Published in final edited form as:
J Clin Child Adolesc Psychol. 2014 ; 43(3): 400–414. doi:10.1080/15374416.2014.888670.

Family Check-Up Effects Across Diverse Ethnic Groups: Reducing Early-Adolescence Antisocial Behavior by Reducing Family Conflict

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Abstract

Objective—Multicultural responsiveness and adaptation have been a recent area of emphasis in prevention and intervention science. The changing demographics of the United States demand the development of intervention strategies that are acceptable and effective for diverse cultural and ethnic groups. The Family Check-Up (FCU) was developed to be an intervention framework that is flexible and adaptive to diverse cultural groups (Dishion & Stormshak, 2007). We empirically evaluated the extent to which the intervention is effective for improving youth adjustment and parent–child interactions for diverse cultural groups.

Method—A sample of 1,193 families was drawn from 2 large-scale randomized prevention trials conducted in diverse urban middle schools. We formulated 3 groups on the basis of youth self-identification of ethnicity (European American, African American, Hispanic) and examined group differences in the hypothesized mediating effect of family conflict (FC) on later antisocial behavior (ASB).

Results—Path analysis revealed that youths in the intervention condition reported significantly less ASB over a 2-year period (Grades 6 through 8). Moreover, youth-reported reductions in FC at 12 months were an intervening effect. Ethnicity did not moderate this relationship.

Conclusions—Consistent with one of the primary tenets of coercion theory, participation in the FCU acts on ASB through FC across diverse ethnic groups, lending support to the multicultural

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competence of the model. Limitations of this study are discussed, along with areas for future research.

Keywords

Family Check-Up; multicultural adaptation; multicultural competence; prevention

Multicultural competence (MC) is a salient concern for health care professionals in the United States (e.g., S. Sue, Zane, Nagayama Hall, & Berger, 2009; Whaley & Davis, 2007). Changing U.S. demographics, including increased representation of ethnic minority populations (i.e., African Americans, American Indians and Alaska Natives, Asian Americans, and Hispanics), necessitates making systems of health care and delivery of services more accessible and effective for various cultural, racial, and ethnic groups. Evidence suggests that ethnic minority youths are at greater risk for negative mental health outcomes because of barriers to accessing services (e.g., stigma, economic resources) and lack of available culturally relevant services (Miranda, Nakamura, & Bernal, 2003; Pumariega, Rogers, & Rothe, 2005). As such, culturally sensitive family interventions are a public health imperative. In mental health specifically, the notion that services should be delivered in a culturally competent manner has been articulated for nearly half a century (S. Sue et al., 2009). In response to the growing appreciation for cultural influences on intervention outcomes, access to services, and specific elements of mental health interventions, scientists have been developing and testing interventions with multicultural adaptations. Recent research suggests that empirically based treatments (EBTs) are at least as effective for diverse populations as they are for majority populations, and in many cases are more effective when cultural adaptations are included. However, research designs and various potentially confounding factors have made it difficult to attribute differences in treatment outcome specifically to cultural adaptation (Castro, Barrera, & Martinez, 2004; S. Sue & Zane, 2006). Clearly, this increasingly important topic for prevention science deserves further inquiry.

In this article we briefly review current conceptualizations of MC in the intervention literature and present a somewhat novel delineation of treatment-specific MC that occurs in tandem with culturally responsive (CR) interventions. We place this in the context of contemporary efforts to render EBTs multiculturally competent, with a focus on prevention interventions for youth behavior problems. We then describe the CR elements of the Family Check-Up (FCU; Dishion & Stormshak, 2007), an assessment-driven, individually tailored, and family-based EBT for the prevention of problem behaviors that has been successfully tested with youths ages 2–18 in a series of randomized controlled trials (RCTs; e.g., Dishion, Kavanagh, Schneiger, Nelson, & Kaufman, 2002; Dishion et al., 2008; Stormshak et al., 2011; Stormshak, Fosco, & Dishion, 2010; Van Ryzin, Stormshak, & Dishion, 2012). Last, we describe how we empirically tested the question of whether families of different racial/ethnic backgrounds benefit equally from participation in the FCU in terms of coercive family dynamics related to the development of antisocial behavior (Dishion & Patterson, 2006; Patterson, 1982). In the coercion model, reducing family conflict (FC) is a primary mechanism of change in the reduction of youth antisocial behavior (ASB). We tested for ethnic group differences in this purported relationship. Data are drawn from an ethnically

diverse, combined sample of two large-scale randomized prevention trials based in public middle schools.

Multicultural Competence

Professional psychology is in the midst of what Kaslow (2004) termed the *competencies-based movement*. Of the core competencies, intervention competency is the most applicable to this study. Barber et al. (2007) defined two meanings of intervention competence: global competence and limited-domain competence. Global competence refers to the clinical acumen of the therapist to appropriately and independently manage clinical problems and situations to adequately help clients realize their treatment goals. Limited-domain competence, a subset of global competence that is solely expressed within the context of a specific intervention or treatment modality, is generally the focus of studies of service delivery fidelity (Binder, 2004), which encompasses adherence (i.e., the degree to which the intervention is delivered as intended) and competence. With regard to MC, Kaslow includes individual and cultural diversity as an overarching competency that applies to the eight core competencies she described (2004). Despite ample discussion of MC in intervention and prevention, we are unaware of any discussions further defining MC in terms of intervention competence, other than a broad acknowledgment that MC should govern intervention development, evaluation, and delivery (S. Sue et al., 2009). We refer to culturally informed delivery of interventions and therapists' intervention strategies, specific to a particular intervention, as a form of intervention-specific MC, borrowing from Barber's definition of global and limited-domain competencies (2007). This feature is central to our presentation of the role of culture in the development and delivery of the FCU. Thus, we differentiate between the two interrelated domains: intervention-specific MC (delivery level) and CR interventions (design level). The delivery-level MC framework described by D. W. Sue and colleagues (D. W. Sue, Arredondo, & McDavis, 1992; D. W. Sue et al., 1982) guides our thinking and is also the model adopted by the APA in its *Guidelines on Multicultural Education, Training, Research, Practice, and Organizational Change for Psychologists* (American Psychological Association, 2003).

