

A LONGITUDINAL EXAMINATION OF PARENT-ADOLESCENT RELATIONSHIP
QUALITY AMONG MULTIRACIAL AND MONORACIAL ADOLESCENTS

by

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DISSERTATION ABSTRACT

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Title: A Longitudinal Examination of Parent-Adolescent Relationship Quality Among Multiracial and Monoracial Adolescents

Individuals who are multiracial comprise the fastest growing racial group in the U.S. The number of multiracial youth is growing at an unprecedented rate. However, multiracial youth often demonstrate worse mental and behavioral health outcomes compared to their white peers and equal or poorer outcomes when compared to other racial minority youth. Additionally, existing studies have indicated that multiracial youth have distinct experiences within their relationships with parents such as navigating more than one culture at home, encountering within-family racial discrimination, and receiving parenting from caregivers who do not share their race. Given the importance of the parent-adolescent relationship quality for adolescent development, there is a lack of studies aimed at understanding the quality of this relationship for multiracial youth and long-term outcomes associated with the parent-child relationship. No current studies have examined parent-adolescent relationship quality among multiracial youth over time.

The current study sought to understand how parent-adolescent relationship quality changes over time during early adolescent and emerging adulthood periods, specifically for multiracial youth as compared to monoracial minority and white adolescents. Participants included 593 adolescents who completed questionnaires regarding their relationships with parents at four time points across early adolescence and three time

points during emerging adulthood. Hierarchical Linear Modeling (HLM) was used to examine differences among racial groups at initial time points and over time. Across early adolescence, multiracial youth demonstrated higher parent-adolescent conflict than monoracial minority and white participants. During emerging adulthood, multiracial youth had lower parent-adolescent cohesion than their white peers at 19-years-old and demonstrated a greater increase than the monoracial minority and white youth over time. Multiracial adolescents, however, did not differ from monoracial minority or white youth in other domains or time periods. All groups decreased in cohesion during early adolescence. Notably, there were significant differences found due to individual-level factors across all analyses. Results suggest that there may be distinct processes and aspects of relationships between multiracial youth and their parents that impact relationship quality during adolescence.

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CHAPTER I

INTRODUCTION

Multiracial individuals, or those who identify as more than one racial group, represent the fastest growing racial group in the U.S., with a tripling in the multiracial population projected to occur over the next 40 years (Saulny, 2011; U.S. Census Bureau 2015; US Census Bureau 2017). Multiracial youth reflect this changing demographic, with about one in seven births accounted for by multiracial infants as of 2015 (Livingston, 2015). Despite the rapidly increasing numbers, multiracial youth often demonstrate greater mental health concerns, substance use, violent behavior, and engagement with antisocial peers than their white counterparts and equal or poorer outcomes when compared to other racial/ethnic minority youth (Cheng & Lively, 2009; Choi et al., 2006; Choi et al., 2012; Fisher et al., 2014; Lorenzo-Blanco et al., 2013).

Many of these disparities are a result of discrimination or exclusion that multiracial youth experience in their social relationships due to their race and physical presentation (Franco & Carter, 2019). Among other racial/ethnic minority individuals, multiracial youth are often perceived as distinct and not belonging to a single racial group, which may lead to alienation and association with deviant peers (Choi et al., 2012). Deviant peer association among multiracial adolescents may contribute to other harmful behavior including substance use and violence (Franco & Carter, 2019).

Marginalization can also be experienced within families as relatives often do not share the same race with youth. Within-family discrimination has been found to be particularly harmful for health outcomes including mental health (Nadal et al., 2012; Salahuddin & O'Brien, 2011). Familial considerations may help to explain why

disparities of multiracial youth often remain after controlling for socioeconomic factors, with some research suggesting a need for a specific focus on the parent-adolescent relationships (Choi et al., 2012; Choi et al., 2006). Given the salience of the parent-child relationship during adolescence, this factor may be particularly important for understanding the existing disparities faced by multiracial youth.

Healthy parent-adolescent relationships have been well-documented as protective for mitigating the risk of negative outcomes during adolescence (Suleiman & Dahl, 2019). Well-functioning parent-adolescent relationships have been associated with positive outcomes such as improved self-esteem, healthy exploration of romantic relationships, more consistent contraceptive use, body satisfaction, and physical activity (Beets et al., 2010; Boutelle et al., 2009; Branje, 2018). Additionally, risk behaviors such as depression, antisocial behavior, conduct problems, substance use, risky driving, and early sexual activity are negatively related to health parent-adolescent relationships (Branje et al., 2010; Keijsers et al., 2011; Klahr et al., 2011). However, research regarding the development of parent-child relationships has focused on white and middle-class families, largely failing to address how known patterns may apply to racial/ethnic minority youth and, even less so, multiracial youth (Nielsen et al., 2017; Smetana & Rote, 2019; Syed et al., 2018). Furthering our understanding of the trajectory of parent-adolescent relationship quality among racial/ethnic minority and multiracial adolescents will allow for the development of more effective research and clinical interventions, which are critical for supporting successful outcomes in diverse youth and their families.

Defining Parent-Child Relationship Quality

Parent-child relationships are dynamic and multidimensional connections between parents and their children, including positive aspects such as love, affection, and understanding as well as negative aspects including criticism and conflict (Birditt & Fingerman, 2013). Unlike parenting skills focused on specific practices or abilities of parents, the parent-child relationship involves the bidirectional contributions of parents and children to the relationship, both in behavior as well as personal perceptions and emotional experience. The multifaceted nature of this construct has resulted in the use of various measures and numerous definitions. Measures targeting the quality of parent-child relationship range from parental warmth, parent-child closeness, relationship satisfaction, parental support, parental power, affective solidarity, and effective communication to conflict, ambivalence, and negative interactions (e.g. Birditt et al., 2009; De Goede et al., 2009; Hadiwijaya et al., 2017; Suleiman & Dahl, 2019; Walkner & Rueter, 2014). Given the many elements of parent-child relationship quality, measurement can be a challenge—reliable measures of the parent-adolescent relationship are often problem-focused and do not easily generalize across context, culture, or age (Grevenstein et al., 2019).

Parent-Adolescent Conflict and Cohesion

Parent-adolescent conflict and cohesion, specifically, are commonly measured constructs of parent-adolescent relationship quality. Parent-adolescent conflict is often characterized by arguments, overt anger, aggression, and negative interactions while parent-adolescent cohesion pertains to successful communication, problem solving, support of one another, and working together (Cuffe et al., 2005; Telzer & Fuligni, 2013; Xu et al., 2017). Both parent-adolescent conflict and cohesion have been identified as

pertinent considerations for youth adjustment and, although these constructs demonstrate some overlap (e.g. predicting depression), often change distinctly over time and predict different outcomes (Li & Warner, 2015; Telzer & Fuligni, 2013; Xu et al., 2017). For example, increased conflict during adolescence is often a normative part of development and can cooccur with substantial cohesion between parents and children (Moreira & Telzer, 2015). Low cohesion is often associated with internalizing symptoms such as depression while high conflict predicts externalizing outcomes such as aggression in addition to other internalizing behaviors (Xu et al., 2017). However, most studies have examined either parent-adolescent conflict or cohesion and have not clarified how these constructs change over time in relation to one another.

Existing literature examining conflict and cohesion with parents among racial/ethnic minority youth is limited. Few studies have examined and compared both conflict and cohesion among specific racial groups. Li and Warner (2015), for example, highlighted the discrepant outcomes related to the cohesion versus conflict among Hispanic youth. For multiracial youth, the existing study by Radina and Cooney (2000), which examined parent-adolescent relationship quality among multiracial youth, focused on positive constructs reflecting cohesion such as affective closeness and communication without inclusion of conflict. This study aims to examine both parent-adolescent cohesion and conflict over time in order to compare and account for these unique aspects of the relationship, particularly among multiracial youth.

Parent-Adolescent Relationship Quality Over Time

Parent-child relationships are dynamic and change in quality across early, mid, and late adolescence. As youth undergo extensive biological, cognitive, and social

changes during adolescence, parent-child relationships develop new patterns of interactions and features that accommodate changing developmental demands (Branje, 2018). Familial and personal factors related to midlife also impact parental contributions to the relationship during this time period including work-related difficulties, marital tension, financial stress, and identity concerns (Duncan et al., 2009; Mastrotheodoros et al., 2019). Many theories have attempted to capture the changes in parent-adolescent relationship quality as it pertains to independence, equality, and distress and the renegotiation of a hierarchical relationship into one which becomes increasingly reciprocal and egalitarian (Hadiwijaya et al., 2017; Laursen & Collins, 2009). Existing longitudinal studies have provided further clarification regarding the long-term trajectory of relationship quality experienced by adolescents and their parents.

