03, SE = .01, p < .01$). Next, the moderating capacity of racial/ethnic identity centrality on the relationship between situational intragroup interactions and situational anxiety symptoms was considered. Contrary to expectations, centrality alone did not moderate the relationship between situational intragroup contact and anxiety symptoms ($b = -.01, SE = .01, p < .10$). Finally,

the school diversity classes were entered as three dichotomous dummy variables in interactions with racial/ethnic centrality at Level 2, with Class 1: Early Transition to Diversity as the reference group. There was a significant three-way interactions between situational intragroup contact, racial/ethnic centrality, and school diversity transition for Class 3: Consistent Minority Experiences ($b = .07$, $SE = .03$, $p < .05$) and Class 4: Consistent Majority Experiences ($b = .07$, $SE = .02$, $p < .01$). The interaction for Class 2: Late Transition to Diversity appeared to approach significance ($b = .05$, $SE = .03$, $p = .11$), but was not statistically significant. See Table 4 for full model results.

To examine the nature of these interactions, separate two-way interactions by school diversity class were conducted. Results showed that situational intragroup contact was negatively related to situational anxiety symptoms for individuals with high centrality in Class 1: Early Transition to Diversity ($b = -.11$, $SE = .05$, $p < .05$), Class 3: Consistent Minority Experiences ($b = -.04$, $SE = .02$, $p < .05$), and Class 4: Consistent Majority Experiences ($b = -.03$, $SE = .01$, $p < .05$), and unrelated to situational anxiety symptoms for individuals with high centrality in Class 2: Late Transition to Diversity ($b = -.03$, $SE = .03$, $p < .10$) (see Fig. 1a).

Results also showed that situational intragroup contact was negatively related to situational anxiety symptoms for individuals with low centrality in Class 3: Consistent Minority Experiences ($b = -.07$, $SE = .03$, $p < .05$) and Class 4: Consistent Majority Experiences ($b = -.04$, $SE = .01$, $p < .01$), and unrelated to situational anxiety symptoms for individuals with low centrality in Class 1: Early Transition to Diversity ($b = .01$, $SE = .03$, $p < .10$) and Class 2: Late Transition to Diversity ($b = -.02$, $SE = .02$, $p < .10$) (see Fig. 1b).

These results show that for adolescents who experienced consistency in the diversity of their school settings across elementary, middle, and high school (i.e., Class 3 and Class 4) intragroup contact was related to decreased anxiety symptoms, regardless of centrality. For adolescents who experienced transitions in the diversity of their school settings early on—between elementary and middle school (i.e., Class 1), intragroup contact was only beneficial when the adolescent also had high centrality, and in fact it was these adolescents that seemed to benefit the most from contact with same racial/ethnic others. Finally, for adolescents who experienced transitions in the diversity of their school settings later on—between middle and high school (i.e., Class 2), intragroup contact was not related to anxiety at all, regardless of centrality. Posthoc analyses were conducted for this class to examine potential differences in average levels of situational anxiety symptoms based on Fig. 1, and results indicated that centrality was positively related situational anxiety symptoms ($b = .20$, $SE = .20$, $p < .10$). That is, there was a two-way interaction for this group; as shown in Fig. 1a, b adolescents who felt that their race/ethnicity was very important to them and transitioned into heterogeneous settings for the first time in high school felt marginally more anxious than their peers for whom race/ethnicity was not as important, regardless of their interactions with others.

Discussion

Using ecological systems and macrostructural theories as a guiding framework, the current study expands our understanding of a diverse sample of adolescents' experiences of intragroup contact in significant ways. Compared to the rich and nuanced understanding of intergroup contact (for reviews, see Toosi et al. 2012), there is a relative dearth of information on experiences of intragroup contact, resulting in very little research addressing the complexity of intragroup relationships. Therefore, the current study extends the existing literature by capturing how real-life experiences of intragroup interactions have implications for anxiety symptoms for adolescents of varying racial/ethnic backgrounds. By focusing only on intragroup contact, we were also able to capture the myriad factors that may influence such experiences. In doing so, we extended the field's understanding of how racial/ethnic identity centrality matters; while previous research indicated that centrality was positively related to intragroup contact (Sellers et al. 1997), this study indicated that centrality influences what meaning that intragroup contact has for individuals. Additionally, we also extended the field's understanding of how racial/ethnic composition of school settings matter (e.g., Tatum 2004), and transitions across inconsistent settings (Benner and Graham 2007, 2009) by drilling down to consider these implications at the level of specific situations when interacting with same racial/ethnic others. Perhaps most importantly, we demonstrated that it is the experiences of racial/ethnic identity in conjunction with particular histories of school diversity transitions that have implications for these interactions; the novelty of this integrative approach yields more nuanced insight into the ways in which influences at these multiple and nested contexts contribute to adolescent outcomes in their everyday lives.