In regard to the design level, cultural adaptation, the process of systematically changing an EBT to be compatible with a client's or community's cultural values, meaning, and language (T. B. Smith, Rodríguez, & Bernal, 2011), is a common method for developing CR EBTs. Influences from ethnic minority clients and communities have been infused into prevailing models of culturally adapted EBTs (Barrera, Castro, Strycker, & Toobert, 2012). Recent empirical findings suggest the effectiveness of various means of adapting EBTs for use with diverse populations (Griner & Smith, 2006; Huey & Polo, 2008). However, using randomized trials to develop and test EBTs for all specific cultural groups may not always be feasible (e.g., Miranda et al., 2003) and may not account for within-group heterogeneity. As an alternative to culturally adapted EBTs, we favor developing adaptive, individually tailored interventions that include a menu of service options that fit within a variety of cultural frameworks (Collins, Murphy, & Bierman, 2004). An adaptive, tailored, culturally informed intervention strategy depends on assessment of culturally specific constructs that facilitate the adaptation process (e.g., racial socialization, acculturation). Empirically established constructs that have predictive validity with respect to child and adolescent

mental health inform the selection of assessments that guide the adaptation process. Individual tailoring of prevention programs is an increasingly common practice with scientists and practitioners who recognize that a “one size fits all” assumption is faulty and that some long-accepted theoretical models may have different meaning for different ethnic groups (Roosa, Dumka, Gonzales, & Knight, 2002). Some researchers have adopted new methods to individually tailor prevention programs by moving away from delivery of a fixed composition of intervention dosage and components to all participants and selecting components that are likely to have the greatest effect (Collins et al., 2004). This particular approach has been endorsed and empirically tested (e.g., Parra Cardona et al., 2012).

Cultural adaptation in family-based prevention interventions consists of model- or program-level modifications that are culturally sensitive (i.e., demonstrate cultural competence) and that are tailored to the worldviews of a specific cultural group (Kumpfer, Alvarado, Smith, & Bellamy, 2002). We begin with a discussion of one of the predominant guiding theories of the FCU, coercive family process and social learning theory, and then highlight elements of the model that demonstrate its CR. We also describe the multiculturally competent therapist skills that we believe to be essential to the effective delivery of the FCU to diverse families. Although we present the design and delivery levels independently, this is an artificial separation: a CR design is insufficient without adequate multiculturally competent delivery, which is enhanced by MC specific to the therapeutic techniques and underlying theoretical tenets of the intervention.

Coercive Family Process

An empirically supported, comprehensive theoretical basis is imperative for family-based prevention interventions. The FCU is based on an ecological model of youth development that recognizes that contextual stressors and parental factors may lead to problem behavior and that they predict the effectiveness of family management practices. Social learning theory and the contribution of coercive family processes in the emergence and maintenance of children’s problem behaviors is one empirically grounded theoretical framework for this process. The coercion model is the result of more than three decades of research conducted by Gerald R. Patterson and colleagues (e.g., Dishion, Patterson, & Kavanagh, 1992; Forgatch & Patterson, 2010; Patterson, 1982; Patterson, Reid, & Dishion, 1992). Coercion theory posits that a child’s interpersonal style is amplified in the context of conflictual and coercive interactions. Coercion theory further posits that some families engage in recurring interaction patterns during conflict, and the dispute is “won” through the use of aversive behavior, which ends the exchange. Coercive interactions are observed more often in families with children with adjustment and socialization problems (Patterson, 1982; Patterson et al., 1992). When coercive interactions dominate, problem behaviors emerge and then stabilize over development (Granic & Patterson, 2006). Several longitudinal studies have demonstrated that coercive cycles in early childhood predict long-term behavioral problems (e.g., Dishion & Patterson, 2006; Forgatch & DeGarmo, 2002; Shaw, Gilliom, Ingoldsby, & Nagin, 2003). Family-based interventions that reduce coercive interactions, especially by strengthening caregivers’ family management skills, result in reductions in youth behavior problems (e.g., Dishion et al., 1992; Forgatch & Patterson, 2010).

Developmental theories, in general, developed largely from a single cultural group (e.g., European American) and may not readily generalize to other cultural groups (Rogoff, 2003) in that they fail to integrate the unique experiences of ethnic minority children and families (Gonzales, Cauce, & Mason, 1996). Despite the robust empirical grounding of coercion theory, familial contributions to the development and maintenance of youth problem behaviors is potentially culturally bound because parents' socialization strategies are guided by their cultural values (Dunsmore & Halberstadt, 2009). The larger parenting literature reveals significant variability in optimal parenting practices and positive child outcomes between cultural groups (Yasui & Dishion, 2007). Historically, research on parenting style (e.g., Baumrind, 1971), including warmth and control/demandingness (authoritative, authoritarian), has been conducted primarily among families of European descent and may not accurately describe parenting practices of other cultural groups (e.g., Kotchick & Forehand, 2002). For example, in a comparison study of parental warmth and control with 13 cultural groups in nine countries, the mean levels and association between these two parenting constructs varied widely (Deater-Deckard et al., 2011). In a sample of first-generation Latino parents, additional parenting styles were observed, including protective (high levels of warmth, high levels of demandingness, low levels of autonomy granting) and affiliative (high levels of warmth, low levels of demandingness, low levels of autonomy granting; Domenech Rodríguez, Donovick, and Crowley (2009).

A growing contingent of research has demonstrated that family interactions and parenting behaviors may have different meanings for different ethnic groups. Contextual factors, such as cultural beliefs, values, and racial socialization, influence parenting practices and child outcomes (Pinderhughes, Dodge, Bates, Pettit, & Zelli, 2000; Tran & Lee, 2010). A complete review of the parenting and culture literature is beyond the scope of this article, but the case of harsh discipline provides a salient example for family-based parenting interventions. In a community study of 585 children followed from age 5 to age 13, Lansford, Deater-Deckard, Dodge, Bates, and Pettit (2004) found racial differences in the link between harsh parental discipline and the development of behavior problems. Specifically, harsh parenting predicts increases in behavior problems for European American (EA) families, but not for African American (AA) families. On the other hand, Koenig, Ialongo, Wagner, Poduska, and Kellam (2002) also found support for the link between negative caregiver discipline and psychopathology in a community sample of 1,197 African American families. In addition to parenting styles, the role of acculturation, racial socialization, racial/ethnic identity, bicultural competence, and racial/ethnic discrimination can be more salient factors for ethnic minority families (Martinez & Eddy, 2005; Yasui & Dishion, 2007).

The Family Check-Up

The FCU was designed to be implemented in community service settings and have a public health impact on reducing antisocial behavior. The cornerstone of the FCU is a home-based ecological assessment that comprises brief (about 20 minutes total) developmentally appropriate interaction tasks that assess salient family functioning and caregiving domains (e.g., parental monitoring, effective limit setting, child–caregiver relationship quality) implicated in the etiology and maintenance of problem behaviors (e.g., Patterson et al.,

1992; Shaw et al., 2003). Direct, naturalistic observation is the most effective way to obtain ecologically valid information (Barkley, 1997) and provides an additional method of assessment to protect against biases (Cohen & Kasen, 1999; Yasui & Dishion, 2008). Furthermore, the caregiving domains assessed during the FCU are potential mechanisms of change for youth psychopathology (see J. D. Smith & Dishion, in press).