Meeus' (2016) reviewed longitudinal models of adolescent psychosocial development and identified a pattern across studies of increasing symmetry in parent-child relationships during adolescence. Specifically, findings supported a pattern of decreases in supportive qualities and increases in conflictual and parent-dominated qualities of the relationship during early to mid-adolescence with increases in supportive, harmonious, and egalitarian changes occurring throughout mid and late adolescence. Many studies have supported this “U-shaped” pattern of parent-child relationship quality throughout adolescence using various analytical approaches (e.g. De Goede et al., 2009; Hadiwijaya et al., 2017; Keijsers et al., 2011). Perceived decreases in the perception of legitimacy of parental power and authority during early adolescence may be related to the patterns of decreases in quality of relationship during this time (Assadi et al., 2011; Chen-Gardini, 2012; De Goede et al., 2009; Smetana & Rote, 2019).

In their study, De Goede and colleagues (2009) collected four-wave longitudinal data with adolescents aged 12-19 years in the Netherlands. They found that adolescent perceptions of parental support declined from earlier to middle adolescence and stabilized or increased (dependent on gender of youth) from middle to late adolescence. For perceptions of conflict, findings demonstrated an increase for early to middle adolescence and a decrease from middle to late adolescence. Similarly, Hadiwijaya and colleagues (2017) examined parent-child relationship quality across two cohorts of adolescents aged 12-20 using person-centered analyses. Their findings indicated that from ages 12-16, adolescents' perceptions of turbulent relationships with their parents increased while adolescents' perceptions of harmonious relationships increased from ages 16-20. The authors did note considerable individual differences for many adolescents who experienced little change in relationships with their parents, although the "U-shaped" pattern largely held consistent across the sample. In an additional study examining longitudinal associations between delinquent behavior and parent-child relationships from late childhood to middle adolescence conducted by Keijers and colleagues (2011), results indicated that parent-child relationship quality decreased during early adolescence and maintained stability in middle adolescence. These studies provide support for a pattern in which adolescents and their parents experience increasing conflict and decreasing positive dynamics from early to mid-adolescence while experiencing less conflict and more positive qualities from mid- to late adolescence.

Early adolescence in particular is marked by notable changes including the onset of puberty, transition to middle school/junior high, and important shifts in the parent-adolescent relationship (Branje, 2018; Curtis, 2015). Given the known increases in

conflict and decreases in positive relational qualities during early adolescence, it is important to examine this period as critical time for intervention. Furthermore, race often becomes more salient for individuals during this developmental period, and thus may play an important role for racial/ethnic minority and multiracial youth in their relationships with parents (Huang & Stormshak, 2011).

Little is known regarding how relationship quality during early adolescence is related to parent-child relationship quality during emerging adulthood, often considered the final stage of adolescence (Curtis, 2015). Some authors have suggested that relationships tend to improve during emerging adulthood (Smetana & Rote, 2019). In a longitudinal study across adolescence and emerging adulthood, Tsai and colleagues (2013) found that variables related to family relationships tended to worsen throughout adolescence while relational cohesion with mothers stabilized throughout emerging adulthood and cohesion with fathers continued to decline during emerging adulthood. Whitman et al. (2011)'s results demonstrated that parent-child conflict decreased from mid adolescence to young adulthood and that leaving home was associated with positive changes in the relationships generally, although mothers demonstrated positive changes in intimacy with young adult children whereas fathers did not. Existing evidence has supported the finding that youth experience differences in relationship quality between their mothers and fathers during emerging adulthood such that individuals tend to report closer and more positive relationships with mothers (Walkner & Reuter, 2014). It is particularly important to understand how parent-child relationship quality during early adolescence may reflect later relationship quality during emerging adulthood.

Parent-Adolescent Relationship Quality among Racial/Ethnic Minority Youth

Few studies have examined change over time in parent-adolescent relationship quality among racial/ethnic minority adolescents. These existing longitudinal studies, although somewhat mixed, have primarily demonstrated little difference between parent-adolescent relationship quality between white and racial/ethnic minority youth. For example, results from Tsai and colleague's study (2013) indicated that there were some baseline differences in closeness to parents at 9th grade among Asian and Latin American adolescents when compared to their European-American counterparts, but no significant differences emerged between racial groups when they examined outcomes over time. Using a daily diary method, Chung and colleagues (2009) conducted a longitudinal study to examine family conflict among adolescents of Latin American, Asian, and European backgrounds and did not find significant differences in conflict when comparing the racial groups. However, the authors noted that they evaluated conflict using a single indicator of argument which may not have captured conflict as it occurs in various cultures. In one of the earlier longitudinal studies comparing racial groups, Fuligni (1998) examined both parent-adolescent conflict and cohesion in a longitudinal sample of Mexican, Chinese, Filipino, and European participants. The author found similar levels of both conflict and cohesion across the racial groups. These longitudinal studies directly comparing racial/ethnic minority and white youth have largely demonstrated similarities when considering parent-adolescent relationship quality over time.

It is evident, however, that cultural considerations often influence the nature of the parent-adolescent relationship among racial/ethnic minority youth. Parental respect, familial obligation, pursuit of autonomy, and perception of parental authority are all themes that have been well-documented as culturally variant (Chung et al., 2009; De

Goede et al., 2009; Fuligni, 1998; Hadiwijaya et. al, 2017). Juang et al. (2012), for example, examined both acculturation-based conflict and “everyday” conflict among Chinese-American adolescents and found that these types of conflict were positively related with each other over time and differentially related to adjustment. Although racially diverse youth likely encounter unique culturally-influenced factors pertaining to the parent-adolescent relationship, the limited number of existing longitudinal analyses have generally demonstrated similar levels of conflict and cohesion when compared to the parent-adolescent relationships of their white counterparts.

Parent-Adolescent Relationship Quality among Multiracial Youth

Only one existing study has focused on parent-adolescent relationship quality among multiracial youth. Radina and Cooney (2000) found that relationship quality between adolescents and their parents did not vary among white, monoracial minority, and multiracial youth with the exception that multiracial boys and their fathers demonstrated less emotional closeness and communication. However, this study was cross sectional and included students across seventh to twelfth grade, which may have confounded findings given the known variation in parent-adolescent relationship quality during this time period. Many of the existing studies regarding multiracial adolescents’ relationship with their parents or within their family contexts are qualitative or exploratory (e.g. Gonzales-Backen 2013; Lorenzo-Blanco et al., 2013; Miville et al., 2005; Nadal et al., 2012). No known studies to date have examined the parent-adolescent relationship for multiracial youth in a longitudinal study. Due to the unique experiences of multiracial youth within their families, it may be that patterns of parent-adolescent relationship quality differ from both their white and monoracial minority counterparts.

Multiracial youth in particular encounter distinct experiences in their relationships with parents including navigating two or more cultures within their family, experiencing pressure to “choose” one race, facing racial discrimination or lack of acceptance from family members, and establishing a multiracial identity (Gonzalez-Backen, 2013; Nishina & Witkow, 2020). Multiracial individuals can experience a sense of distance from family members due to their racial differences (Miville et al., 2005; Nadal et al., 2012). Parents may be unfamiliar with the nuances of their child’s experience of multiracial identity when they are not of the same multiracial composition themselves (Lorenzo-Blanco et al., 2013). For example, parents may not be aware of or understand how to provide guidance to their adolescents regarding how to cope with discrimination or exclusion based on their multiracial identity (Crawford & Alaggia, 2008). Parents of multiracial youth often must also negotiate two sets of parenting practices influenced by their cultural backgrounds in order to produce a consistent set of parenting practices to implement, which may add an additional layer of complexity to navigating the trajectory of parent-adolescent relationship quality (Lorenzo-Blanco et al., 2013). Microaggressions, brief or commonplace derogatory behaviors toward people of color, may also pose challenges for multiracial youth who can experience isolation, mistreatment, questioning of racial authenticity, and denial of experiences based on their racial differences from other family members including parents (Nadal et al., 2012). It is possible that these unique experiences lead to more conflict or impaired relationships between multiracial adolescents and their parents.

Despite existing research highlighting strengths of multiracial individuals when compared to many monoracial peers such as positive social adjustment, strong sense of

ethnic/racial identity, higher acceptance and tolerance for people from diverse cultures, and ability to see multiple sides of a conflict, there is a paucity of research available regarding the positive aspects of parent-adolescent relationships of multiracial youth (Brown, 2009; Jackson & Samuels, 2011; Shih et al., 2019). More research is needed to understand not only conflictual aspects of parent-adolescent relationships among multiracial youth, but also strengths and positive aspects of this relationship.

Research Aims and Hypotheses

Given the dearth of research examining parent-child relationship quality among multiracial youth, this study aims to investigate how parent-adolescent relationship quality changes over time among multiracial youth when compared to their monoracial minority and white counterparts. This study will investigate developmental patterns of parent-adolescent relationship quality and will inform future research and clinical interventions targeting family functioning and reduction of risk for multiracial and racial/ethnic minority adolescents.

