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Longitudinal Reciprocal Relationships between Discrimination and Ethnic Affect or Depressive Symptoms among Chinese American Adolescents

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Author Contributions

YH conceived of the study and drafted the manuscript; SYK created the study design and drafted portions of the manuscript; YW and YS and DO participated in the interpretation of the data and helped to draft the manuscript. All authors read and approved the final manuscript.

Conflicts of Interest

The authors report no conflict of interests.

Abstract

Discrimination plays an important role in the development of ethnic minority adolescents. However, previous studies have often adopted a unidirectional model examining the influence of discrimination on adolescent development, thus leaving the potential reciprocal relationship between them understudied. Moreover, there is a dearth of studies on Chinese Americans in the discrimination literature. Therefore, this study aimed to examine the reciprocal relationships between discrimination and two measures of adolescent outcomes (i.e., ethnic affect and depressive symptoms) from early adolescence to emerging adulthood in Chinese Americans. Participants were 444 adolescents (54% female), followed at four-year intervals, beginning at 7th or 8th grade ($M_{age.wave1} = 13.03$) in 2002, for a total of three waves. An examination of cross-lagged autoregressive models revealed two major findings. First, in contrast to the rejection–identification model, perceived discrimination at early adolescence negatively related to ethnic affect at middle adolescence. Conversely, ethnic affect at early adolescence also negatively related to discrimination at middle adolescence. These results held the same direction but became insignificant from middle adolescence to emerging adulthood. Second, perceived discrimination positively related to depressive symptoms across the studied developmental periods, and depressive symptoms positively related to perceived discrimination from middle adolescence to emerging adulthood. The strength of these longitudinal relationships did not change significantly across developmental periods or gender. These findings highlight the bidirectional relationship between perceived discrimination and adolescent outcomes; they also demonstrate the value of studying the discrimination experiences of Chinese Americans.

Keywords

discrimination; ethnic identity; depressive symptoms; bidirectional relationship; Chinese American

Introduction

Discriminatory experiences are prevalent in the daily lives of ethnic minorities (Schmitt, Branscombe, Postmes, & Garcia, 2014; Williams, Neighbors, & Jackson, 2003). To date, most studies on ethnic minorities' discrimination experiences have adopted a unidirectional model, demonstrating that perceived discrimination influences ethnic minority adolescents' ethnic identity and depressive symptoms (Rivas-Drake et al., 2014; Seaton, Upton, Gilbert, & Volpe, 2014; Umaña-Taylor & Guimond, 2012). However, other studies have found that individuals' ethnic identity and depressive symptoms may influence their perceived discrimination (Brody et al., 2006; Operario & Fiske, 2001; Sellers & Shelton, 2003). Developmental theories suggest that individuals are not merely passive recipients of environmental influences: contextual factors and individual outcomes may mutually influence each other (Garcia Coll et al., 1996; Sameroff, 2009). For example, when there are more discrimination experiences in a person's life (a contextual factor), he or she may be more likely to experience depressive symptoms; conversely, a more depressed person may be more likely to perceive discrimination, either because depressed people may experience more discrimination or because depressed people may be more sensitive to negative treatment (Benner & Kim, 2009; Gotlib & Joormann, 2010). Hence, it is important to go

beyond the current unidirectional models and test longitudinal bidirectional relationships between perceived discrimination and adolescent outcomes, because this will provide a more comprehensive and nuanced understanding of their associations.

The present study examines the potential bidirectional relationships between perceived discrimination and two measures of adolescent outcomes: 1) ethnic affect (i.e., the affective dimension of ethnic identity), which refers to people's feelings toward their ethnic group – for example, whether they feel comfortable being a member of their ethnic group (Rivas-Drake et al., 2014); and 2) depressive symptoms. We assessed these constructs three times: at early adolescence, middle adolescence, and emerging adulthood. These points in the life course are critical for the development of perceived discrimination, ethnic affect, and depressive symptoms (Brown & Bigler, 2005; Umaña-Taylor et al., 2014). The current study also compares these associations across developmental periods, nativity and gender.

To date, extant studies on ethnic minorities' discrimination experiences have focused mainly on African Americans and Latinos (Derlan et al., 2014; Seaton et al., 2014; Seaton, Yip, & Sellers, 2009). There is a dearth of studies on the relationship between discrimination and adolescent outcomes, specifically ethnic identity, among Asian Americans (Umaña-Taylor et al., 2014). This is probably due to the widespread “model minority” stereotype of Asian Americans, which assumes that Asian Americans are well-adjusted and thus may not be subject to the influence of discrimination (Benner & Kim, 2009; Xia, Do, & Xie, 2013). However, recent studies have shown that Asian Americans exhibit relatively low levels of psychological well-being (e.g., have more depressive symptoms), despite their strong academic performance (Qin, Rak, Rana, & Donnellan, 2012). Like other ethnic minority groups, they are affected by discrimination (Juang & Alvarez, 2010; Rivas-Drake, Hughes, & Way, 2008; Yoo & Lee, 2005). Therefore, the current study examines Chinese Americans, the largest subgroup of Asian Americans in the United States (U.S. Census Bureau, 2010).