A variety of parent-, teacher-, and youth self-report measures are also collected as part of the FCU's ecological assessment. Salient domains are assessed using brief, multi-item subscales developed from psychometrically sound measures of youth functioning, such as the Child Behavior Checklist (CBCL; Achenbach, 1991), Eyberg Child Behavior Inventory (ECBI; Robinson, Eyberg, & Ross, 1980), and Child Depression Inventory (CDI; Kovacs, 1985). These measures have been found to have adequate psychometric properties across ethnic minority populations (for a review of these and other measures for ethnic minority youth, see Piña, Gonzales, Holly, Zerr, & Wynne, in press). Measures in the FCU's ecological assessment also demonstrate strong functional and predictive validity among diverse youth. For example, youth-reported ratings of family conflict, as measured in this study, significantly correlate with observed family conflict ($r = .31$, $p < .05$), and youth-reported antisocial behavior, measured at age 12, significantly correlates with CBCL Externalizing Scale scores 7 years later ($r = .14$, $p < .0001$; Van Ryzin & Dishion, in press). Although initial evidence suggests these measures provide reliable and valid data among diverse youth, future research warrants more specific tests of measurement invariance to directly compare ethnic groups.

The development of the FCU began with collection of normative data from a culturally diverse sample of youths and families in the city in which the prevention trials were to be conducted. In the design of the FCU feedback session, members of diverse cultural groups completed assessments that targeted areas of parenting strengths and challenges, which were derived from the previously gathered norms during pilot testing of the model (Dishion & Kavanagh, 2003).

Therapists are trained to adopt a collaborative stance from the outset of the FCU to establish an atmosphere in which caregivers are acknowledged to be respected authorities on their children and their family, an element that has been found to be culturally congruent for ethnically diverse families (Parra Cardona et al., 2012). Therapists ask open-ended questions intended to foster a trusting therapeutic relationship and give caregivers an opportunity to tell their family story. Family stories as the basis for family intervention have been found to be important for the majority of cultural groups represented in the United States (McGoldrick & Hardy, 2008). The therapist's questions, posed within this collaborative framework, can illuminate the contextual factors that have contributed to children's problems, some of which are likely to be culturally influenced or culturally bound. Among Latino families, for example, language barriers in combination with differing levels of acculturation in families present a common stressor during adolescence. Youth who speak fluent English and interact with peers from differing ethnic groups become more distant from their families. Parents have difficulty monitoring their youth in this context because of the language and cultural barriers. A proactive discussion of this potential problem may guide the focus of the feedback and intervention plan with Latino parents. Parent groups are

often an excellent resource for first-generation Latino families in that they provide a venue for networking, information exchange, and mutual support while navigating critical developmental and social transitions (e.g., Gonzales et al., 2012).

The culmination of the FCU is the feedback session, during which the results of the ecological assessment are collaboratively discussed with caregivers in the context of the family system. The discussion of assessment results focuses on areas in which the family is functioning well and those that could potentially benefit from additional services. One specific goal of this session is to help caregivers better understand the ecological factors influencing the child's problem behaviors, beyond the family dynamic, and enhance the family's motivation to change family management strategies. Therapist attention to sensitive delivery of the feedback in a collaborative, empowering manner is essential for promoting family engagement and motivation to change (Dishion & Stormshak, 2007). The ecological approach allows for cultural variation and is further enhanced by the therapist's MC specific to the role of parenting practices in the development of youth problem behaviors. For example, feedback sessions are adapted to focus on parenting strengths and challenges within the cultural context. Drawing from the previous example with the Latino family, a feedback session may focus on the challenges of monitoring and tracking the adolescent that have resulted from language and cultural barriers, as well as some of the strengths the parents have already exhibited in this area (e.g., having the youth check in by phone, inviting peers to the family home).

Multiculturally competent delivery of the FCU

Skaff, Chesla, de los Santos Mycue, and Fisher (2002) aptly noted that effectively working with diverse clients requires MC among intervention developers and program delivery staff. Specific awareness, knowledge, and skills, consistent with the model outlined by D. W. Sue and colleagues (1992; 1982), regarding culturally unique differences in parenting practices, family management, and the role of parenting in the development of youth problems contribute to the cultural relevancy and effectiveness of the intervention. FCU interventionists receive training and ongoing supervision with a particular emphasis on cultural issues (Dishion & Stormshak, 2007), and diversity considerations are explicitly addressed (Allen, 2007). Training and supervision groups comprise interventionists and supervisors from diverse backgrounds in terms of race, ethnicity, culture, and socioeconomic status. Although MC does not necessarily translate to applied competencies (Ridley & Shaw-Ridley, 2011), attention within supervision groups to differences in privilege, access to resources, discrimination experiences, and cultural dynamics between interventionists and clients is essential for developing providers' self-awareness, understanding of others, and multicultural sensitivity (American Psychological Association, 2003).

The FCU's process dictates that interventionists be adept at effectively using assessment results and interpreting their meaning using collaborative assessment methods (e.g., Dishion & Stormshak, 2007; J. D. Smith, Handler, & Nash, 2010), to inform culturally relevant recommendations for subsequent care and motivate families to engage and change. One dimension of the COACH rating system (Dishion, Knutson, Brauer, Gill, & Risso, 2010),

which is used to assess fidelity to the FCU, is concerned with the therapists' ability to responsively apply the intervention in a manner that accounts for the family's cultural background and other contextual factors. Specifically, one item of this dimension assesses the therapist's skill in delivering the FCU in a culturally sensitive manner that is congruent with the cultural context of the family. Coders have rated FCU therapists highly in this domain when observing feedback sessions with caregivers of young children (J. D. Smith, Dishion, Shaw, & Wilson, under review).

FCU Intervention Effects and Ethnic Differences

In a pair of school-based randomized prevention trials referred to as Project Alliance 1 (PAL 1; $N = 998$) and Project Alliance 2 (PAL 2; $N = 593$), assignment to the FCU during middle school was found to have significant short- and long-term effects on a number of domains implicated in the etiology of problem behaviors, including antisocial behavior, substance use, family conflict, family relationship quality, and high-risk sexual behavior (Dishion et al., 2002). In terms of family conflict and ASB, engagement in the FCU is associated with less steep growth in ASB in middle school (Stormshak et al., 2011), lower rates of growth in FC and ASB between sixth and ninth grades (Van Ryzin et al., 2012), and decreased risk for substance use disorders and arrests at age 18 (Connell, Dishion, Yasui, & Kavanagh, 2007). Specifically, reductions and declining trajectories of FC from early to middle adolescence were found to mediate reductions in ASB in late adolescence (age 18–19; Van Ryzin & Dishion, 2012).