This study will add to existing literature regarding parent-adolescent relationships given its focus on multiracial youth and examination of longitudinal patterns in this population. Extant studies have primarily focused on relationship quality between parents and adolescents in white families in the U.S. and Europe, with less studies focused on parent-adolescent relationship quality in racial/ethnic minority youth including multiracial youth (Smetana & Rote, 2019). Even less literature has considered longitudinal patterns of parent-adolescent relationship quality among racial/ethnic minority youth, with no known studies to date examining multiracial parent-adolescent relationship quality longitudinally. Furthermore, this study is unique in that it will

distinguish between both aspects of conflict and cohesion in the trajectory of the parent-adolescent relationship. The proposed study will investigate a sample of racially diverse adolescents to gain insight into the patterns of multiracial parent-adolescent relationship quality, considering both conflict and cohesion within the relationship.

The first aim is to identify the pattern of changes in multiracial and monoracial parent-adolescent conflict across early adolescence. The trajectory of parent-adolescent conflict will be examined for multiracial, monoracial minority, and white youth across four time points. All racial groups are hypothesized to demonstrate an increase in conflict over this time period, given the existing longitudinal evidence for increases in conflict during early adolescence. The second aim is to identify the pattern of changes in multiracial and monoracial parent-adolescent cohesion across early adolescence. Following longitudinal evidence demonstrated in monoracial youth, all racial groups are predicted to decrease in parent-adolescent cohesion across the four time points.

The third aim is to examine differences in parent-adolescent conflict among racial groups throughout early adolescence. Because of the unique challenges multiracial identity can pose in the parent-adolescent relationship, it hypothesized that multiracial youth will demonstrate higher levels of parent-adolescent conflict than white and monoracial minority youth across early adolescence.

The fourth aim is to examine differences in parent-adolescent cohesion among racial groups throughout early adolescence. Although the relation between parent-adolescent conflict and cohesion in multiracial youth is unknown, it is predicted that the relation will mirror levels of conflict such that multiracial youth will demonstrate lower levels of parent-adolescent cohesion than their monoracial counterparts.

The fifth aim is to examine the aforementioned trajectories and racial group differences across emerging adulthood, with a particular focus on comparison to the years of early adolescence. All racial groups are hypothesized to demonstrate a decrease in conflict and an increase in cohesion across emerging adulthood. Multiracial youth are hypothesized to maintain higher levels of conflict and lower levels of cohesion than their monoracial counterparts. Trajectories across emerging adulthood are expected to demonstrate lower levels of conflict and higher levels of cohesion than during early adolescence.

CHAPTER II

METHOD

Sample

The study sample was drawn from a longitudinal study targeting risky behaviors in adolescents through family-based intervention during the transition to high school (Project Alliance 2; DA018374). The study was conducted from 2006-2018 in an urban setting in the Pacific Northwest with two cohorts, following youth across seven time points beginning in sixth grade and terminating in emerging adulthood. Specifically, data for the early adolescent sample were collected in four waves across 2006, 2007, 2008, and 2009 from the first cohort and across 2006-2007, 2008, 2009, and 2009-2010 from the second cohort. For the emerging adulthood data, surveys were collected in three waves during 2013-2015, 2015-2017, and 2016-2018 for the first cohort and 2014-2015, 2015-2016, and 2017-2018 for the second cohort. The proposed study examines the data collected annually from sixth to ninth grade (ages 11-16) as well as during young adulthood (ages 19-21). Retention from sixth grade (first time point) to approximately 21 years of age (last time point) was 69.9%. From sixth to ninth grade (the early adolescent participants) retention was 83.3%. For ages 19-21 (emerging adulthood years) retention was 88.7%. All data included in the present study consisted of youth self-report measures.

In total, the study included 593 participants at sixth grade. Of the sample, 36.1% self-identified as European American/White, 19.2% as Multiracial, 18% as Hispanic/Latino, 15.2% as African American/Black, 7.1% as Asian American, 2.4% as Native American/American Indian/Alaskan Native, and 1.9% as Pacific Islander/

Hawaiian. Participants were then grouped according to racial group as white (36.1%), monoethnic minority (i.e. those who selected one minority race; 44.6%), or multiracial minority (i.e. those who selected two or more races; 19.2%). For one of their races, 73.2% of multiracial youth identified as European American/White, 56.3% as African American/Black, 44.6% as Native American/American Indian/Alaskan Native, 34.8% as Hispanic/Latino, 6.3% Asian American, and 4.2% as Pacific Islander/ Hawaiian. Of multiracial youth, 74.1% identified as two races, 22.3% as three races, and 3.6% as four or five races. The sample consisted of 48.6% females with a mean age of 11 years old for participants at sixth grade. Average annual income of a sub-sample of families who completed additional surveys was approximately \$40,000-\$49,999.

Procedures

All parents of sixth grade students across three middle schools were invited to participate; 80% consented. Consent forms were distributed by mail or given to students to bring home. Parents and students who participated were awarded \$20 for completion of surveys at each time point from sixth to ninth grade. Surveys were collected annually from the schools during the spring semester. A year following completion of high school, students and their parents were contacted for a follow-up and, if consented, were mailed surveys to complete. Young adults and parents were awarded \$100 upon completion of the study questionnaires.

Measures

Parent-Adolescent Conflict. For early adolescence, this measure included four items: “We argued,” “One of us got so mad, we hit the other person,” “I got my way by getting angry,” and “We got angry at each other.” The items assessed frequency within

the past month. Possible responses ranged from “never” to “more than 7 times,” on a seven-point scale. These items were drawn from Metzler and colleagues’ (1998) parent-child conflict scale. The measure demonstrated good internal consistency at wave 1 ($\alpha = .82$). During the emerging adulthood years, this measure was adapted for developmental fit and consisted of six items such as, “We got angry at each other,” “We had a big argument about a little thing,” and “One of us got so mad we cut off communication with the other person” to assess relationship with mothers. Participants rated their responses on five-point scale ranging from “Never” to “Always” regarding frequency of occurrence over the past three months. This measure demonstrated good internal reliability at the first wave of emerging adulthood ($\alpha = .86$).

Parent-Adolescent Cohesion. Participants responded to four items during early adolescent years: “How often do you talk about problems with your parents?,” “How much do you enjoy being with your parents?,” “My parents and I have gotten along very well with each other,” and “My parents trusted my judgement.” Responses were recorded using a five-point scale ranging from “Never or almost never” to “Always or almost always.” This measure was adapted from the Positive Family Relations scale in Metzler and colleagues’ study (1998) and demonstrated good reliability ($\alpha = .86$) in the present study at wave one. The measure for emerging adult years was adapted for developmental fit and assessed relationship with their mother. Questions included, “We enjoyed spending time together (over the telephone, email, Skype, social media, or in person),” “I got along well with my mother,” “We had a good conversation about something,” and participants responded on a five-point scale ranging from “Never” to “Always.” The

measure demonstrated good internal consistency in the first wave of emergind adulthood ($\alpha = .89$)

Race. Participants self-reported race using a multiple-choice item. They selected one or more options including, “European American/White,” “Native American/American Indian/Alaskan Native,” “African American/Black,” “Hispanic/Latino,” Asian American,” “Pacific Islander/Hawaiian,” or “Other (describe).” Responses were then coded as “0” when participants selected only “European American/White,” “1” when a single non-white race was selected or “2” when more than one race was selected.

Analytical Plan

The goal of the current study is to examine changes in parent-adolescent relationship quality (i.e. conflict and cohesion) among multiracial and monoracial (i.e. monoracial minority and white) adolescents and to identify differences between these racial groups over time. The study utilized hierarchical linear modeling (HLM) to address these aims. HLM allows for the examination of data within and between clusters. For longitudinal analyses using HLM, observations across time (level-1) can be examined nested within individuals and their characteristics (level-2). Prior to conducting HLM analyses, data were tested for violations of assumptions of normality and homogeneity.

The first two proposed aims of the study were to describe the pattern of changes during early adolescence in parent-adolescent conflict and cohesion among multiracial and monoracial adolescents. The third and fourth proposed aims were to identify racial differences in parent-adolescent conflict and cohesion among multiracial and monoracial adolescents. For the first and third aim, one hierarchical linear model examining the

outcome of conflict was used. For the second and fourth aim, a second hierarchical linear model examined the outcome of cohesion. Both models used a two-level HLM design to examine change over time at level one and race (i.e. multiracial, monoracial minority, and white) at level two as a predictor of initial status and growth at level-one. This approach allowed for identification of trajectories of change nested within racial group as well as between and within racial group differences. A third hierarchical linear model examined the outcome of conflict during emerging adulthood while a fourth hierarchical linear model examined the outcome of cohesion during emerging adulthood. Both of the models used to examine outcomes during emerging adulthood used a two-level design to examine change over time at level one and race at level two as a predictor of initial status and growth at level-one. For the fifth aim, outcomes from early adolescence were compared conceptually to outcomes during emerging adulthood, examining overarching patterns. Limitations of this approach will be detailed in the discussion chapter.

To determine appropriate model fit for change in parent-adolescent relationship quality over time in each model, chi square deviance tests and pseudo *r*-squared statistics were examined. Variance component analyses were used to determine the extent to which there were individual differences in each of the model parameters.