Development of Discrimination, Ethnic Affect, and Depressive Symptoms in Adolescence and Emerging Adulthood

During adolescence and emerging adulthood, many cognitive and social changes take place, and these changes are related to the ways in which discrimination is perceived (Brown & Bigler, 2005). Cognitively, adolescents develop more self-awareness and more sophisticated perspective-taking capabilities, which increase their ability to detect discrimination. Socially, adolescents begin to spend more time outside of the home, and thus are exposed to wider social contexts such as school or the work place, where the likelihood of being discriminated against increases. For these reasons, discrimination is perceived more frequently during adolescence than during childhood (Brown & Bigler, 2005). This increase in perceived discrimination may play an important role in adolescent ethnic identity development and psychological well-being (Garcia Coll et al., 1996; Schmitt et al., 2014).

Ethnic identity is conceptualized as a multidimensional construct that reflects the beliefs and attitudes that individuals have about their ethnic group membership (e.g., ethnic affect), as well as the processes by which these beliefs and attitudes develop over time (e.g., exploration; Umaña-Taylor et al., 2014). For ethnic minority youth, ethnic identity

development is an important aspect of normative identity development, which is regarded as a critical task for adolescence (Erikson, 1968). Ethnic identity development increases during adolescence and can last into emerging adulthood (French, Seidman, Allen, & Aber, 2006; Pahl & Way, 2006; Umaña-Taylor et al., 2014). Specifically, positive ethnic affect—variously termed ethnic pride, private regard, or ethnic affirmation and belonging—is regarded as a desired developmental outcome and, compared to other dimensions of ethnic identity, is more consistently related to positive developmental outcomes (Rivas-Drake et al., 2014; Yip, 2005; Yoo & Lee, 2005). Thus, the current study focuses on this affective dimension of ethnic identity.

Depressive symptoms are a widely-used indicator of psychological well-being (Schmitt et al., 2014; Umaña-Taylor et al., 2014). Depressive symptoms increase during adolescence and peak at middle adolescence (Nolen-Hoeksema, 2001). Because perceived discrimination, ethnic identity, and depressive symptoms are all undergoing changes during adolescence and emerging adulthood, it is important to look at how they might reciprocally influence each other across these periods. Moreover, prior work has shown that age moderates the effect of discrimination on individual outcomes, such that the effect size declines with age from childhood to adulthood (Schmitt et al., 2014). Therefore, longitudinal associations between discrimination and ethnic affect or depressive symptoms may vary across developmental periods. These important developmental questions have not been satisfactorily addressed by previous studies, partly because the ability to answer such questions hinges on having access to multi-wave longitudinal data spanning multiple developmental periods, which is rare.

Discrimination and Ethnic Affect

The existing literature on the relationship between ethnic identity and discrimination is fairly mixed when it comes to the directionality of their association. In particular, it is unclear whether discrimination influences ethnic identity or vice versa, or whether they mutually influence each other. For the influence of discrimination on ethnic identity, the rejection–identification model posits that discrimination increases individuals' group identification (Branscombe, Schmitt, & Harvey, 1999). Indeed, past experiences of discrimination were positively associated with African American college students' ethnic identity (Branscombe et al., 1999). However, the applicability of the rejection–identification model to Asian Americans still needs to be tested, as Asian Americans are distinct from African Americans in many ways, including their culture and immigration history (Xia et al., 2013). For example, compared to African Americans, Asian Americans are more likely to identify with the White culture and deny their Asian heritage (J. Kim, 2012). Thus, instead of strengthening their identification with their ethnic group, perceived discrimination may lower their ethnic affect.

On the other hand, researchers have postulated that ethnic identity may be a personal attribute that influences perceived discrimination (Castillo et al., 2006; Sellers & Shelton, 2003). In the lives of ethnic minorities, including Asian Americans, discrimination experiences, both blatant and subtle (e.g., racial microaggressions), are prevalent (Ong, Burrow, Fuller-Rowell, Ja, & Sue, 2013; Sue, Bucceri, Lin, Nadal, & Torino, 2009;

Williams et al., 2003). Individuals who feel less positive about their ethnic affiliation may be more aware of the negative stereotypes and prejudice toward their ethnic group (Major, Quinton, & McCoy, 2002). Thus, they may be more likely to detect subtle discrimination cues in their daily lives and also more likely to classify an ambiguous situation as discrimination (Castillo et al., 2006; Major et al., 2002). Therefore, in the dynamic process of ethnic minority youths' development, perceived discrimination and ethnic affect may reciprocally relate to each other. That is, individuals' discrimination experiences may influence their feelings about their ethnic group; conversely, their affect toward their ethnic group may also influence their perceived discrimination.