Considering experiences of intragroup contact, racial/ethnic identity, and school diversity are all highly relevant to the lived experiences of racial/ethnic minority adolescents, and therefore critical in understanding adolescent functioning. During adolescence, the social awareness and cognitive capabilities to process complex social group dynamics are just coming online, and thus intragroup experiences are likely to be an important component of adolescents' general experiences of their environment (Selman 1980; Quintana 1994). Across the lifespan, understanding group dynamics is inherently intertwined with an understanding of one's own relationship to such group(s), as social identity theory so aptly points out (Tajfel and Turner 1979). During adolescence, attempts to understand one's own identity in relation to the many available social groups is particularly pronounced (Tarrant et al. 2001). Racial/ethnic minority adolescents are likely trying to understand the importance of their race/ethnicity (Phinney 1989; Sellers et al. 1997). Finally, school contexts are a constant, influential context throughout childhood and into adolescence (Duncan and Raudenbush 1999), with the racial/ethnic composition of such contexts playing a particularly important role (Juvonen et al. 2006; McGlothlin and Killen 2005; Tatum 2004; Umaña-Taylor 2004; Yip et al. 2010, 2013). Considering these contexts over time as they accumulate and influence experiences in adolescence allows us to gain insight into those unique developmental histories that may set the stage for what happens during this critical developmental period. By capturing intragroup contact, ethnic-racial identity, and school diversity experiences over time, the current study expands our understanding of how

situational experiences are influenced by individual differences and developmental histories in adolescence in ways that previous research has not.

Prior to discussing the substantive results, it is important to note that the overall levels of anxiety symptoms reported by adolescents in the current study were low, as the mean of anxiety across situations was just .94 on a scale that ranged from 0 to 4. These low rates of anxiety symptoms are consistent with the fact that the study drew from a community sample (Merikangas et al. 2010), and is also consistent with similar research that has assessed general anxiety levels in community samples of adolescents drawn from high schools (e.g., Benner and Graham 2009). Overall, these results indicate that adolescents in our study were, on average, not particularly anxious. However, it is important to consider these average levels of anxiety symptoms in tandem with the variability that adolescents demonstrated across situations in the current study. The results also indicated that nearly half (47 %) of variability in anxiety was accounted for across situations, indicating that levels of anxiety symptoms did change significantly from situation to situation. Therefore, the broader results of this study should be considered within a normative, but varying, framework of anxiety symptoms.

Consistent with existing survey and lab-based research in developmental and social psychology (Frable et al. 1998), the current study finds that adolescents report decreased feelings of anxiety when in the presence of same-race/ethnic peers. Across a variety of social groups, the mere presence of similar others has been observed to confer positive psychological benefits (Frable et al. 1998). The current study provides a similar observation where adolescents, irrespective of identity or school diversity, reported feeling less anxious in situations with same-racial/ethnic peers. Other experience sampling studies have observed similar effects; for example, Sanchez and Garcia (2009) found that among bi-racial individuals, the presence of individuals sharing membership in at least one of their racial/ethnic backgrounds was associated with positive well-being outcomes. Scholars have found that one reason similar racial/ethnic others provide comfort is through shared stigmatized identity; the mere presence of such others makes racial/ethnic minorities feel that their identity is more publically valued (Sanchez and Garcia 2009). At least part of the reason why the presence of similar others is related to better psychological outcomes is due to increased feelings of public regard in those situations.

Where the current study departs from, and contributes most to, the current literature is by considering the roles that racial/ethnic centrality and school diversity experiences play in those associations between intragroup contact and anxiety symptoms. As predicted by ecological theory, differences in centrality and school diversity history were observed. However, the nature of these interactions was not as predicted. Although existing literature finds ample evidence for individual differences in daily- and situation-level experiences based on racial/ethnic identity centrality (Shelton and Sellers 2000; Yip 2005), the current study found these effects only in certain types of diversity experiences. Contrary to predictions, adolescents who did not experience a school transition that involved a change in racial/ethnic diversity of the student body did not report any individual differences in intragroup contact and anxiety by levels of racial/ethnic centrality. That is, for adolescents in Class 3: Consistent Minority and Class 4: Consistent Majority, intragroup contact was

associated with lower levels of anxiety symptoms in those situations, regardless of centrality levels. Why might this be? Transitions are normative, yet stressful developmental experiences where even psychologically-healthy and academically-strong adolescents show declines post transition; part of this difficulty is that transitions force youth to re-define themselves in a new context (Benner and Graham 2009). It may be that when adolescents' experiences are consistent this redefinition process is less severe, leaving individual differences such as centrality less relevant.