Missing Data

Given the presence of missing data and attrition over time, patterns of missingness were examined. Full Information Maximum Likelihood (FIML) was implemented in all analyses in order to address missing data at level one while single imputation was used to address missing data at level two.

CHAPTER III

RESULTS

Prior to the primary HLM analyses, data were examined for patterns of missingness and tested for tenability of assumptions of normality and homoscedasticity. Four hierarchical linear models were then conducted to address the primary aims of the study. Finally, results were summarized and depicted using visual representations.

Missing Data

To assess for the randomness of missing data, Little's Missing Completely at Random (MCAR) tests (Little, 1988) were performed for the early adolescent and the emerging adulthood data. Analyses indicated that data were not missing completely at random for the early adolescent data ($\chi^2 [593] = 693.093, p < 0.001$) or the emerging adulthood data ($\chi^2 [651] = 806.82, p < 0.001$). Because data were not missing completely at random, two imputation methods were utilized at each level of the multilevel design. At level one (measurement occasions), Full Information Maximum Likelihood (FIML) was implemented in all analyses. FIML is a model-specific approach that estimates model parameters that maximize the probability of the sample data through estimation of the population variance-covariance matrix. FIML outperforms conventional methods that attempt to delete data or recover missing observations such as listwise deletion or mean substitution (Schafer & Graham, 2002). The large sample size ($N = 593$) of the proposed study supported the use of FIML. To address missing data at level two, single imputation using the EM algorithm was applied, a technique that replaces missing data using values estimated from the population variance-covariance matrix (Donders et al., 2006).

Because single imputation can impact the size of standard errors, robust standard errors were used in all HLM analyses (Donders et al., 2006).

Descriptive and Preliminary Analyses of the Cohesion and Conflict Data

Examination of statistical model assumptions demonstrated that data were adequate for the HLM analyses. Tests of homogeneity of level one variance were conducted using HLM hypothesis tests; all results met the assumption of homogeneity. Examination of skewness and kurtosis demonstrated there were significant degrees of skewness on 5 of 14 measures and significant degrees of kurtosis on 3 of 14 measures. Robust estimators can be used to address concerns of skew and kurtosis, thus robust standard errors were used in all HLM analyses (Blanca et al., 2013). Means and standard deviations of conflict and cohesion scores by racial group and time period (i.e. early adolescence and emerging adulthood) are presented in Table 1. A correlation matrix of the primary study variables is provided in Table 2.

Table 1

Descriptive Statistics of Parent-Adolescent Relationship Quality by Racial Group (Multiracial, Monoracial Minority, White) and Developmental Period

	Early Adolescence								Emerging Adulthood							
	Grade 6			Grade 7		Grade 8		Grade 9		19 years			20 years		21 years	
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Conflict																
Multiracial	114	2.99	1.52	3.33	1.47	3.21	1.50	3.15	1.33	93	0.61	0.57	0.49	0.52	0.54	0.57
Monoracial	264	2.50	1.58	2.91	1.41	2.89	1.37	2.84	1.27	197	0.62	0.65	0.61	0.62	0.55	0.64
White	214	2.44	1.20	2.85	1.34	2.87	1.25	2.75	1.15	157	0.49	0.52	0.39	0.40	0.39	0.47
Cohesion																
Multiracial	114	3.75	1.04	3.38	1.13	3.23	1.05	3.10	1.06	93	2.44	0.91	2.59	0.74	2.63	0.80
Monoracial	264	3.87	1.05	3.55	1.04	3.22	1.05	3.17	1.05	197	2.48	0.95	2.52	0.89	2.56	0.88
White	214	3.98	0.93	3.49	1.01	3.29	1.05	3.26	1.09	157	2.70	0.79	2.76	0.74	2.68	0.79

Note. At final time point of early adolescence (Grade 9) $N = 493$ and at final time point of emerging adulthood (21 years old) $N = 360$.

Table 2

Correlation Matrix of Racial Group (Multiracial, Monoracial Minority, White) and Parent-Adolescent Relationship Quality Across Developmental Periods

	Early Adolescence		Emerging Adulthood	
	Conflict	Cohesion	Conflict	Cohesion
Multiracial	-.15**	-.05	.03	-.03
Monoracial	-.05	-.00	.13**	-.09
White	-.08	.05	-.16**	.12*

Note. Conflict and cohesion scores were averaged across sixth through ninth grade in the early adolescence column and across approximate ages 19-21 in the emerging adulthood column. Correlation between conflict and cohesion was $-.43^{**}$ during early adolescence and $-.36^{**}$ during emerging adulthood.

* $p < .05$. ** $p < .01$.

Hierarchical Linear Modeling

The trajectories of parent-adolescent relationship quality (i.e. cohesion and conflict) were examined using Hierarchical Linear Modeling (HLM) following the procedures described by Raudenbush and Byrk (2002). Four HLM models were used to examine the following outcomes: (a) cohesion across early adolescence, (b) conflict across early adolescence, (c) cohesion across emerging adulthood, and (d) conflict across emerging adulthood. Within each model, chi-square deviance tests were used to evaluate whether the addition of predictors resulted in reductions in residual variance between models. Pseudo r -square also was examined after addition of predictor variables to each

model; this measure provided an estimate of the reduction in unexplained parameter variance after the addition of predictors to each model. In each HLM growth model, both intercepts and slopes of growth trajectories were examined. Slopes were examined to determine whether there was growth across time points. Racial groups were dummy coded and used as predictors of intercept and slope as shown in the following equations:

Level-1 Model

$$OUTCOME_{it} = \pi_{0i} + \pi_{1i}*(LINEAR_{it}) + e_{it}$$

Level-2 Model

$$\pi_{0i} = \beta_{00} + \beta_{01}*(MONORACIAL_i) + \beta_{02}*(WHITE_i) + r_{0i}$$

$$\pi_{1i} = \beta_{10} + \beta_{11}*(MONORACIAL_i) + \beta_{12}*(WHITE_i) + r_{1i}$$

Results of differences in intercepts and slope across outcomes (i.e. conflict and cohesion) and developmental periods (i.e. early adolescence and emerging adulthood) were examined separately because different measures were used in each developmental period. Each model was analyzed using the following three model building steps were used for each model: (a) unconditional model without predictors, (b) linear growth model, (c) conditional, linear growth model with predictors. In all models, the multiracial group served as the reference group while monoracial and white groups were included as uncentered dummy coded predictors. Visual examination of plotted outcomes supported a linear fit of the data.

Parent-Adolescent Relationship Quality during Early Adolescence

Conflict

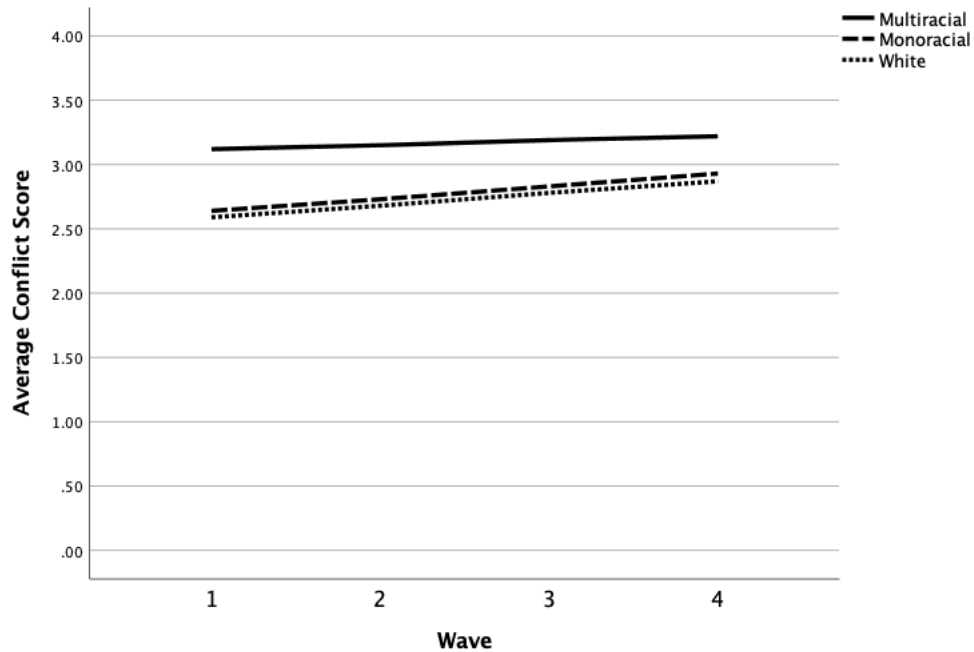
The first model examined trajectories of parent-adolescent conflict during early adolescence as well as differences in conflict across racial groups (see Table 3). The

average parent-adolescent conflict score during sixth grade was moderate for multiracial youth at 3.12, $t(589) = 24.36$, $SE = 0.14$, $p < 0.001$. Both monoracial minority and white groups demonstrated significantly lower conflict scores than multiracial youth at sixth grade; on average, monoracial minority youth scored .48 points lower (.44 of a standard deviation) on conflict scores, $t(589) = -3.15$, $SE = 0.16$, $p = 0.003$, while white youth scored .53 points lower (.49 of a standard deviation), $t(589) = -3.34$, $SE = 0.16$, $p < 0.001$. The linear slope did not differ significantly over the four time points for multiracial adolescents, $b = 0.04$, $t(589) = 0.75$, $SE = 0.05$, $p = 0.50$. The linear slope for monoracial minority, $b = 0.06$, $t(589) = 1.14$, $SE = 0.06$, $p = 0.30$, and white youth, $b = 0.06$, $t(589) = 1.00$, $SE = 0.06$, $p = 0.34$, did not differ significantly from the multiracial group (see Figure 1).