Discrimination and Depressive Symptoms

Studies have generally demonstrated a positive association between discrimination and depressive symptoms in various ethnic minority groups, including Chinese Americans (Rivas-Drake et al., 2014; Schmitt et al., 2014; Seaton et al., 2014). Nevertheless, it is still unclear whether this association is bidirectional or unidirectional. Many empirical studies have demonstrated that perceived discrimination can predict subsequent changes in depressive symptoms (Brody et al., 2006; Gibbons, Gerrard, Cleveland, Wills, & Brody, 2004; Grossman & Liang, 2008; Rivas-Drake et al., 2008). However, depressive symptoms may also predict perceived discrimination prospectively. Individuals with more depressive symptoms may be at greater risk for being the target of discriminatory treatment (Benner & Kim, 2009), and they may also exhibit negative bias in their cognitive processes, reacting more strongly to negative treatment and interpreting their life experiences more negatively than is warranted (Gotlib & Joormann, 2010). Thus, perceived discrimination and depressive symptoms may mutually influence each other.

The limited number of previous studies that have looked for a bidirectional relationship between perceived discrimination and depressive symptoms have found evidence for both unidirectional and reciprocal relationships. For example, in a sample of African American early adolescents, Brody et al. (2006) demonstrated a longitudinal reciprocal relationship between perceived discrimination and maladjustment as indicated by depression and conduct problems; in contrast, Gibbons et al. (2004) found that the relationship between perceived discrimination and psychological distress was unidirectional: only the link from perceived discrimination to distress was significant in early adolescence. The current study moves beyond these previous studies by examining the bidirectional relationship between discrimination and depressive symptoms across multiple developmental periods in Chinese American adolescents.

Nativity and Gender as Moderators

Previous studies have found some nativity and gender differences in the mean levels of discrimination, ethnic identity, and depressive symptoms, as well as in the associations among them (Galliher, Jones, & Dahl, 2011; Hahm, Ozonoff, Gaumond, & Sue, 2010; Nolen-Hoeksema, 2001; Yip, Gee, & Takeuchi, 2008; Yoo & Lee, 2008). For example, Asian Americans born outside of the U.S. (vs. born in the U.S.) often perceive more discrimination and have a stronger ethnic identification (Yip et al., 2008). As ethnic identity is more central to immigrants (Yip et al., 2008), it is plausible that the way immigrants feel

about their ethnic group may be more likely to influence their perceived discrimination. But whether nativity status moderates the association between discrimination and depressive symptoms is unclear, as evidence uncovered by extant studies is mixed. Whereas some studies showed a stronger negative association between discrimination and depressive symptoms for U.S.-born (vs. foreign-born) adolescents (Tummala-Narra & Claudius, 2013), others found a null effect for nativity (Pérez, Fortuna, & Alegría, 2008).

Previous studies are inconsistent regarding the moderating role of gender on the association between discrimination and individual outcomes. Galliher et al. (2011) demonstrated that female (vs. male) Asian American adolescents report fewer experiences of perceived discrimination, and exhibit a weaker association between discrimination and psychological functioning. However, Hahm et al. (2010) found that women are more vulnerable to the influence of discrimination. Specifically, for women, the association between mental health and discrimination was significant when levels of discrimination were medium or high, whereas for men, only when levels of discrimination were high. Gee et al. (2007) found no significant interaction between gender and discrimination on mental health disorders of Asian Americans.

The Current Study

The first and main goal of the present study is to test longitudinal and reciprocal relationships between perceived discrimination and two measures of adolescent outcomes (ethnic affect and depressive symptoms) among Asian Americans, an understudied ethnic group in the discrimination literature (see Figure 1 for the model). Although empirical findings are mixed, based on previous theories (Garcia Coll et al., 1996; Major et al., 2002; Sameroff, 2009), we expect that perceived discrimination can negatively relate to ethnic affect and positively relate to depressive symptoms longitudinally, and that ethnic affect and depressive symptoms can relate to perceived discrimination prospectively.

Our second goal is to explore whether relationships between discrimination and adolescent outcomes vary across developmental periods, nativity and gender. For the moderating role of the developmental period, we propose that reciprocal relationships between discrimination and adolescent outcomes may vary across developmental periods, but due to lack of prior evidence, we do not make specific hypotheses. As for the moderating role of nativity, we hypothesize that the association between ethnic affect and perceived discrimination may be stronger for foreign-born (vs. U.S.-born) Asian youth. With respect to the moderating role of gender, we make no prior specific hypothesis given the inconsistency in previous findings.

