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The Effect of Family Communication Patterns on Adopted Adolescent Adjustment

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Abstract

Adoption and family communication both affect adolescent adjustment. We proposed that adoption status and family communication interact such that adopted adolescents in families with certain communication patterns are at greater risk for adjustment problems. We tested this hypothesis using a community-based sample of 384 adoptive and 208 nonadoptive families. Adolescents in these families were, on average, 16 years of age. The results supported our hypothesis. Adopted adolescents were at significantly greater risk for adjustment problems compared to nonadopted adolescents in families that emphasized conformity orientation without conversation orientation and in families that emphasized neither conformity nor conversation orientation. Adolescents in families emphasizing conversation orientation were at lower risk for adjustment problems, regardless of adoption status.

Keywords

adjustment; adolescents; adoption; family communication patterns

Recent changes in the modern family have led researchers to pay closer attention to the growing complexity of family structures, such as step-families, families formed through assisted reproduction, and adoptive families. Recent reviews attest to particular interest in adoptive families and in adopted child adjustment (cf. Bimmel, Juffer, van IJzendoorn, & Bakermans-Kranenburg, 2003; Juffer & van IJzendoorn, 2005; Lee, 2003; O'Brien & Zamostny, 2003; van IJzendoorn, Juffer, & Klein Poelhuis, 2005). These reviews compared adopted, nonadopted, domestically adopted, and internationally adopted youth on several adjustment dimensions, including internalizing and externalizing problems, attachment to parents, and academic achievement. Overall, these reviews reported that most adopted children and adolescents were well adjusted. A small but notable group, however, experienced significant behavioral or mental health problems. It is this group that may account for mean differences in adjustment that often are observed in studies comparing adopted to biological children (Bimmel et al.; Brand & Brinich, 1999).

Differences in adjustment for this small group have generally been attributed to a number of factors unique to adopted children. For example, relative to nonadoptees, adopted children have more likely experienced early childhood adversity that can result in developmental delays

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and negatively affect early childhood attachment to parents (Haugaard & Hazan, 2003). Also, the identity development process can be particularly challenging for adopted youth, who may look and act differently from their parents and siblings and who may be trying to come to terms with limited information about their birth parents and cultural origins (Brodzinsky, Schechter, & Henig, 1992; Lee, 2003). In regard to mental health outcomes, there also might be differences in parental thresholds for making treatment referrals, with adoptive parents more likely than nonadoptive parents to refer children for mental health or behavioral problems (Juffer & IJzendoorn, 2005).

These factors, however, do not fully explain the adjustment difficulties observed in some adopted children. First, they do not apply uniformly to all adoptive families nor to all adopted children in the small group with adjustment problems. Second, the external factors described above suggest fairly direct cause-effect relationships. Such simplistic associations are unlikely to represent the complex causal processes that underlie adopted children's adjustment problems. To better understand adjustment among adopted children, we need a more thorough understanding of the complex underlying processes as they occur in most, if not all, adoptive families.

Adolescent Adjustment and Family Communication

In general population studies, more than three decades of research has established a strong association between parent-child interactions and adolescent adjustment (Reiss, 2000; Steinberg, 2001). Research on parent-child communication has consistently demonstrated that parent-child interactions characterized by open communication, warm and supportive behavior, and firm, consistent enforcement of developmentally appropriate expectations positively influence child adjustment. Hostile, angry, and conflictual interactions, on the other hand, are associated with poorer adjustment. Various labels have been employed to describe these different types of parenting, including Baumrind's (1971) authoritarian, authoritative, permissive, and neglecting parenting, Burlleson, Delia, and Applegate's (1995) person-versus position-centered parenting, and Koerner and Fitzpatrick's (2002b) conversation orientation and conformity orientation.

Drawing from this overwhelming evidence, we expect that parent-child interaction plays a similarly relevant role in adopted children's adjustment. We argue that family interaction is a proximate influence on child and adolescent adjustment, regardless of adoption status. Further, family structure and the factors already identified as associated with adopted children's adjustment are, compared to family interaction, more distal factors whose impact on adjustment is moderated by family interaction. That is, adoption and its correlates define a particular context that interacts with family interaction processes to determine child adjustment.

Family Communication Patterns Theory

A theoretical framework that expands upon existing theories (e.g., Baumrind, 1971; Burlleson et al., 1995; Reiss, 1981) to provide a stronger explanation of the association between family interactions and child adjustment in complex families like adoptive families is Koerner and Fitzpatrick's (2002a, 2002b, 2004b, 2006) Family Communication Patterns Theory (FCPT). FCPT is based on the fundamental insight that creating a shared social reality is central to family functioning. Shared reality exists when family members' cognitions about an object are accurate, congruent, and in agreement. Sharing social reality with others makes understanding and being understood easier, leading to more efficiency and coordination and fewer misunderstandings and conflict. Consequently, families that share social reality should communicate with one another more accurately and with less conflict, supporting child adjustment.