Inspection of the model variance components demonstrated that conflict scores differed significantly across individuals at sixth grade (the intercept), $\chi^2(589, N = 2,368) = 2,027.33$, $p < 0.001$. Linear slope also differed significantly across individuals, $\chi^2(589, N = 2,368) = 955.23$, $p < 0.001$, so there were statistically significant differences in both intercepts and slopes from one individual to another.

Figure 1

Parent-Adolescent Conflict Scores According to Racial Group (Multiracial, Monoracial Minority, White) Across Early Adolescence



Note. Waves during early adolescence reflect grades six through nine. Multiracial adolescents had significantly higher conflict scores than monoracial or white participants at sixth grade and over time.

The conditional model that included racial groups was the best fitting model, with a reduction in deviance from 7,744.36 in the linear model to 7,462.99 in the conditional model; $\Delta\chi^2(4) = 14.39, p = 0.007$. The pseudo r-squared also supported small improvements in model fit as 2.93% of the unknown variability of the intercept and 0.62% of the unknown variability of the intercept were accounted for by adding the predictors of race.

In summary, white and monoracial minority youth demonstrated lower conflict scores than multiracial youth in sixth grade. None of the racial groups demonstrated

significant linear growth of conflict scores over time. However, there was significant variability in conflict score intercept and slopes across individuals.

Cohesion

Parent-adolescent cohesion during early adolescence and differences across racial groups were examined using the second model (see Table 3). The average parent-adolescent cohesion score during sixth grade across all youth was moderate at 3.81, $t(591) = 94.39$, $SE = 0.04$, $p < 0.001$. Average cohesion scores decreased 0.23 points (.27 of a standard deviation) between each time point, $t(591) = -14.91$, $SE = 0.02$, $p < 0.001$, across all racial groups. There were no significant differences the multiracial youth when compared to the monoracial minority or white youth at sixth grade or over time (see Figure 2).

The model variance components demonstrated that cohesion scores differed significantly across individuals at sixth grade, $\chi^2(591, N = 2,368) = 2,049.25$, $p < 0.001$. Linear slope also differed significantly across individuals, $\chi^2(591, N = 2,368) = 1085.68$, $p < 0.001$.

The conditional model that included racial groups did not demonstrate an increased fit compared to the linear model, $\Delta\chi^2(4) = 2.82$, $p > 0.50$, and thus the linear model was used for interpretation. The linear model demonstrated a reduction in deviance from 6,429.09 in the unconditional model to 6,055.22 in the linear model; $\Delta\chi^2(3) = 373.86$, $p < 0.001$.

Table 3*Changes in Parent-Adolescent Relationship Quality According to Racial Group**(Multiracial, Monoracial Minority, White) and Developmental Period*

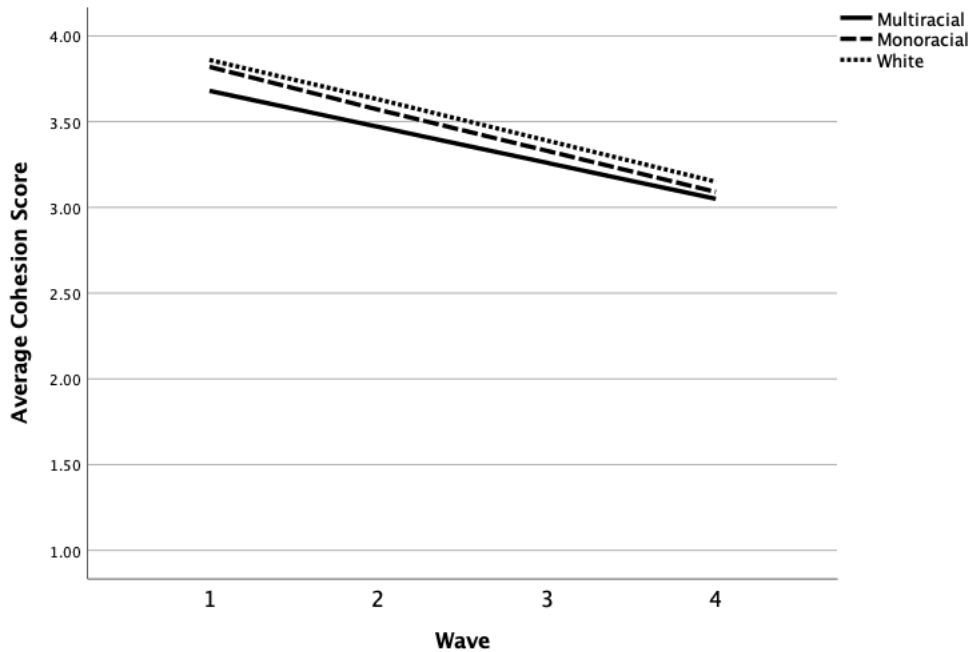
	Early Adolescence				Emerging Adulthood			
	Intercept		Slope		Intercept		Slope	
	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>
Conflict								
Multiracial	3.14	(0.14)***	0.04	(0.05)	0.58	(0.05)***	-0.03	(0.03)
Monoracial	-0.48	(0.16)**	0.06	(0.06)	0.05	(0.07)	-0.00	(0.04)
White	-0.53	(0.16)***	0.06	(0.06)	-0.11	(0.07)	-0.01	(0.04)
Cohesion								
Multiracial	3.68	(0.10)***	-0.21	(0.04)***	2.46	(0.09)***	0.10	(0.04)*
Monoracial	0.13	(0.12)	-0.03	(0.05)	0.02	(0.11)	-0.06	(0.05)
White	0.18	(0.12)	-0.02	(0.05)	0.27	(0.10)*	-0.11	(0.05)*

Note. Racial groups were dummy coded with multiracial serving as the reference group so the table entry for the multiracial group is the intercept. The intercept column lists values representing relationship quality at 6th grade for early adolescence at approximately age 19 for emerging adulthood.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Figure 2

Parent-Adolescent Cohesion Scores According to Racial Group (Multiracial, Monoracial Minority, White) Across Early Adolescence



Note. Waves during early adolescence reflect grades six through nine. All groups significantly decreased over time.

In summary, there were no significant differences in cohesion scores between multiracial and monoracial minority or white groups at sixth grade. On average, all youth demonstrated decreases in cohesion across time points; these changes over time did not differ between multiracial and monoracial groups. However, there was significant variability in conflict score intercepts and slopes from one individual to another.

Parent-Adolescent Relationship Quality during Emerging Adulthood

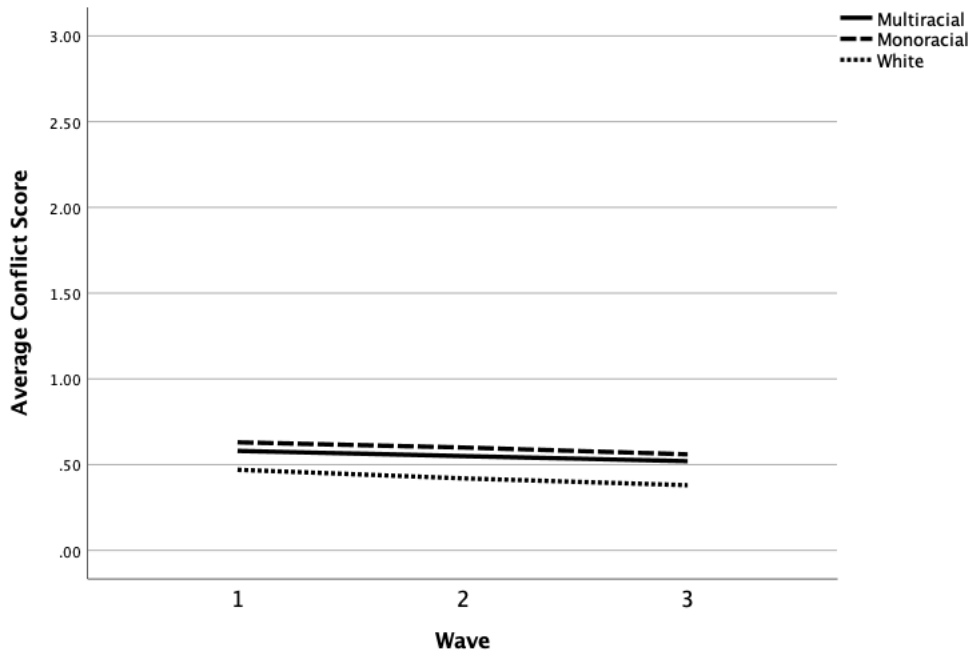
Conflict

The third model served to examine trajectories of parent-adolescent conflict during emerging adulthood and differences across racial groups (see Table 3). The

average parent-child conflict score during the first time point of emerging adulthood for multiracial youth was low at 0.58, $t(444) = -11.04$, $SE = 0.05$, $p < 0.001$. On average, monoracial minority, $b = 0.05$, $t(444) = 0.69$, $SE = 0.07$, $p = 0.49$, and white participants, $b = -0.11$, $t(444) = -1.70$, $SE = 0.07$, $p = 0.09$, did not differ significantly from multiracial youth on conflict scores at the first time point of emerging adulthood. Over time, no significant linear change was found for multiracial emerging adults $b = -0.03$, $t(444) = -1.14$, $SE = 0.03$, $p = 0.25$. Monoracial and white emerging adults did not differ significantly from the multiracial group, $b = -0.00$, $t(444) = -0.01$, $SE = 0.04$, $p = 0.99$ and $b = -0.01$, $t(444) = -0.41$, $SE = 0.04$, $p = 0.69$, respectively (See Figure 3).