Methods

Participants

Data are from a three-wave longitudinal study of 444 Chinese American families, with data collected every four years. Participants were 444 Chinese American adolescents (54% female) at Wave 1. At Waves 2 and 3, 350 and 330 of them participated, respectively. At Wave 1, they were in 7th or 8th grade, ranging in age from 12 to 15 ($M = 13.03$, $SD = 0.73$).

Most of them (75%) were born in the United States. Median and average family income was between \$30,001 and \$45,000 at Wave 1 and between \$45,001 and \$60,000 at Waves 2 and 3. Median and average parental education level was a high school education for both fathers and mothers across waves. Parents' occupations ranged from unskilled laborers (e.g., construction worker or janitor) to professionals (e.g., banker or computer programmer). The majority of parents (about 90%) were born outside the U.S., having migrated from southern provinces of China or Hong Kong, with fewer than 10 families hailing from Taiwan. Most of these families speak Cantonese, with less than 10% speaking Mandarin as their home language.

Procedure

In the year 2002, participants were initially recruited from seven middle schools in major metropolitan areas of Northern California. With the aid of school administrators, Chinese American students were identified, and all eligible families were sent a letter describing the research project. The forty-seven percent of these families that returned parent consent and adolescent assent received a packet of questionnaires for the mother, father, and target adolescent in the household. The survey assessed parents and children's various aspects of acculturation, family relationships, and individual outcomes, and took about one and a half hours to complete. Participants were instructed to complete the questionnaires alone and to seal their questionnaires in the provided envelopes immediately after completing them. Within approximately 2–3 weeks after sending the packets, research assistants visited each school to collect the completed questionnaires during the students' lunch periods. Among the families who agreed to participate, 76% returned surveys. We kept in touch with the participants by calling them once a year, sending them yearly birthday cards, asking them to update their contact information via a Qualtrics survey twice a year, and sending them newsletters twice a year. In 2006, families who had returned surveys in the initial wave were contacted for the Wave 2 survey, with data collection following the same procedure as in Wave 1. In 2010, Wave 3 data were collected, with the questionnaires being distributed and collected through the mail or online. Families who returned questionnaires were compensated a nominal amount of money (\$30 at Wave 1, \$50 at Wave 2, and \$130 at Wave 3) for their participation.

Questionnaires were prepared in English and Chinese (traditional and simplified). The questionnaires were first translated to Chinese and then back-translated to English. Any inconsistencies with the original English version scale were resolved by bilingual/bicultural research assistants, with careful consideration of culturally appropriate meanings of items. Around 71 percent of parents used the Chinese language version of the questionnaire, and the majority (over 80%) of adolescents used the English version.

Attrition rates from Wave 1 to Wave 2 and from Wave 1 to Wave 3 were 21% and 26%, respectively. Attrition analyses were conducted at Waves 2 and 3 to compare demographic and study variables of families who participated vs. those who had dropped out. Only one significant difference emerged: boys were less likely than girls to have continued participating ($\chi^2(1) = 7.20$ to 10.41 , $p < .01$). More information about this data set is

available in previously published studies by the authors (S. Y. Kim, Chen, Wang, Shen, & Orozco-Lapray, 2013; S. Y. Kim, Wang, Chen, Shen, & Hou, 2014).

Measures

Perceived discrimination—Adolescents' perceived discrimination was measured with nine items adopted from a measure of chronic daily discrimination (Kessler, Mickelson, & Williams, 1999) (e.g., “I am treated with less courtesy than other people”) and an additional item (“People assume my English is poor”). The 10-item scale has demonstrated high reliability and strong validity with various adolescent social-emotional and academic outcomes in a Chinese American sample (Benner & Kim, 2009). Adolescents self-reported on a scale ranging from 1 (*never*) to 4 (*often*), with a higher score indicating more experiences of being the target of discrimination. Reliabilities for the measure were the same whether or not the new item was included (α s = .85 to .87 across waves).

Ethnic affect—Adolescents' affect toward their ethnic group was measured by four items: “I do not feel comfortable being Chinese”; “I feel I do not belong in this country”; “I do not like to tell other people I am Chinese”; and “I avoid Chinese people” on a scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). All items were reverse scored, with a higher mean score indicating more positive affect toward one's ethnic group (α s = .80 to .84 across waves). These items (both the content and reverse coding) are similar to items measuring ethnic affirmation in previous studies (e.g., “I feel negatively about my ethnicity”) (Umaña-Taylor, Gonzales-Backen, & Guimond, 2009). We also applied one-factor confirmatory factor analyses to assess the psychometric properties of the ethnic affect scale. Model fit was good for all three waves, $\chi^2(1)$ s = .01 to .042, $p > .05$, CFIs = 1.00, RMSEAs = .00, SRMRs = .00 to .01. All of the items loaded well on the latent factor across waves, λ s = .59 to .87, $p < .001$.