When such transitions involve changes in the racial/ethnic composition of the school (Benner and Graham 2009), the transition is likely to involve a significant redefinition related to racial/ethnic group membership and identity construction. Scholars have described this as a process of *remooring*, whereby changes in distal contexts require re-defining the boundaries of one's identity (Ethier and Deaux 1994). For example, in the transition from middle to high school, researchers have found that changes in the racial/ethnic composition of the school are associated with racial/ethnic "consciousness-raising", particularly for racial/ethnic minority adolescents (French et al. 2000). More immediately related to the goals of the current study, Benner and Graham (2009) found that the transition from middle to high school was particularly challenging for racial/ethnic minority youth who were moving into a high school that included fewer same-race/ethnic peers than their previous school. Even beyond high school, data suggest that a transition to colleges and universities with vastly different racial/ethnic student bodies has implications for intragroup contact, racial/ethnic identity, and psychological outcomes (Ethier and Deaux 1994). Taken together, our findings are consistent with a growing body of research finding that school transitions, particularly those involving changes in the racial/ethnic composition of the student body, may be especially influential for feelings of anxiety among racial/ethnic minority youth.

From another perspective, social identity and self-categorization theories predict that drastic changes in contexts are associated with corresponding increases in identity (Ethier and Deaux 1994). Applied to the current study, it logically follows that adolescents who have experienced a school transition with an accompanying change in racial/ethnic composition of the student body will experience intragroup contact differently. This certainly appeared to be the case for adolescents who experienced an early transition in their school contexts (i.e., Class 1), who only benefitted from interacting with other ingroup members when their race/ethnicity was very important to them; it is also important to note that it appears that for these particular students, the benefits of intragroup contact were the strongest. Centrality measures the extent to which race/ethnicity is at the core of an adolescents' overall identity, and can serve as a psychological lens through which the world is experienced (Sellers et al. 1998). As such, individuals who are high on racial/ethnic centrality are more likely to interpret their contexts in terms of race/ethnicity (Shelton and Sellers 2000) and think about their race/ethnicity across contexts (Yip 2005).

However, the effect of school transitions appears to be more complicated than just consistency versus inconsistency, as shown by the pattern of results for adolescents who experienced a late diversity transition (i.e., Class 2). These results suggest that the timing of the school transition matters. For these adolescents, centrality was directly related to situational anxiety, but not based on intragroup contact. Specifically, for adolescents who

felt that their ethnicity was important to them, the transition into a diverse setting for the first time appeared to be particularly anxiety-filled. These adolescents are more likely to interpret their contexts in terms of race/ethnicity (Shelton and Sellers 2000), and they are also experiencing more diverse school contexts for the first time during a developmental period in which identity processes and socio-cognitive development are burgeoning (Erikson 1968; Selman 1980) for such adolescents, the influx of these new intergroup experiences may be so overwhelming that intragroup contexts cannot offer any benefits.

Despite providing a unique contribution to the literature on how intragroup contact may be influenced by individual differences in identity and school transitions, the current study is not without limitations. First, although we were able to retroactively code changes in adolescents' school racial/ethnic compositions, we did not collect data during these transitions, and therefore we are not able to elucidate how developmental processes unfold. Second, although the sample size for the current study was not small, a larger sample may have resulted in different latent class profiles. Future research would benefit from profiles that could distinguish other patterns of these experiences over time, as our study did not capture all possible experiences. Relatedly, the two transition profiles, Classes 1 and 2 were the smallest with only 34 and 31 adolescents, respectively. Although these classes included enough participants to warrant examination of effects based on conventional guidelines (e.g., minimum of thirty participants with 30 measurements at Level 1; Scherbaum and Ferreter 2009), recent guidelines suggest that cross-level interactions are typically very underpowered to detect effects, with average levels of power hovering around .50 (Mathieu et al. 2012). As such, this study was likely under-powered to detect effects; this is likely particularly true in Class 2 where the interaction approached, but did not reach, statistical significance. This, combined with the large number of analyses conducted throughout the study to consider interaction effects, raises the possibility that we were unable to detect significant effects (i.e., Type II error), and therefore the null results in particular should be considered with caution. Given these concerns regarding statistical power, we chose not to employ a correction to the alpha levels to account for issues regarding Type I error, which should also be considered when interpreting these results. Finally, we must consider the larger ecological context in which these data were collected. The New York metropolitan area is one of the most diverse in the US providing a unique backdrop for the phenomenon explored here. As such, the current study does not shed light on how related processes may play out in less diverse or less urban areas of the country, where there are likely different patterns in school demographics.