Figure 3

Parent-Adolescent Conflict Scores According to Racial Group (Multiracial, Monoracial Minority, White) Across Emerging Adulthood



Note. Waves during emerging adulthood reflect ages 19-21. There were no significant differences between groups or changes over time.

Review of the model variance components demonstrated that individuals significantly differed in conflict scores at the first time point during emerging adulthood (the intercept), $\chi^2(444, N = 1,341) = 1,113.22, p < 0.001$, as well as in linear slope, $\chi^2(444, N = 1,341) = 516.96, p = 0.01$.

Using the conditional model with racial groups, deviance was reduced from 1,934.58 in the linear model to 1,922.819 in the conditional model; $\Delta\chi^2(4) = 12.38, p = 0.015$. The pseudo *r*-square was small for intercept and slope; 2.6% of the unknown variability of the intercept and 0.5% of the unknown variability of the slope was accounted for by including racial groups in the model. Thus, the conditional model was considered the best fit.

Overall, racial groups did not differ at the initial time point during emerging adulthood or in their linear growth over time in regard to parent-child conflict. However, there was significant variability in conflict score intercepts and slopes across individuals.

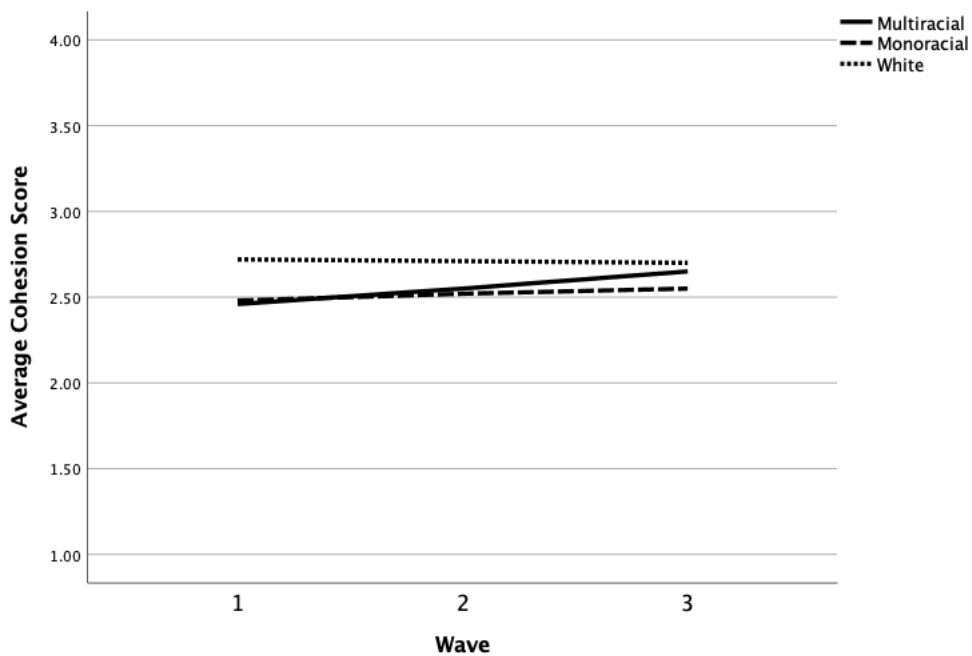
Cohesion

In the fourth model, parent-adolescent cohesion during emerging adulthood and differences across racial groups were examined (see Table 3). At the first time point of emerging adulthood, the average parent-child cohesion score for multiracial emerging adults was moderate at 2.46, $t(444) = 28.74, SE = 0.09, p < 0.001$. White participants, on average, demonstrated .27 cohesion points higher (.37 of a standard deviation), $t(444) = 2.55, SE = 0.10, p = 0.01$, than multiracial emerging adults at this time point, but there was no significant difference between monoracial, $b = 0.02, t(444) = 0.20, SE = 0.11, p = 0.84$, and multiracial emerging adults. On average for multiracial participants, cohesion scores significantly increased .10 points between each time point (.14 of a standard

deviation), $t(444) = 2.46$, $SE = 0.04$, $p = 0.01$, whereas for white emerging adults on average, cohesion scores significantly decreased between each time point (.15 of a standard deviation), $b = -0.11$, $t(444) = -2.18$, $SE = 0.05$, $p = 0.03$. However, the growth rates for cohesion scores among monoracial youth did not differ significantly from multiracial youth, $b = -0.06$, $t(444) = -1.17$, $SE = 0.05$, $p = 0.24$ (see Figure 4).

Figure 4

Parent-Adolescent Cohesion Scores According to Racial Group (Multiracial, Monoracial Minority, White) Across Emerging Adulthood



Note. Waves during emerging adulthood reflect ages 19-21. White youth had higher cohesion scores at age 19 (Wave 1) than multiracial youth. On average, cohesion scores significantly increased for multiracial youth over time while cohesion scores significantly decreased for white adolescents over time.

Across individuals, cohesion scores differed significantly at the first time point of emerging adulthood (the intercept), $\chi^2(444, N = 1,341) = 1,515.09$, $p < 0.001$. Linear

slope of cohesion scores also differed significantly across individuals, $\chi^2(444, N = 1,341) = 555.42, p < 0.001$.

The conditional model with racial groups demonstrated the best fit, $\Delta\chi^2(4) = 10.48, p = 0.03$, with a reduction in deviance from 2,873.74 in the linear model to 2,863.26 in the conditional model. The pseudo *r*-square was small for intercept and slope; 2.8% of unknown variability of intercept and 4.7% of unknown variability of the slope was accounted for after adding the racial groups predictors to the model.

Overall, white emerging adults demonstrated higher scores than multiracial participants at the first time point in emerging adulthood, while white participants' scores decreased over time and the multiracial group scores increased over time. There were no significant differences between monoracial and multiracial groups at the initial time point or over time during emerging adulthood. However, variability of cohesion score intercepts and slopes was significantly different across individuals.

Summary

Results of the HLM analyses during early adolescence indicated that none of the racial groups demonstrated an increase in parent-adolescent conflict. Multiracial youth had significantly higher conflict scores than white or monoracial youth at sixth grade, a difference that was maintained throughout early adolescence. Parent-adolescent cohesion demonstrated a significant decrease across time points during early adolescence for all racial groups. There were no differences in cohesion across the racial groups at sixth grade or over time. Significant individual differences were found for both parent-adolescent conflict and cohesion.

During emerging adulthood, there were no significant changes in conflict scores over time and no differences between multiracial and monoracial groups. Results demonstrated that cohesion scores were higher for white participants than multiracial participants at the first time point of emerging adulthood. For parent-adolescent cohesion, multiracial youth demonstrated a significant increase in scores over time while white youth had a small but significant decrease in scores over time. Variance components analyses demonstrated that, across both early adolescence and emerging adulthood, parent-adolescent cohesion and conflict scores differed significantly across individuals at initial time points and over time.

Although early adolescent and emerging adulthood time periods cannot be directly compared due to use of distinct measures, overall patterns provides some insight into the differences and similarities between these time periods. Neither time period demonstrated significant changes over time for conflict. For cohesion scores, results during early adolescence indicated that there were decreases over time with no differences across racial groups, but emerging adulthood years demonstrated an increase in cohesion among multiracial participants and a decrease among white participants.