Depressive symptoms—Adolescents' self-reports of depressive symptoms were collected using the widely-used Center for Epidemiological Studies Depression Scale (Radloff, 1991). Participants responded to 20 statements, such as “I felt people disliked me,” using a scale ranging from 0 (*rarely or none of the time*) to 3 (*most of the time*), with higher mean scores indicating more depressive symptoms (α s = .87 to .90 across waves).

Demographic variables—In the current study, adolescents' age, family income, and parental education level are included as covariates, given that they may relate to the study variables (Benner & Kim, 2009; Umaña-Taylor et al., 2009). Adolescents reported their age, gender, and nativity. Parents reported on their highest education level on a scale of 1 (*no formal schooling*) to 9 (*finished graduate degree*). The average of the father's and mother's highest education level was taken to indicate parental education level. Parents reported on their family income before taxes during the past year using a scale divided into \$15,000 increments, ranging from 1 (*\$15,000 or under*) to 12 (*\$165,001 or more*). The average of the father's and mother's reports in each household was taken to indicate family income.

Analysis Plan

We first conducted correlational analyses to describe the bivariate associations between study variables. Then, to answer the research questions, a set of cross-lagged autoregressive models were tested in Mplus 7.11 (Muthén & Muthén, 1998 – 2013). Mplus uses the full information maximum likelihood (FIML) estimation method to handle missing data. To address possible non-normality of variables in the model, maximum likelihood estimation with robust standard errors (MLR) was used for all models. Relationships among the three variables were tested simultaneously within the same cross-lagged autoregressive model. Along with stability relationships and concurrent relationships across constructs, we tested cross-lagged relationships between discrimination and two measures of adolescent outcomes, ethnic affect and depressive symptoms (see Figure 1). We compared the strength of cross-lagged paths across developmental periods (from Wave 1 to Wave 2, and from Wave 2 to Wave 3). We also compared the strength of cross-lagged paths across adolescent nativity and gender using multi-group comparison. Individual cross-lagged paths were constrained to be equal, one at a time, to determine which path was different across waves or groups. The Satorra-Bentler Scaled Chi-square (S-B χ^2) test was used to determine whether a more constrained model fitted the data significantly worse than a less constrained one (Satorra & Bentler, 2001).

Results

Correlations

Bivariate correlations demonstrated small to moderate stability of the same variables across the three waves, significant concurrent associations among variables within each wave, and significant longitudinal associations across waves (see Table 1). Specifically, both from early adolescence to middle adolescence and from middle adolescence to emerging adulthood, more perceived discrimination earlier was associated with lower ethnic affect (r s ranging from $-.20$ to $-.13$, $p < .05$ or $.001$) and more depressive symptoms (r s ranging from $.27$ to $.32$, $p < .001$) later; conversely, lower ethnic affect (r s ranging from $-.22$ to $-.15$, $p < .01$ or $.001$) and more depressive symptoms (r s ranging from $.23$ to $.33$, $p < .001$) earlier were also related to more perceived discrimination later.

Bidirectional Relationships

To test bidirectional relationships between discrimination and adolescent outcomes, we first fit a basic model without any covariates or constraints. The model fit for this basic model was good, $\chi^2(9) = 12.264$, $p = .199$, CFI = .993, RMSEA = .029, SRMR = .023. Then, we included family income and parental educational level, as well as adolescents' age, gender, and nativity as covariates. The model fit for this model was also good, $\chi^2(9) = 11.156$, $p = .265$, CFI = .996, RMSEA = .023, SRMR = .015. Path parameters of these two models were generally consistent. Thus, we present path parameters only of the model with all covariates included, in Figure 1. This model served as the base model of comparison for more constrained models, in which each of the cross-lagged paths was constrained to be equal across developmental periods, in order to examine the moderating role of developmental period on longitudinal associations between discrimination and adolescent outcomes.

Consistent with our hypotheses, the parameters of cross-lagged paths indicated longitudinal mutual influences between discrimination and ethnic affect, and also between discrimination and depressive symptoms. Specifically, a) more perceived discrimination at Wave 1 related to lower ethnic affect at Wave 2, and lower ethnic affect at Wave 1 also related to more perceived discrimination at Wave 2, but these relationships became insignificant from Wave 2 to Wave 3; and b) more perceived discrimination at Wave 1 related to more depressive symptoms at Wave 2, and this association remained significant from Wave 2 to Wave 3. Conversely, more depressive symptoms at Wave 2 related to more perceived discrimination at Wave 3. The strength of the cross-lagged paths from Wave 1 to Wave 2 did not significantly differ from the same cross-lagged paths from Wave 2 to Wave 3, $\Delta S-B\chi^2(4)=4.50, p>.05$.