The majority of studies examining ethnic differences in FCU intervention effects and processes have found no differences, with some exceptions: Caruthers et al. (under review) found evidence for different mechanisms for EA and AA families by which the FCU exerts effects on high-risk sexual behavior, with a direct effect for AAs but not for EAs, and changes in family relationships and parental monitoring being important for EAs but not for AAs. This study represents a limitation of previous analyses of ethnic differences in which we have compared EAs to only one other ethnic group or to all other groups combined (e.g., nonmajority). This approach is useful in some applications but fails to appreciate within-group heterogeneity. A number of previous studies of the PAL trials have examined engagement in the FCU using the complier average causal effect (CACE) approach (e.g., Jo, 2002). CACE modeling permits the prediction of engagement status by using the subgroup of voluntary engagers in the FCU from the intervention condition to identify an optimal comparison group amongst the control condition. That is, a group of families not offered the intervention who share similar characteristics to families (from the intervention condition) who were offered the FCU and opted to participate. In each of the studies conducted using this sophisticated approach, ethnic group membership did not predict voluntary engagement in the FCU (Connell & Dishion, 2008; Connell et al., 2007; Stormshak et al., 2011; Stormshak & Dishion, 2009; Van Ryzin et al., 2012).

Hypotheses

The FCU was developed to motivate caregivers to alter family management practices with adolescents to prevent later problem behaviors, such as delinquency, high-risk sexual

behavior, and substance use (Dishion & Stormshak, 2007). Given these aims and the underlying tenets of coercion theory, we hypothesized that participation in the FCU in the sixth grade would result in fewer youth-reported problem behaviors assessed in the eighth grade, which will be mediated by reductions in FC assessed in the seventh grade (see Figure 1). We also expect this process to be the same across three ethnic groups: EA, AA, and Hispanic. Given noted differences between boys and girls in the trajectories and antecedents of antisocial behavior development (e.g., Odgers et al., 2008), we examined the potential moderating effect of gender on the proposed relationship between FC and ASB. We also tested for moderation by baseline levels of FC and ASB, which are represented by interaction terms in Figure 1, as it could be reasonably expected that intervention effects would differ between families with greater need for intervention.

Methods

Participants and Procedures

The sample for this study was drawn from two large-scale randomized prevention trials conducted in five ethnically diverse Title 1 middle schools in a midsized metropolitan city in the Pacific Northwest. The full Project Alliance 1 (PAL 1) sample consisted of 998 families, and 593 families participated in Project Alliance 2 (PAL 2). In both studies, two cohorts (in subsequent academic years) of adolescents and their families were recruited in the sixth grade. Parents actively consented to participate in the study and students provided assent on the day of assessment administration, which occurred during class in the spring of each year. Youths completed questionnaires about FC and ASB, among other topics. Youths and parents received monetary incentives for participating in the assessment at each wave of the study. Descriptions of the PAL 1 and PAL 2 recruitment and randomization procedure are available in Stormshak, Connell, and Dishion (2009) and Van Ryzin et al. (2012), respectively.

Adolescent demographics of the two studies are relatively similar across a number of domains and reflect the shifting demographics of the region during the 10-year period in between trials (PAL 1; PAL 2): male (53%; 51%), female (47%; 49%), EA (42%; 36%), AA (29%; 15%), Hispanic (7%; 18%), Asian American (5%; 7%), other or biracial/mixed ethnicity (16%; 23%). This study examined a combined subsample of the PAL 1 and PAL 2 studies that comprised 1,193 adolescents self-identifying as EA (637, 53%), AA (381, 32%), and Hispanic (175, 15%), with 662 families in the intervention condition and 531 in the control group.[1]

Randomization and Intervention

Following completion of the sixth grade assessment, participants were randomly assigned to either the intervention or control condition (i.e., school services as usual). An unbalanced randomization approach was used in PAL 2 to increase the likelihood of participation in the FCU (386 families were assigned to the intervention group and 207 to the control). The

[1]Additional information regarding ethnic group differences by study and intervention condition can be found in Table 2. Intervention and control group sizes differ for two reasons: (1) randomization of the PAL 1 sample did not account for ethnicity, and (2) PAL 2 used an unbalanced randomization approach.

current study sample includes 209 families (48% female; EA: 103, 49%; AA: 70, 33%; Hispanic: 36, 17%) in the intervention condition who participated in the FCU (i.e., engagers). Of these 209 families, 94 are from PAL1 and 115 are from PAL2. Additional information regarding the randomization and intervention protocol can be found in Dishion et al. (2002) and Stormshak et al. (2011) for PAL 1 and PAL 2, respectively.

Measures

Antisocial behavior—The 11-item subscale of the school survey[2] administered at each wave was used to assess ASB. Youths rated items on a 6-point scale for occurrence during the past month (e.g., 1 = *never*, 6 = *more than 20 times*) and included behaviors such as lying to parents about where they had been, skipping school without an excuse, getting into fights, carrying a weapon, stealing, and purposely damaging or trying to damage property. Interrater reliability was adequate (Cronbach's α = .84).

Family conflict—Youth report of FC was assessed in the school surveys conducted each year. Four items reflecting the frequency with which adolescents and parents engaged in maladaptive conflictual behaviors (e.g., arguing, getting angry with each other, hitting another family member, adolescent getting their way by expressing anger) were rated on a scale ranging from 1 (*never*) to 7 (*more than 7 times*). Interrater reliability was adequate (α = .82).

Analysis Plan

We first examined direct effects of the FCU on ASB in the eighth grade following the conservative intention to treat (ITT) approach. Next, we examined the role of FC, measured in the seventh grade, in mediating the effects of the FCU on ASB. In addition to examining the typical requirements for mediation (i.e., a significant direct effect of the predictor on the presumed mediator and on the distal outcome, a significant direct effect of the mediator on the outcome, and a significant indirect effect of the predictor on the outcome via the mediator; Judd, Kenny, & McClelland, 2001), which some have argued is too restrictive (e.g., MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002), we also explored the joint significance of the paths from the predictor to the outcome through the purported mediator, which has been referred to as an *intervening variable* (MacKinnon et al., 2002). Third, we tested for moderated mediation, following the methods described by Fairchild and MacKinnon (2009), with a multiple-group analysis approach of three ethnic groups. Last, we tested for moderation of the overall findings by gender and trial.

Path modeling (see Figure 1) was conducted using structural equation modeling with Mplus 6.12 (Muthén & Muthén, 2012). In addition to what is displayed in Figure 1, observed variables at baseline (ASB, FC, treatment condition, gender, and trial) were allowed to correlate. To include the full randomized sample in the analysis, we used full information maximum likelihood estimation, which has been shown to provide unbiased estimates when data are missing at random (MAR) or missing completely at random (MCAR; Arbuckle,

[2]PAL 1 and PAL 2 used different versions of the school survey. The ASB and FC scales used in this study were computed using items that were the same across versions. Also, results from PAL 1 were rescaled to match the PAL 2 scale.