CHAPTER IV

DISCUSSION

The current study adds to a body of literature on the changes in parent-adolescent relationship quality over time which will enhance our understanding of patterns of parent-adolescent relationship quality during early adolescence and emerging adulthood, specifically among multiracial youth. Findings suggest that multiracial youth differed from their monoracial counterparts in parent-adolescent conflict across early adolescence, had lower parent-adolescent cohesion than white peers at 19 years of age, and demonstrated a greater increase in cohesion during emerging adulthood. Multiracial youth did not differ from monoracial minority and white participants in other domains and time periods. All groups demonstrated decreases in parent-adolescent cohesion during early adolescence. Additionally, individual differences were found to be significant across analyses. Therefore, it seems that multiracial identity may be a relevant factor to consider for parent-adolescent relationship quality, although other factors, discussed below, likely also play important roles in this relationship. It is also notable that conflict and cohesion did not demonstrate opposite results across the study, supporting that they are likely distinct and independently functioning constructs.

Parent-Adolescent Conflict during Early Adolescence

The first aim of the study sought to describe the pattern of changes in parent-adolescent conflict across early adolescence. It was hypothesized that all racial groups would demonstrate an increase in conflict during this time period. Analyses did not support this hypothesis as there were no significant changes in conflict over time. The lack of changes in parent-adolescent conflict may be understood in light of existing

findings that conflict between adolescents and parents is relatively infrequent and low in severity (Chung et al., 2009). It is possible that the measures implemented in this study were not sensitive enough to adequately capture variability of parent-adolescent conflict. For example, items such as “One of us got so mad, we hit the other person” or “I got my way by getting angry may” not be relevant to the type of more subtle types or lower levels of conflicts experienced by most families. Additionally, follow up examination of individual growth curves over time demonstrated that there was a variety of growth patterns in which some individuals increased over time, while others decreased or remained stable (see Appendix). The individual growth patterns indicate that there is substantial variability in parent-adolescent conflict over time that may be due to other factors not included in the present study such as racial subgroups, ethnic identity, social, economic, or other considerations.

Differences in conflict across racial groups were also examined to address the third aim of the study. Findings supported the hypothesis that multiracial youth would demonstrate higher levels of conflict than white and monoracial minority counterparts. Multiracial youth reported higher parent-adolescent conflict at both sixth grade and over time through ninth grade. The results support existing qualitative literature suggesting that multiracial youth may have poorer relationship quality with their parents than monoracial youth, possible due to distinct experiences of within family discrimination or lack of parental support related to multiracial identity (Gonzales-Backen 2013; Lorenzo-Blanco, et al., 2013; Miville et al., 2005; Nadal et al., 2012). It is particularly notable that multiracial youth demonstrated higher levels of conflict than other monoracial minority youth in the sample as it may suggest there are distinct aspects of a multiracial identity

beyond identifying as an racial/ethnic minority that contribute to family conflict among multiracial adolescents.

Parent-Adolescent Cohesion during Early Adolescence

The second aim of the study sought to clarify the pattern of parent-adolescent cohesion during early adolescence. The hypothesis that there would be a decrease in cohesion over time was supported by the findings. Results indicated that, on average, parent-adolescent cohesion decreased at each time point during early adolescence. These outcomes align with existing findings that relationship quality between adolescents and their parents occurs in a “U-shaped” pattern decreasing during early adolescence, which may be due to a reorganization of the power within the relationship or decreases in perception of legitimacy of parental authority in early adolescence (e.g. De Goede et al., 2009; Hadiwijaya et al., 2017; Keijsers et al., 2011).

Racial group differences in cohesion were examined to address the fourth aim of the study. Results did not support the hypothesis that multiracial youth would demonstrate lower cohesion than monoracial minority and white youth as no differences were found between multiracial and monoracial participants. These findings provide support for the hypothesis that conflict and cohesion are not diametrically opposed among multiracial youth. Although multiracial youth had higher levels of conflict than their monoracial counterparts, they may simultaneously maintain comparable levels of cohesion to their monoracial peers. Because parent-adolescent cohesion and conflict predict adolescent outcomes in unique and important ways, it is noteworthy that conflict and cohesion changed independently for multiracial adolescents over time in the current sample (Xu et al., 2017). Additionally, ethnic racial identity, or an individual’s

conceptualization of their racial/ethnic group membership, may also play an important role in how multiracial youth experience dynamics in their relationships with parents such as cohesion (Yip, 2018).

Parent-Adolescent Conflict during Emerging Adulthood

For the fifth aim of the study, changes in conflict over time during emerging adulthood were examined. Findings did not align with the hypothesis that conflict would decrease during this time period. Similar to the lack of change in conflict found during early adolescence, it is possible that the scale used in this study did not detect changes given low conflict overall. The lack of findings may have been exacerbated given that parent-child relationships often improve during emerging adulthood (Smetana & Rote, 2019; Tsai et al., 2013; Walkner & Reuter, 2014; Whitman et al., 2011). Follow up examination of individual growth curves supported that most participants showed low levels of parent-child conflict with little change across emerging adulthood.

Results regarding conflict across racial groups were not consistent with the hypothesis that multiracial youth would demonstrate higher levels of conflict than monoracial minority and white participants during emerging adulthood. There were no differences in conflict found across racial groups. When compared to the higher levels of conflict found among multiracial youth versus their monoracial counterparts during early adolescence, this outcome indicates that conflict with parents among multiracial youth may be most pronounced amidst earlier stages of adolescence and more closely reflect patterns of their monoracial peers during emerging adulthood. It is possible that multiracial youth and their parents learn to navigate distinct experiences (e.g. within

family discrimination, lack of parental guidance surrounding race) during adolescence and return to levels of conflict comparable to their peers by emerging adulthood.

Parent-Adolescent Cohesion during Emerging Adulthood

Further examination of results during emerging adulthood indicated that multiracial participants demonstrated increases in cohesion over time while white youth demonstrated small but significant decreases during this time period. These outcomes partially aligned with the hypothesis that parent-adolescent cohesion would increase across emerging adulthood for all racial groups. The increase in cohesion demonstrated by multiracial emerging adults paralleled previous findings that mother-child relationships continue to stabilize and improve from adolescence to emerging adulthood, perhaps due to adolescents better identifying with their parents, valuing family relationships, or more agreement on what constitutes age-appropriate autonomy (Moreira & Telzer, 2015; Tsai et al., 2013; Walkner & Reuter, 2014; Whitman et al., 2011). However, the decrease in cohesion demonstrated by white emerging adults did not follow the patterns of cohesion found in previous studies. It may be that in the current sample, levels of cohesion among white adolescents during mid-/late adolescence returned to levels more similar to multiracial and monoracial youth during emerging adulthood. Given the variability of how multiracial individuals self-identify and limited studies conducted during emerging adulthood, it could be that part-white multiracial individuals, when given only monoracial options in past studies may have identified as white and inflated previous changes in cohesion among white-identified participants (Parker et al., 2015).

The hypothesis that multiracial emerging adults would demonstrate lower levels of cohesion than white and monoracial minority participants during emerging adulthood was partially supported by the results of the study. At the first time point of emerging adulthood, white emerging adults demonstrated significantly higher cohesion than multiracial participants, while monoracial emerging adults showed no significant difference. These outcomes were consistent with the previous qualitative literature indicating that multiracial adolescents may have particularly challenging parent-adolescent relationship compared to their monoracial counterparts due to distinct challenges related to multiracial identity (Gonzales-Backen 2013; Lorenzo-Blanco, et al., 2013; Miville et al., 2005; Nadal et al., 2012). This finding may also indicate that multiracial youth are similar in parent-child cohesion to other monoracial minority youth during this time period than to their white counterparts. This similarity could be due to shared cultural values/practices of familial obligation or family roles in adulthood shared by multiracial and monoracial minority youth (Sanchez et al., 2010).

Comparing Cohesion and Conflict

Overall, the findings of this study demonstrate that cohesion and conflict are separate constructs that are not necessarily diametrically opposed. Results across the study demonstrated that the outcomes of parent-adolescent conflict and cohesion did not always reflect one another. For example, no changes over time were found for conflict in either the early adolescent or emerging adult periods while changes in cohesion were found during early adolescence and emerging adulthood among multiracial youth. Although few, the existing studies that have considered both cohesion and conflict and their development in relation to one another over time have also suggested that conflict

and cohesion are independent constructs and not necessarily opposite ends of the same spectrum (e.g. Shearer et al., 2005, Telzer & Fuligni, 2013; Xu et al., 2017).

Comparing Early Adolescence and Emerging Adulthood

Given the differences in the measurements used across early adolescence and emerging adulthood, a direct comparison could not be conducted. However, results indicated some general trends that can be helpful in understanding how these two periods compare. No changes in conflict were found across either period. These findings may be due to measures that assessed for types or severity of conflict not common to many of the families in the study (e.g. “One of us got so mad, we hit the other person) or could be due to the overall low levels of conflict often experienced by families during both adolescence and, particularly, emerging adulthood (e.g. Chung et al., 2009; Tsai et al., 2013). Parallel to hypotheses, it did appear that conflict scores, on average, were moderate during early adolescence, with substantial individual variability, and very low during emerging adulthood, although change in measurement may have also confounded these differences. Examination of cohesion across both periods demonstrated a decrease during early adolescence across all groups and increase during emerging adulthood among multiracial youth, partially parallel to previous findings that across adolescence, parent-adolescent cohesion occurs in an inverted “U-shaped” pattern such that there is tendency to decrease in the early years while re-navigating the parent-child dynamics, and an increase when the roles of the relationship and demands of adolescence have stabilized in emerging adulthood (De Goede et al., 2009; Hadiwijaya, Klimstra, Vermunt, Branje, & Meeus, 2017). Additionally, cohesion did appear to be somewhat higher, on average,

during emerging adulthood than early adolescence, although these differences were not dramatic and may have been due to the change in measurement.