Moderating Role of Nativity and Gender

We first tested a freely estimated multi-group model with both nativity groups (U.S. vs. foreign born) being estimated simultaneously. The model fit was good $\chi^2(18) = 18.913, p = .397, CFI=.998, RMSEA=.015, SRMR=.021$. Then we constrained all the cross-lagged paths between discrimination and measures of adolescent outcomes to be equal across nativity. The model fit of this more constrained model was satisfactory, $\chi^2(26) = 37.169, p = .072, CFI=.981, RMSEA=.044, SRMR=.028$; however, it was significantly worse than the freely estimated model, $\Delta S-B\chi^2(8) = 19.775, p<.05$, suggesting that some paths were not equal across nativity. Then, each cross-lagged path was constrained, one at a time, to be equal, in order to identify which specific path was different across nativity. Results indicated that nativity moderated the association between Wave 1 ethnic affect and Wave 2 perceived discrimination, $\Delta S-B\chi^2(1) = 4.20, p<.05$. Specifically, the negative association between ethnic affect at Wave 1 and perceived discrimination at Wave 2 was stronger for foreign-born adolescents ($\beta=-.29, SE=.10, p<.01$) than for U.S.-born adolescents ($\beta=-.07, SE=.06, p=.23$). Similar multi-group comparison was used to examine the moderating role of gender. No gender difference was found for the cross-lagged relationships, as the model fit for the more constrained model, in which all studied cross-lagged relationships were constrained to be equal across gender ($\chi^2(26) = 26.103, p = .457, CFI=1.000, RMSEA=.004, SRMR=.031$), was not significantly worse than the freely estimated model ($\chi^2(18) = 17.069, p = .518, CFI=1.000, RMSEA=.000, SRMR=.023$), $\Delta S-B\chi^2(8) = 9.06, p>.05$.

Discussion

What is the relationship between perceived discrimination and adolescent outcomes in Asian Americans? Although studies on discrimination and individual outcomes are generally rich, there are two gaps in the extant literature. First, there is a dearth of studies on discrimination among Asian Americans (Schmitt et al., 2014; Xia et al., 2013), the second largest and the fastest growing immigrant population in the United States (U.S. Census Bureau, 2010). Second, whereas developmental theories, such as the transactional model of development, propose a bidirectional relationship between contextual factors and individual outcomes (Sameroff, 2009), most previous studies have assumed that discrimination relates to adolescent outcomes unidirectionally (Hahm et al., 2010; Wei, Ku, Russell, Mallinckrodt, & Liao, 2008; Yip et al., 2008; Yoo & Lee, 2005). The current study partly filled in these gaps

by demonstrating the reciprocal relationship between perceived discrimination and two measures of adolescent outcomes (ethnic affect and depressive symptoms) in Chinese Americans using a three-wave longitudinal data set spanning from early adolescence to emerging adulthood.

Reciprocal and negative relationships between discrimination and ethnic affect were found. Adolescents who experienced more discriminatory treatment in early adolescence reported lower affect toward their ethnic group at middle adolescence. Conversely, adolescents who exhibited lower ethnic affect at early adolescence perceived more discrimination at middle adolescence. These associations became insignificant from middle adolescence to emerging adulthood. Despite the theoretical plausibility of a mutual influence between perceived discrimination and ethnic identity, and despite some initial empirical evidence to support it (Castillo et al., 2006; Derlan et al., 2014; Romero & Roberts, 2003; Sellers & Shelton, 2003), only one study has examined the bidirectional relationship between discrimination and ethnic identity (Seaton et al., 2009). However, Seaton et al. failed to show any significant association between perceived discrimination and ethnic affect, although they did demonstrate a significant reciprocal relationship between discrimination and another dimension of ethnic identity, namely public regard, among African American adolescents. The present study adds to the empirical evidence for there being a reciprocal relationship between perceived discrimination and ethnic identity by demonstrating that perceived discrimination and ethnic affect mutually influence each other among Chinese Americans.