1996). There was some degree of missing data in our sample (see Table 1) that was determined not to be MCAR (Little's (1988)] MCAR test, $\chi^2[19] = 54.34$, $p < .01$), suggesting missing data may have introduced some degree of bias into the analyses. However, the patterns of missing data suggest the data are MAR and not systematically missing.

The significance of indirect effects was tested using the RMediation technique (Tofighi & MacKinnon, 2011), which in contrast to standard techniques for assessing mediation, does not assume a normal distribution and provides an unbiased assessment of statistical significance even when the indirect effect is not normally distributed. RMediation provides a 95% confidence interval (CI) of the indirect effect, which is considered to be statistically significant if this CI does not contain zero. A Wald test was used to determine significant group differences between the three ethnic groups. Model fit of the full sample analysis compared with the subsequent multiple-group analysis was evaluated using the Bayesian information criteria (BIC).

Results

Intervention Effects

Correlations among model variables for the full three-group sample are provided in Table 1, along with means and standard deviations. Table 2 provides descriptive statistics of FC and ASB divided by ethnicity, trial, and intervention condition. A one-way analysis of variance (ANOVA) was conducted to examine mean level between group differences. Post hoc testing (Tukey) revealed some significant pairwise comparisons between the three ethnic groups. Path analysis began with an examination of a direct effect of the FCU on ASB using an ITT approach. The direct effect of the intervention was not significant, controlling for baseline levels, gender, and trial. Next, we tested the hypothesized mediation model presented in Figure 1. According to MacKinnon and colleagues (2002), lack of a significant direct effect indicates the potential intervening role of the purported "mediator." The results of the path analysis, which used the full sample of 1,193 families selected for inclusion in this study, are presented in Table 3 (BIC = 19109.39). The Model Path labels correspond to the path labels in Figure 1.

Concerning the hypothesized intervening effect, assignment to the FCU was associated with significant reductions in FC assessed 1 year later ($R^2 = .29$, $p < .001$), controlling for baseline levels, which was associated with ASB assessed 2 years later ($R^2 = .25$, $p < .001$), also controlling for baseline levels. The joint significance of these paths was tested for statistical significance in RMediation. The resulting 95% CI of −.047 to −.008 does not include 0 and is thus considered to be significant. The direct effect of the FCU was marginally significant. In addition, the stability paths of FC (d) and ASB (k) were significant, as were the paths to FC at 12 months from gender (i), trial (h), and the intervention condition by ASB at baseline interaction (f). This interaction was marginally significant on ASB at 24 months (j). Similarly, the treatment by FC at baseline interaction was marginally significantly related to FC at 12 months (e). Given these significant and marginally significant relationships with the interactions terms, we probed the interaction using the procedure described by Singer and Willett (2003). Probing of significant interactions in a mediation model reveals whether

the overall effect varies as a function of the baseline levels of the predictor (ASB) and the purported mediator (FC), which is akin to moderation in most analytic situations. High and low values of baseline ASB and FC were created at 1 standard deviation above and below the mean, respectively. The intervening effect of FC between the FCU and ASB reductions at 24 months were tested at four combinations of high (H) and low (L) levels. When the CIs provided by RMediation were examined, it was determined that the intervening effect was significant across all combinations (HH: −.031 |−.001; HL: −.050|−.007; LH: −.073|−.001; LL: −.087|−.014).

Moderated Mediation by Ethnicity

A multiple-group analysis of the three ethnic groups resulted in significant moderation (Wald [18] = 52.19, $p < .001$; BIC = 21505.54). Next, each path was isolated to determine which paths differed between the groups. First, paths were constrained to be equal across all three groups. If a significant Wald test indicated group differences, the parameter was then freed individually by group, which resulted in the following differences: treatment by ASB at baseline interaction (Hispanic ≠ EA), stability path of ASB (Hispanic ≠ EA, AA), trial on ASB at 24 months (Hispanic ≠ EA ≠ AA), and the correlations between baseline ASB and the treatment condition (EA ≠ AA) and baseline FC (EA ≠ AA, Hispanic). Two findings from this analysis are particularly important: (a) No group differences were found in the paths included in the previously identified intervening variable effect, indicating that there is no moderated mediation, and (b) the three groups on the path from trial to ASB at 24 months were nonequivalent, suggesting a potential trial effect.

Moderated Mediation by Trial and Gender

The decade-long duration between the PAL 1 and PAL 2 studies suggests the possibility of a trial effect. To test this possibility, the model was tested for moderation by trial. The results indicated significant moderation (Wald [15] = 31.84, $p < .01$; BIC = 19102.68). Isolation of the paths indicated no significant group differences; however, examination of observed means revealed significant differences. Despite mean-level differences in baseline levels of ASB and FC, and FC at 12 months, the relations were the same. Gender was not a significant moderator and was thus retained as a covariate in the final model.

Discussion

The changing demographics of the United States dictate the need to develop and test prevention programs for acceptability and effectiveness with diverse populations rather than presume that standard theories and intervention processes apply equally to all. Although there is considerable evidence that parenting styles vary by ethnicity and culture (e.g., Deater-Deckard, Dodge, Bates, & Pettit, 1996), coercion dynamics and conflict may be universally problematic for child and adolescent development. This article is not intended to suggest that parenting skills may vary by culture. Parenting is a cultural value, and the way parents use various skills is culturally based. However, research across cultures generally suggests that positive, warm parenting supports positive child adjustment, whereas abusive, detached parenting leads to maladjustment. There are many examples of variation in the middle of these extremes. One of the shortcomings of a purely developmental approach to

addressing this question is that findings are correlational. However, a randomized intervention that reduces conflict is a more powerful test of the ramifications of conflict across ethnic groups.

Given that there is diversity in parenting styles but commonality in unsuccessful parenting, it is critical that family interventions be adaptable and flexible. Individually tailored interventions that are responsive to multicultural differences and contexts could be a more viable option for large-scale prevention efforts in diverse communities than adaptation of EBTs for a single group. Although this approach does not necessarily increase access to services for ethnic minority youths and families, prevention programs such as the FCU, which is school based, cost effective, and individually tailored, might prove to increase acceptability and engagement with nonmajority populations. Previous research has shown these outcomes to be a strength of the FCU (Connell & Dishion, 2008; Connell et al., 2007; Stormshak et al., 2011; Stormshak & Dishion, 2009; Van Ryzin et al., 2012). Evidence suggests that barriers to accessing services (e.g., stigma, economic resources) and lack of available culturally relevant services (Miranda et al., 2003; Pumariega et al., 2005) put ethnic minority youths at risk for negative mental health outcomes. Given the positive outcomes associated with evidence-based, culturally sensitive interventions with ethnic minority clients (Griner & Smith, 2006; T. B. Smith et al., 2011) and increased client engagement and satisfaction in services (Griner & Smith, 2006; Martinez & Eddy, 2005), multiculturally responsive interventions are an ethical obligation and public health priority. Prevention programs that successfully engage ethnic minority families and increase motivation to engage in subsequent services are key to decreasing long-term racial/ethnic disparities in behavioral health and developmental outcomes for youths and families.