Conclusion

The current study represents an important contribution to our understanding of how intragroup contact can be comforting experiences for minority adolescents, and how these experiences vary based not only on long-term experiences of school transitions, but also on their individual feelings about their ethnicity. As our results indicate, intragroup contact conferred benefits for adolescents who experienced consistent school settings, regardless of how important their ethnicity was to them. When adolescents had experienced significant transitions, however, those same experiences took on different meaning. When those transition experiences happened early on, intragroup contact was highly comforting but only

for adolescents whose ethnicity was very central to their sense of self. When those transition experiences happened later, however, intragroup contact appeared to be meaningless to adolescents. As we consider the complexity of these findings, it becomes clear that adolescents' everyday experiences are complex, contextually and developmentally influenced, and can vary significantly from one individual to another. This research contributes to our relatively underdeveloped understanding of intragroup contact in adolescents' everyday lives by providing a rich and nuanced picture of what these experiences mean as they are happening. As the United States becomes increasingly diverse, and contact with other-race/ethnicity others increases, it is important to build a body of literature that explores how everyday contact with similar—and dissimilar—others relates to psychological adjustment and experiences.

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Fig. 1.

a The effects of history of school diversity transition on the situational association between intragroup interactions and anxiety symptoms for adolescents with high centrality. **b** The effects of history of school diversity transition on the situational association between intragroup interactions and anxiety symptoms for adolescents with low centrality

Table 1

Sample size by school and student body racial compositions

School	Sample size (<i>n</i>)	Asian in school (%)	Black in school (%)	Hispanic in school (%)	White in school (%)
Predominantly Asian ^a	62	58	7	11	24
Predominantly white ^a	48	28	9	14	47
Predominantly hispanic ^a	70	11	12	64	13
Heterogeneous ^b (1)	101	28	13	24	34
Heterogeneous ^b (2)	25	16	22	28	33
Total sample size	306				

^a „Predominantly“ is defined by a single group representing at least 40 % of the school's student population^b Heterogeneous is defined by no single group representing more than 40 % of the school's student population

Table 2

Fit indices for GMM models with 1–5 classes

	1 Class model	2 Class model	3 Class model	4 Class model	5 Class model
AIC	1,737.26	1,680.45	1,651.11	1,627.61	1,627.92
BIC	1,748.43	1,702.80	1,684.62	1,672.29	1,683.78
ABIC	1,738.92	1,683.77	1,656.07	1,634.23	1,636.21
Entropy	<i>a</i>	.93	.89	.85	.64
BLRT	<i>a</i>	$p > .05$	$p < .001$	$p < .001$	$p < .001$

AIC akaike information criterion, *BIC* Bayesian information criterion, *ABIC* sample size adjusted BIC, *BLRT* bootstrap likelihood ratio test

^a Entropy and BLRT not available for the one-class model

Table 3

Probability of group membership in elementary, middle, and high school for latent classes

	Class 1 (%)	Class 2 (%)	Class 3 (%)	Class 4 (%)
<i>Elementary school</i>				
Minority group member	58	100	100	26
Majority group member	38	0	0	57
Heterogeneous school	4	0	0	17
<i>Middle school</i>				
Minority group member	0	100	100	28
Majority group member	0	0	0	58
Heterogeneous school	100	0	0	21
<i>High school</i>				
Minority group member	0	0	100	17
Majority group member	0	0	0	57
Heterogeneous school	100	100	0	26

Table 4

HLM estimates of the association between situational intragroup interactions and situational anxiety symptoms moderated by stable ethnic identity centrality and school transition class

		B	SE
Situational anxiety	B00, G000	1.16	0.55
Stable centrality	B01, G010	0.05	0.13
Stable private regard	B02, G020	−0.06	0.04
Class 2	B03, G030	−0.98	0.78
Class 2 × stable centrality	B04, G040	0.22	0.18
Class 3	B05, G050	0.37	0.74
Class 3 × stable centrality	B06, G060	−0.08	0.17
Class 4	B07, G070	0.54	0.60
Class 4 × stable centrality	B08, G080	−0.14	0.14
Intragroup interactions	B10, G100	0.23 [*]	0.09
Stable centrality	B11, G110	−0.06 ^{**}	0.02
Class 2	B12, G120	−0.21	0.14
Class 2 × stable centrality	B13, G130	0.05	0.03
Class 3	B14, G140	−0.31 [*]	0.13
Class 3 × stable centrality	B15, G151	0.07 [*]	0.03
Class 4	B16, B160	−0.29 ^{**}	0.11
Class 4 × stable centrality	B17, B170	0.07 ^{**}	0.02
Year	B09, G090	0.09 [*]	0.04
Day type	B20, G200	−0.03 [*]	0.01

^{*}
 $p < .05$

^{**}
 $p < .01$