The present study's findings are in contrast to those from previous studies, which demonstrated a positive link from discrimination to ethnic identity among African Americans, just as the rejection-identification model suggests (Branscombe et al., 1999). This is probably due to the distinctive ethnic backgrounds of Asian Americans and African Americans. Most African Americans were born in the United States and are usually regarded as "insiders" (C. J. Kim, 1999). In their long history of being discriminated against because of their race, they have created traditions of resistance, exemplified by the Black Power and Black Pride movements (Pahl & Way, 2006). In contrast, Asian Americans represent a large proportion of the immigrants currently living in the United States (U.S. Census Bureau, 2010). Their most pressing goal is survival: they need to establish themselves in their new country and adapt to the mainstream culture; to do so, they are more likely to deny their ethnicity (J. Kim, 2012). Hence, in the face of discrimination, they may feel an even stronger need to disconnect from their ethnic group or to deny their ethnicity to better survive and thrive. Therefore, the present study underscores that findings from other ethnic minority groups should not be generalized to Asian Americans without empirical testing. More studies, especially longitudinal studies, on Asian Americans should be conducted to provide a more complete understanding of adolescent development in this particular population and among ethnic minority youth in general.

Bidirectional associations between perceived discrimination and depressive symptoms also emerged in the current study. Adolescents who perceived more discrimination earlier reported more depressive symptoms later, both from early adolescence to middle adolescence and from middle adolescence to emerging adulthood. Conversely, adolescents who reported more depressive symptoms earlier reported more perceived discrimination

later, from middle adolescence to emerging adulthood, but not from early adolescence to middle adolescence. In line with previous studies on Asian Americans' perceived discrimination and depressive symptoms (Benner & Kim, 2009; Huynh, Devos, & Goldberg, 2014; Rivas-Drake et al., 2008), our study further highlights the persistent negative influence of discrimination in its relationship to depressive symptoms across multiple developmental periods in Asian Americans. Given the long interval between each wave of the current study, the longitudinal associations we demonstrated are quite notable. Policy makers should take Asian Americans' experiences of discrimination into serious account, and more effort should be made to reduce discrimination toward Asian Americans. Meanwhile, more programs should be promoted to help Asian Americans better cope with discrimination.

Our findings seem to confirm the widely-held view that perceived discrimination is more persistently related to depressive symptoms, rather than the reverse (Brody et al., 2006; Gibbons et al., 2004; Grossman & Liang, 2008; Rivas-Drake et al., 2008). Nevertheless, it should be noted that individuals who exhibit more depressive symptoms are also more likely to perceive discriminatory treatment, a pattern that may be especially evident after middle adolescence, when individuals' depressive symptoms become more stable (Nolen-Hoeksema, 2001). This may be due to the fact that individuals with more depressive symptoms are more likely to be targeted for discrimination, or it may be that they are more sensitive to negative treatment, or both (Benner & Kim, 2009; Gotlib & Joormann, 2010). Thus, we emphasize the bidirectional association between perceived discrimination and depressive symptoms.

As mentioned above, the significance of the reciprocal relationships found varied across developmental periods. This suggests that studies focused on different developmental periods may come to different conclusions regarding these reciprocal relationships. Thus, it would be optimal to gather data across multiple developmental periods to provide a more nuanced understanding of the reciprocal relationships between discrimination and adolescent outcomes. In the current study, the differences in the strength of these longitudinal relationships across developmental periods did not reach the level of statistical significance. Furthermore, the strength of the longitudinal relationships did not vary across gender or nativity, with one exception: ethnic affect at early adolescence was more strongly related to perceived discrimination at middle adolescence for foreign-born (vs. U.S.-born) adolescents. Relative to U.S.-born adolescents, foreign-born adolescents' ethnic identity is more central to their identity (Yip et al., 2008). Because their ethnic identity is more important to them, foreign-born adolescents' feelings toward their ethnic group (ethnic affect) may have related more strongly to their likelihood of perceiving discrimination. Future studies should examine whether different dimensions of ethnic identity interactively relate to discrimination.

Collectively, the current study's findings provide support for prior arguments that ethnic minority children are not merely passive recipients of environmental influences (Garcia Coll et al., 1996; Sameroff, 2009) by demonstrating that there are reciprocal relationships between a contextual factor (discrimination) and two measures of adolescent outcomes (ethnic affect and depressive symptoms). The existence of these bidirectional or circular

relationships may have practical implications. Helping adolescents understand that depressive symptoms and their feelings toward their ethnic group may influence how likely they are to perceive discrimination may mitigate the negative effects of perceived discrimination on ethnic minorities' outcomes. For example, previous studies have demonstrated that having a sense of control over discriminatory experiences was related to positive coping strategies (e.g., problem-solving), which help protect individuals against the negative effects of discrimination on psychological well-being (Scott & House, 2005).