On the surface, Kaslow's (2004) assertion that MC is an overarching competency accurately indicates the need to practice from a culturally informed foundation in all domains of psychology, not just intervention. However, it appears to assume that the therapist possesses the necessary flexibility to alter EBTs to meet the needs of the client and can do so appropriately and effectively, which is not necessarily the case. Perhaps a more practical approach is for treatment developers to design multiculturally responsive interventions that explicitly provide the needed flexibility to adapt the intervention in ways that foster MC. Therapists must be provided with decision rules, training, and supervision that promotes an evidence-based approach to delivering the model in a way that meets the individual needs of the client or family within a knowledge base specific to the intervention being implemented (i.e., intervention-specific MC). With respect to the FCU, it is recognized that parenting practices and family management strategies can differ among various ethnic and cultural groups, especially the meaning of the behavior or motivation behind the strategy. The assessment-driven and individually tailored aspects of the FCU provide therapists with the evidence and the means by which to adapt the intervention components to each family. Feedback about the assessment results and recommendations for future services presented as a menu of options are interpreted and presented with these differences in mind. Furthermore, families are asked to appraise their own behaviors, modify conclusions of the assessment to better fit their needs, and suggest further interventions that align with the family's contexts and goals.

The results of our analyses indicate that the FCU is effective for reducing FC, which acts as an intervening variable on reductions in ASB 24 months later. This relationship is consistent with the tenets of coercive family process and with previous research involving the FCU (Connell et al., 2007; Van Ryzin & Dishion, 2012), and did not differ by ethnic group in this sample of middle school youths. Although interaction terms between baseline levels of FC and ASB with treatment condition were significant and marginally significant in the overall model, probing of the interaction indicated that the intervening effect of FC performs similarly at high and at low initial levels of both variables. The lack of a direct effect on ASB, although marginally significant in the mediational model, is not surprising given the aim of improving parenting practices so that they perform as the mechanism of change for youth outcomes.

The multiple-group analysis, although not significant in terms of the purported mediation, did reveal some interesting differences between the ethnic groups. The EA families differed from the AA or Hispanic families with respect to each of the parameters in which significant differences were observed. However, this finding does not indicate homogeneity between the AA and Hispanic families; in a number of parameters, Hispanic or AA families differed from one or both of the other groups. Although we did not find evidence to support moderated mediation in this study, it is important to examine these relationships when attempting to understand the effectiveness and mechanisms of prevention interventions (Fairchild & MacKinnon, 2009). The significant difference between the three groups in terms of the effect of the trial on ASB at 24 months prompted an examination of a potential trial effect, which revealed mean-level differences in FC and ASB at baseline and FC at 12 months. Descriptive statistics provided in Table 2 show these mean-level differences between trials and ethnic groups. Although baseline levels of ASB were found to increase significantly in the 10 years in between the PAL 1 and PAL 2 studies, the intervening role of FC remained. This finding, along with an absence of evidence to suggest ethnic group differences in this process, suggest the robustness of this relationship. Clearly, prevention programs for problem behaviors among diverse youths ought to target FC.

Prevention programs that are offered to large numbers of families with varying degrees of motivation to participate in treatment present intervention scientists and therapists with the challenge of engaging families in the program (Spoth & Redmond, 2000). This issue can be magnified when working with diverse ethnic and cultural groups (e.g., Bernal, 2006). Previous examinations of the two prevention trials included in this study revealed no ethnic group differences in terms of engagement in the FCU (Connell & Dishion, 2008; Connell et al., 2007; Stormshak et al., 2011; Stormshak & Dishion, 2009; Van Ryzin et al., 2012), suggesting that the FCU provides an intervention approach that is acceptable and perhaps even appealing to diverse families. These findings, coupled with the conclusions of our study, support our assertion that the multicultural adaptations afforded by the development of the FCU and evident in its delivery are critical to a multiculturally effective prevention program for families.

Limitations

A description of this study's limitations is warranted. First, the study relied on adolescent self-reports to assess intervention outcomes, which reflect the perspective of only one member of the family. Although we recognize the potential biases in self-report data, we have previously argued that adolescent reports of intervention effects are likely to be more conservative than caregiver reports when testing the FCU, whose primary focus is on changing parenting (Van Ryzin et al., 2012). Observational coding of family interactions might prove to be a more sensitive means of assessing ethnic group differences than self-report measures, but matching coders and families by ethnicity is a nontrivial design characteristic (Yasui & Dishion, 2008). Multirater assessment of primary study variables would also add to their validity. Another study limitation was that the mediating role of only one family variable, conflict, was examined. Evidence suggests other measures of family functioning and parenting, such as monitoring or discipline practices, may be more culturally specific, with diverging outcomes for youths. Similarly, other family and parenting variables might not respond to the FCU in the same way. To inform future studies of ethnic and cultural differences in parenting, researchers would do well to focus on these differences and their implications in the etiology and treatment of adolescent problem behaviors. Much of the literature in this area is outdated and focused primarily on parenting styles. New observational measurement and assessment strategies, such as dynamic systems modeling, could be the key to revealing important ethnic differences in parent–child interactions. Multimethod assessment approaches, combining quantitative and qualitative strategies, might also illuminate the different meanings ethnic and cultural groups assign to parenting practices.

Third, the sample was limited in two primary ways. First, the randomization strategy in PAL 1 was not conducted with the aim of achieving equality in terms of ethnicity. PAL 2 addressed this limitation of its predecessor, but it nonetheless introduced potential ethnic differences between the intervention and control conditions. Second, even though the overall sample size is quite large for a randomized prevention trial, it still may have lacked enough power to detect a moderated mediation effect (Fairchild & MacKinnon, 2009).

Fourth, socioeconomic status (SES) was not included in the model because of the absence of reliable measures across the two trials the families were drawn from for the present study. Some previous research has found that ethnic differences in the developmental trajectories and relationships between family functioning and ASBs may fade when SES is included in the model (e.g., Gorman-Smith, Tolan, Henry, & Florsheim, 2000). Future inquiry into the mediating role of FC on ASB should assess socioeconomic status.