Individual Differences

Analyses indicated that there was significant variability in intercepts and slopes among individual participants. For example, when examining parent-adolescent conflict during early adolescence there was no significant change over time on average, but there was notable variability in individuals' growth with some participants increasing while many decreased or remained stable (see Appendix). These results suggest that there are meaningful factors not accounted for in the current study that could help us to further understand the changes in parent-adolescent relationship quality over time as well as racial group differences. For example, it is possible that accounting for specific racial subgroups within the monoracial minority group (e.g. Latinx, Asian, Black, Indigenous) or within the multiracial group (e.g. distinct combinations of races or part-white versus non-white) could better account for the changes over time and between racial groups. Distinct cultural considerations can uniquely influence racial groups, including parent-adolescent relationship quality (Chung et al., 2009; Juang et al., 2012). It may also be that accounting for racial/ethnic identity, how much an individual identifies with their ethnicity or race, could enhance the understanding of the role of multi- and monoracial identity in parent-adolescent relationship quality.

Limitations and Future Directions

The findings of the current study provide further insight into the development of parent-adolescent relationship quality for multiracial youth. However, application of results will benefit from consideration of the study's context and limitations. The sample

drew from a large longitudinal study that used a volunteer and incentivization approach to recruiting participants, which can introduce bias into the sample. Participants who volunteer for studies can demonstrate distinct demographic characteristics from the general population (Tripepi et al., 2010). Given the 80% consent rate for participation, the sample in the current study may represent characteristics distinct from the larger population. Additionally, although incentivization can minimize attrition in longitudinal studies, incentives can differentially motivate people and lead to greater participation of some groups over others (Singer & Ye, 2013). Future studies, when possible, should consider the use of random selection to reduce the possible influence of volunteering and incentives on sample characteristics.

The current study examined parent-adolescent relationship quality during early adolescence and emerging adulthood, however it did not include grades 10-12 (mid adolescence) due to a gap in funding. Past studies indicate that cohesion and conflict tend to plateau during mid adolescence and then move toward more positive relationship quality (i.e. decrease in conflict and increase in cohesion) during late adolescence and emerging adulthood (Hadiwijaya et al., 2017; Laursen & Collins, 2009). However, it is unclear whether that pattern is applicable for multiracial adolescents during mid-adolescence. Further clarification of parent-child relationship quality during mid-adolescence, particularly among multiracial youth, would enhance understanding of how this relationship develops over time and potential timing for future interventions.

This study used youth report measures of parent-child relationship quality. Self-report measures serve to capture perceptions rather than objectively measure outcomes, and those of youth tend to differ from the reports of parents regarding parent-adolescent

relationship quality and parenting behaviors (Reidler & Swenson, 2012). Although youth reports are often related to behavioral outcomes more closely than parent reports, observational measures demonstrate better predictive validity and may provide valuable information regarding parent-adolescent relationship quality among multiracial youth in future studies (Abar et al., 2015; Herbers, et al., 2017).

Comparisons between early adolescence and emerging adulthood were limited as the measures implemented during early adolescence and emerging adulthood were distinct and adapted for developmental fit. Characteristics of conflict and cohesion often appear differently between early adolescent and emerging adult years (e.g. frequency of contact, hierarchical nature of relationship) and, thus, are measured differently in the present study. Additionally, the current study focused on the relationship of emerging adults with their mothers and not fathers. These measurement differences pose challenges for drawing definitive conclusions regarding causes of variation in outcomes. Subsequent studies may consider measures that apply to both early adolescence and emerging adulthood to avoid changes in measurement. Given known differences between relationships of emerging adults with mothers and fathers, future research may consider comparing outcomes between both relationships.

Analyses of missingness also indicated that data were not missing completely at random. Missing data and attrition can bias results. Additionally, assumptions of normality were violated on 8 of 28 measures. However, real data are often not normally distributed and distributional violations can be addressed by using robust estimators (Blanca et al., 2013). Thus, procedures were implemented to minimize the impact of missingness, skew, and kurtosis including the use of FIML and robust standard errors in

all HLM analyses. Statistical power is also important to consider given its relevance for accurately identifying a statistically significant result. It is possible that statistical power influenced the outcomes in the current study, although it is highly unlikely given the large sample size for all analyses was greater than 200 participants (Cohen, 1992).

Multiracial identity is complex to measure; research entities such as the U.S. Census Bureau have changed their approaches drastically over the recent decades (Charmaraman et al., 2014; Parker et al., 2015). Evidence indicates that multiracial individuals often underreport their multiracial identity, instead identify as a single racial group, and/or often change the description of their race as their racial/ethnic identity changes over time or between settings (Parker et al., 2015). Given the self-report nature of the race measure in the current study, it may be that individuals underreported or changed their racial identification throughout adolescence. Subsequent studies may consider how changes in identification are related to parent-adolescent dynamics. Additionally, this study did not examine differences among various multiracial subgroups. For example, multiracial adolescents who identify as white and another minority race can demonstrate distinct experiences and perceptions from those who identify with two or more minority races (Stepney et al., 2015). These differences may also apply to the parent-adolescent relationships of multiracial youth. For further clarification, future studies may benefit from examining and comparing distinct subgroups across multiracial youth.

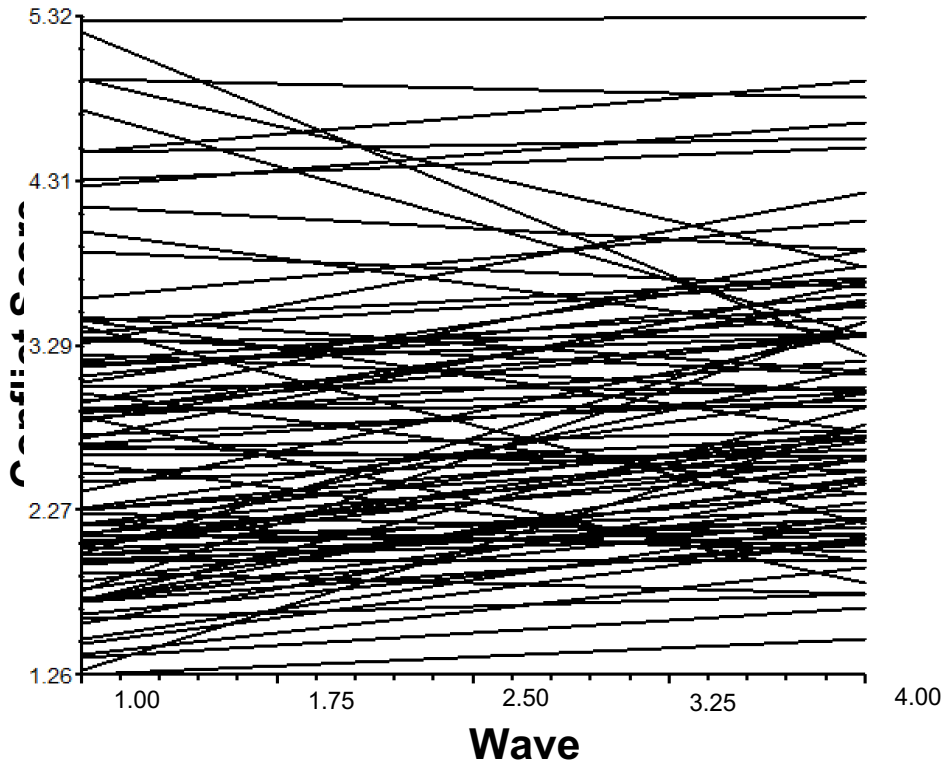
Conclusion

The current seven-year longitudinal study provides insight into the relationship quality between parents and multiracial adolescents. Acquiring a better understanding of

these dynamics is particularly important considering the rapidly growing population of multiracial youth and the persistence of health and behavioral disparities among these adolescents when compared to their monoracial counterparts. Currently, there is a lack of research examining the family dynamics of multiracial youth, particularly considering indications that they may have distinct relational experiences due to their race. Overall, this study demonstrates that multiracial identity, in conjunction with other considerations, is a relevant factor to consider when examining family dynamics. Multiracial identity likely also relates distinctly to negative and positive aspects of parent-adolescent relationships. Future prevention programs may consider interventions tailored to multiracial youth and their relationships with parents including family dynamics surrounding parenting and supporting youth as they develop an identity and navigate daily experiences related to being multiracial.

APPENDIX

*Individual Growth Trajectories of Parent-Adolescent Conflict Scores Across
Early Adolescence*



Note. Includes a randomized subsample of 15% of participants.

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