Several limitations and caveats should be kept in mind. First, this is a correlational study, which cannot indicate causal relationships, although our longitudinal design is better than previous cross-sectional studies (Gee et al., 2007; Hahm et al., 2010; Rivas-Drake et al., 2008) when it comes to inferring causal relationships. Any causal implications taken from our results should be applied with caution, however. Second, like Umaña-Taylor et al. (2009), we measured ethnic affect with negatively worded items, whereas other researchers, such as Rivas-Drake et al. (2008) used positively worded items. Whether or not these two different semantic approaches measure the same ethnic affect construct should be tested in future studies. Third, the relationship between discrimination and ethnic identity may vary across dimensions of ethnic identity (Seaton et al., 2009; Sellers & Shelton, 2003). As our study examined only one dimension, future studies should also examine how discrimination relates to other dimensions of ethnic identity in Asian Americans. Fourth, it should be recognized that all the measures in this study are self-reported, and thus may be subject to respondent bias. However, adolescents themselves may be the most reliable source when it comes to reporting on their own experiences and feelings (Wang & Kenny, 2014). Fifth, our participants were from an area with a high percentage of Chinese Americans. As community characteristics such as ethnic concentration may influence the effects of discrimination (White, Zeiders, Knight, Roosa, & Tein, 2014), future studies should test whether our results can be replicated in other Chinese American samples. Finally, Asian Americans are a diverse group (Xia et al., 2013); whether the relationships found in our study of Chinese Americans can be replicated in other Asian American samples remains to be seen.

Conclusion

Our study extends the existing literature on the psychological development of ethnic minority youth, illustrating reciprocal or circular relationships between discrimination and two measures of outcomes (ethnic affect and depressive symptoms) across adolescence and emerging adulthood among an understudied ethnic group, Asian Americans. Adolescents' discriminatory experiences trigger lower positive ethnic affect and more depressive symptoms. Conversely, these negative developmental outcomes relate to a higher likelihood of perceiving discrimination. Theoretically, our findings underscore the importance of considering transactions between contextual factors (e.g., discrimination) and individual outcomes (e.g., ethnic identity and depressive symptoms) in studying ethnic minority youth development. Practically, our results suggest that interventions should be brought into play as soon as possible for adolescents experiencing frequent discrimination, low ethnic affect or high incidence of depressive symptoms, in order to disrupt a harmful cycle. One important message for policy makers is not to overlook the influence of discrimination on Asian Americans.

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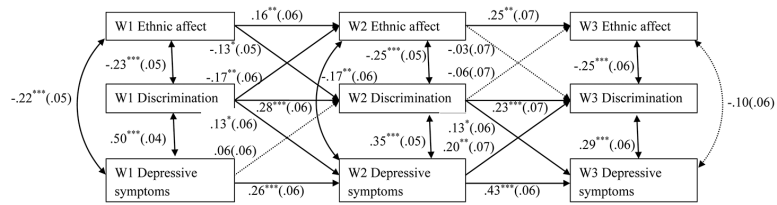


Figure 1.

Path model depicting reciprocal associations between discrimination and ethnic affect and depressive symptoms. Standardized path parameters are presented with standard errors in the parentheses. W1=Wave 1, W2=Wave 2, W3=Wave 3. * $p < .05$. ** $p < .01$. *** $p < .001$. Note that we controlled for the cross-lagged associations between ethnic affect and depressive symptoms. We also controlled for family income and parental educational level, as well as adolescents' age, gender, and nativity. For simplicity, we did not present these controls in the figure.

Table 1
Means, Standard Deviations, and Zero-Order Correlations among Study Variables

	1	2	3	4	5	6	7	8	9M	SD	Range	α	N
1.W1 Ethnic affect	1								4.48	.62	1.75–5.00	.80	432
2.W2 Ethnic affect	.18***	1							4.42	.60	1.00–5.00	.82	341
3.W3 Ethnic affect	.09	.25***	1						4.45	.57	3.00–5.00	.84	320
4.W1 Discrimination	-.24***	-.20***	-0.05	1					1.72	.50	1.00–3.40	.85	436
5.W2 Discrimination	-.22***	-.31***	-.13*	.35***	1				1.77	.49	1.00–3.20	.86	327
6.W3 Discrimination	-.06	-.15**	-.27***	.23***	.34***	1			1.78	.47	1.00–3.20	.87	317
7.W1 Depressive symptoms	-.23***	-.09	-.03	.50***	.23***	.19***	1		.64	.42	0.00–2.65	.87	407
8.W2 Depressive symptoms	-.20***	-.25***	-.11	.27***	.42***	.33***	.34***	1	.71	.46	0.00–2.40	.90	333
9.W3 Depressive symptoms	-.12*	-.19***	-.15**	.20***	.32***	.41***	.27***	.49***	1.63	.45	0.00–2.20	.90	316

Note. W1=Wave 1, W2=Wave 2, W3=Wave 3. α = Cronbach's alpha reliability, N = number of valid cases.

* $p < .05$.

**

$p < .01$.

*** $p < .001$.