In addition, therapists' multicultural competence in the FCU was not explicitly measured in this study. Observational measures and coding systems to assess the degree of intervention-specific MC are needed to address the critiques of some scholars that question the conditions and processes that determine the effectiveness of EBTs for nonmajority populations (Castro et al., 2004; S. Sue & Zane, 2006). The role of racial/ethnic matching between therapists and families, especially caregivers, was not included in this study, although evidence suggests it may be a factor in multiculturally competent delivery of family-based interventions (e.g., Flicker, Waldron, Turner, Brody, & Hops, 2008; Foster et al., 2009). Finally, assessing more

nuanced cultural variables, such as ethnic identity and acculturative stress, rather than ethnic group membership, could be included in future research on this topic and might better capture within-group variation.

Future Directions

This study begins to address an important issue in prevention research. However, our data are insufficient to draw firm conclusions about the factors that contribute to the evidence supporting the multicultural responsiveness of the FCU. Future prospective studies attempting to address similar questions would benefit from a systematic assessment of therapists' multicultural competence, appropriate use of cultural adaptations in the delivery of the intervention (measured observationally), and the effect of different training strategies hypothesized to increase cultural responsivity. Evidence of multiculturally competent delivery of the FCU is contained in the COACH fidelity of implementation rating system (Dishion et al., 2010), which will be used to evaluate the FCU in future trials. Intervention studies are likely to suffer from insufficient power to detect moderation and moderated mediation effects. Careful power analysis would be a necessity. The sample characteristics are also very important for both statistical reasons. Recruitment of roughly equal size cultural groups would address power issues for moderation analysis. Last, measurement of child and parent outcomes requires normative comparisons that reflect the cultural groups under investigation and that demonstrate invariance across groups.

Conclusions

This study lends support to the role of ecologically valid assessment and intervention in promoting multiculturally competent services to racially/ethnically diverse families. In addition to culturally adapted EBTs, empirically driven, individually tailored interventions such as the FCU provide an alternative approach toward multiculturally responsive prevention intervention. Through reliance on the multiculturally relevant theory of coercive family process; an ecologically sensitive, multimethod family assessment; and therapists' intervention-specific, multiculturally competent delivery in accord with each family's needs and values, the FCU offers a flexible, responsive approach to meeting the needs of diverse families.

Acknowledgments

This research was supported by National Institute on Drug Abuse grants DA007031 to Thomas Dishion and DA018374 to Elizabeth Stormshak. Justin Smith, Naomi Knoble, and Argero Zerr received support from research training grant MH20012 from the National Institute of Mental Health, awarded to Elizabeth Stormshak. The authors gratefully thank the families who generously participated in our research and Cheryl Mikkola for editorial support.

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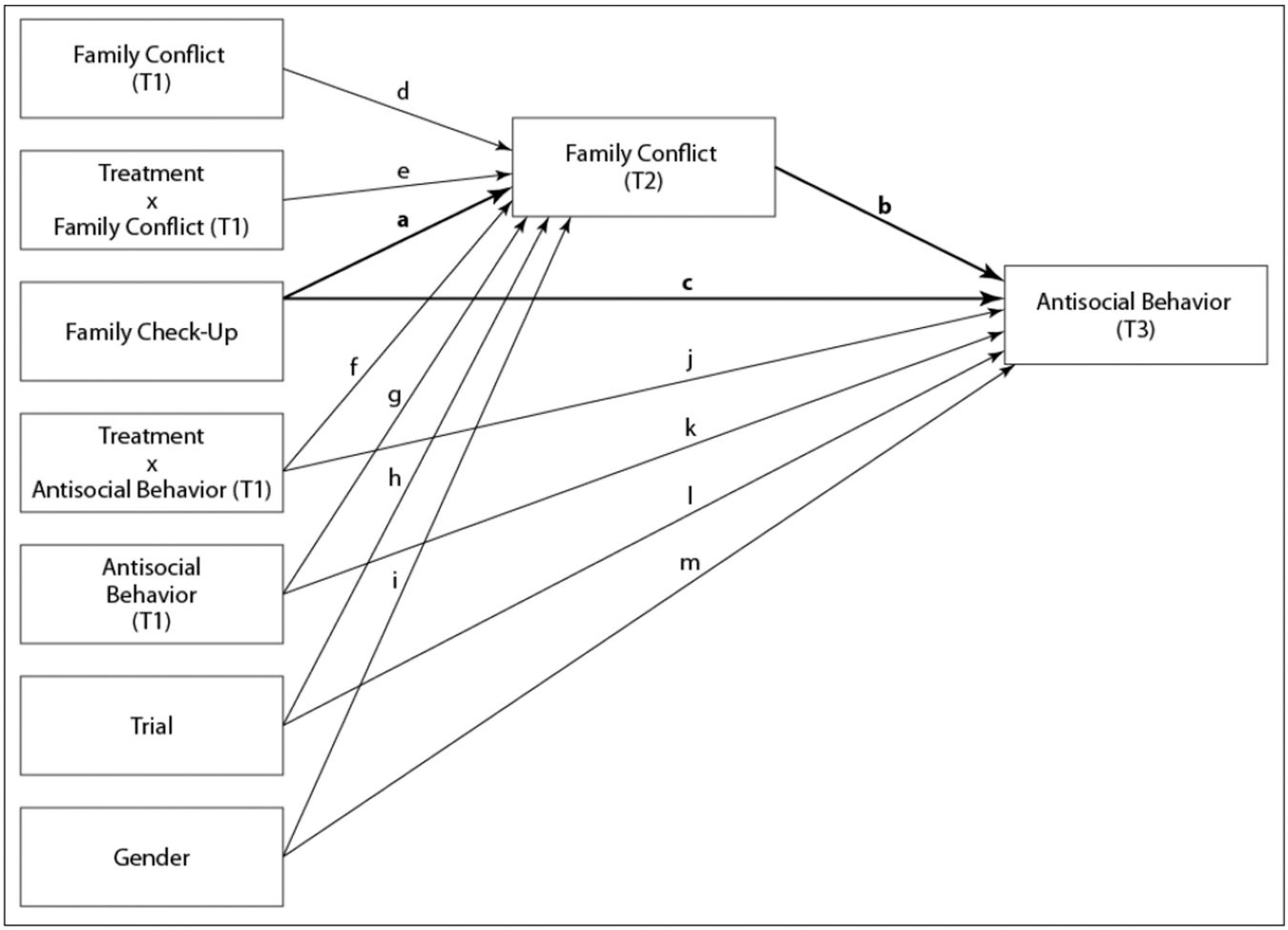

Figure 1. Model tested

Note. Bold paths indicate the hypothesized meditational pathway.

Table 1

Intercorrelations Between Antisocial Behaviors, Family Conflict, Ethnicity, and Other Study Variables

Variable	1	2	3	4	5	6	7	8	9	10
1. Antisocial behavior (Time 1)	—	.37**	.31**	.12**	.23**	−.20**	.06*	-.03	−.14**	−.22**
2. Antisocial behavior (Time 3)		—	.22**	.25**	.15**	.09**	.10**	.01	−.10**	−.03
3. Family conflict (Time 1)			—	.45**	.08**	.14**	−.01	−.04	.02	.20**
4. Family conflict (Time 2)				—	.09**	.03	.07*	−.05	.08*	.34**
5. European American					—	−.73**	−.44**	.01	−.02	−.02
6. African American						—	−.28**	.01	.00	−.16**
7. Hispanic							—	−.01	.03	.23**
8. Treatment condition								—	.02	−.14**
9. Gender									—	.01
10. Trial										—
Mean	1.32	1.34	2.13	2.28						
Standard deviation	.52	.48	1.20	1.24						

Note. Correlations were calculated using a Pearson's *r*. *p*-values are two-tailed.

** $p < .01$;

* $p < .05$.

Ethnic groups: European American ($n = 637$), African American ($n = 381$), Hispanic ($n = 175$). Trial: 1 = PAL 1, 2 = PAL 2.

Table 2

Descriptive Statistics for Key Measures Across Ethnicity, Study, and Treatment Condition

	European American		African American		Hispanic		Mean Difference Test [a]		
Variable	***M***	***SD***	***M***	***SD***	***M***	***SD***	***F*(df)**	***p***	**Post hoc**
Full sample (both trials) (*N* = 1,193; EA: 637, AA: 381, His: 175)									
Antisocial behavior (Time 1)	1.21	.36	1.47	.58	1.39	.76	12.00(2)	.000	EA ≠ AA
Antisocial behavior (Time 3)	1.27	.43	1.40	.50	1.46	.56	3.70(2)	.025	EA ≠ His
Family conflict (Time 1)	1.99	.98	2.37	1.45	2.11	1.28	34.02(2)	.000	EA ≠ AA, His
Family conflict (Time 2)	2.20	1.16	2.34	1.32	2.49	1.31	12.33(2)	.000	EA ≠ AA, His
Project Alliance 1 (*N* = 782; EA: 423, AA: 291, His: 68)									
Antisocial behavior (Time 1)	1.26	.41	1.52	.60	1.75	1.03	15.80(2)	.000	EA ≠ AA, His
Antisocial behavior (Time 3)	1.29	.40	1.37	.44	1.66	.64	6.48(2)	.002	EA ≠ AA, His
Family conflict (Time 1)	1.77	.76	2.20	1.31	2.11	1.24	33.93(2)	.000	EA ≠ AA ≠ His
Family conflict (Time 2)	1.86	.85	2.07	1.13	2.29	1.30	16.93(2)	.000	EA ≠ AA ≠ His
Project Alliance 2 (*N* = 411; EA: 214, AA: 90, His: 107)									
Antisocial behavior (Time 1)	1.10	.19	1.29	.48	1.15	.34	8.10(2)	.000	AA ≠ EA, His EA ≠ His
Antisocial behavior (Time 3)	1.25	.48	1.49	.66	1.33	.36	3.31(2)	.037	EA ≠ His
Family conflict (Time 1)	2.43	1.19	2.91	1.74	2.12	1.31	11.61(2)	.000	EA ≠ AA, His
Family conflict (Time 2)	2.84	1.38	3.17	1.54	2.62	1.31	5.82(2)	.003	EA ≠ His
FCU condition (across trials) (*N* = 662; EA: 352, AA: 210, His: 100)									
Antisocial behavior (Time 1)	1.19	.33	1.54	.65	1.39	.79	9.50(2)	.000	AA ≠ EA, His
Antisocial behavior (Time 3)	1.25	.38	1.46	.55	1.42	.56	.67(2)	*ns*	
Family conflict (Time 1)	2.02	.99	2.48	1.46	2.11	1.31	28.48(2)	.000	EA ≠ AA, His
Family conflict (Time 2)	2.30	1.21	2.35	1.40	2.48	1.28	10.62(2)	.000	EA ≠ AA, His

J Clin Child Adolesc Psychol. Author manuscript; available in PMC 2014 May 02.

	European American		African American		Hispanic		Mean Difference Test [a]		
Variable	***M***	***SD***	***M***	***SD***	***M***	***SD***	***F*(df)**	***p***	**Post hoc**
Control condition (across trials) (*N* = 531; EA: 285, AA: 171, His: 75)									
Antisocial behavior (Time 1)	1.23	.38	1.38	.47	1.40	.72	3.26(2)	.039	EA ≠ AA
Antisocial behavior (Time 3)	1.30	.48	1.35	.44	1.50	.56	4.30(2)	.014	EA ≠ His
Family conflict (Time 1)	1.96	.96	2.24	1.43	2.13	1.25	7.95(2)	.000	EA ≠ AA, His
Family conflict (Time 2)	2.08	1.11	2.32	1.23	2.50	1.36	4.46(2)	.012	EA ≠ His

Note. EA = European American, AA = African American. His = Hispanic.

[a] One-way ANOVA. Post hoc = Tukey.

Table 3

Results of Path Analysis

***N* = 1,193**				
Model Path	***B***	***SE (B)***	***β***	**95% CI**
A. FCU → family conflict (Time 2)	.33***	.04	.35	.283 | .423
B. Family conflict (Time 2) → antisocial behavior (Time 3)	.24***	.04	.25	.176 | .331
C. FCU → antisocial behavior (Time 3)	.17***	.04	.19	.112 | .268
D. Family conflict (Time 1) → family conflict (Time 2)	.52	.47	.02	−.015 | .054
E. FCU × Family Conflict (Time 1) → family conflict (Time 2)	−.28	1.01	−.01	−.090 | .068
F. FCU × Antisocial Behavior (Time 1) → family conflict (Time 2)	−.00	.00	−.04	−.116 | .028
G. Antisocial behavior (Time 1) → family conflict (Time 2)	.01***	.00	.14	.065 | .208
H. Study → family conflict (Time 2)	.61**	.21	.07	.023 | .110
I. Gender → family conflict (Time 2)	1.48***	.41	.17	.078 | .260
J. FCU × Antisocial Behavior (Time 1) → antisocial behavior (Time 3)	.00	.00	.01	−.065 | .089
K. Antisocial behavior (Time 1) → antisocial behavior (Time 3)	.01**	.00	.14	.055 | .219
L. Study → antisocial behavior (Time 3)	13.63**	4.98	.16	.047 | .272
M. Study → antisocial behavior (Time 3)	2.42*	1.10	.21	.044 | .377
Indirect Effects				
FCU → Family Conflict (Time 2) × Family Conflict (Time 2) → antisocial behavior (Time 3)	2.31*	.98	.03	.005 | .055 [a]

Note.

*$p < .05$.

**$p < .01$.

***$p < .001$.

[a]Computed using RMediation (Tofighi & MacKinnon, 2011). Effect is considered significant if the 95% confidence interval does not contain zero.