According to FCP Theory, families create a shared reality through two processes, conversation orientation and conformity orientation. *Conversation orientation* is characterized by frequent, spontaneous, unconstrained interactions that allow family members to codiscover the meaning of symbols and objects. This orientation encourages all family members to participate in defining social reality. *Conformity orientation* is characterized by uniformity of beliefs and attitudes. Family interactions focus on maintaining harmonious relationships that reflect obedience to parents, often manifest in pressure to agree and maintain the family hierarchy. This orientation allows family members in authority roles (i.e., parents) to define social reality.

Theoretically orthogonal, these two orientations define four family types: consensual, pluralistic, protective, and laissez-faire. *Consensual* families are high in both conformity and conversation orientation. Communication in consensual families reflects a tension between exploring ideas through open communicative exchanges and a pressure to agree in support of the existing family hierarchy. *Pluralistic* families are low in conformity orientation and high in conversation orientation. Family communication is characterized as open and unrestrained, focusing on producing independent ideas and fostering communication competence in children. *Protective* families are high in conformity orientation and low in conversation orientation. Communication in these families functions to maintain obedience and enforce family norms; little value is placed on the exchange of ideas or the development of communication skills. *Laissez-faire* families are low in both conversation orientation and conformity orientation. Family members do not often engage each other in conversation, and they place little value on communication or the maintenance of a family unit.

Sharing Reality in Complex Families

The concept of a shared reality among family members is not new. Others describe similar concepts using similar terms. Reiss (1981) described shared reality as a family paradigm guiding how members respond to challenges from the external world and Eccles et al. (1993) used stage-environment fit theory to explain the importance of compatibility between parental control attempts and adolescents' growing desire for autonomy. Deater-Deckard and Petrill (2004) used dyadic mutuality to describe synchronized, mutually warm, and responsive parent-child interactions and Grotevant, Wrobel, van Dulmen, and McRoy (2001), referring specifically to adoptive families, used parent-child compatibility or goodness of fit to refer to the similarity between parental expectations and actual or perceived child behavior. The connection between these conceptualizations of shared reality and FCP Theory is that in each case, increased shared reality is expected to relate to improved family functioning or child adjustment or both.

Several sources suggest that, compared to genetically related families, sharing social reality is likely to be more challenging in adoptive families (Brodzinsky, Lang, & Smith, 1995; Deater-Deckard & Petrill, 2004; Grotevant et al., 2001). Among the possible reasons for the added challenge is that the cognitive processes involved in perceiving the social world are at least partially a function of genetic predispositions. Research supporting this contention has shown medium to large effects of genetics on attitudes ranging from taste for sweets, preferences for leisure activities, endorsement of moral and ethical positions, and political attitudes (Alford, Funk, & Hibbing, 2005; Olson, Vernon, Harris, & Jang, 2001; Tesser, 1993). Abrahamson, Baker, and Caspi (2002) have shown that these effects are not limited to adults. They reported significant genetic effects on political attitudes in children as young as 12 years old.

This research suggests that although genetically related family members can sometimes rely on similar cognitive processes to achieve a shared reality, genetically unrelated family members must rely on other processes. We and others (Brodzinsky et al., 1995; Grotevant et al., 2001; Stein & Hoopes, 1985) suggest that how family members communicate with one

another is particularly important to creating a shared social reality among adoptive family members.

Adoption, Family Communication Patterns, and Child Adjustment

To date, studies of adoptive family communication mostly have examined adoption-specific communication (e.g., parents talking with an adopted child about his or her adoption; Brodzinsky, 2006; Wrobel, Kohler, Grotevant, & McRoy, 2003) or examined the direct effect of adoption status on family communication. Direct-effect studies have compared various aspects of communication (e.g., levels of conflict, amount of verbal interaction) across adoptive and nonadoptive families (Lansford, Ceballo, Abby, & Stewart, 2001; Lanz, Ifrate, Rosnati, & Scabini, 1999; Rosnati, & Marta; 1997). For the most part, these studies reported few differences in communication on the basis of adoption status.

In contrast to direct-effect studies, the FCPT suggests that adoption status and communication pattern interact to influence child adjustment. On the basis of research of parent-child communication in the general population (Baumrind, 1971; Burlison et al., 1995; Koerner & Fitzpatrick, 2004; Steinberg, 2001), we expect that family communication patterns directly affect child adjustment. On the basis of the greater challenges to creating a shared reality among adoptive family members, we also expect that in adoptive families the effects of family communication on adjustment will be amplified in specific ways. The purpose of the current study, then, was to test the application of the FCP Theory to explain adolescent adjustment among adopted adolescents. To accomplish this, we tested a series of hypotheses:

H1:	Adopted children will have more adjustment problems than nonadopted children.
H2:	Adoption status is <i>not</i> associated with a family's FCP.
H3:	FCP is associated with child adjustment.
H3a:	Consensual families will experience the fewest, Laissez-Faire families the most, and Protective and Pluralistic families a moderate level of child adjustment problems.
H4:	Adoption status and FCP interact to influence child adjustment.
H4a:	FCPs that favor conversation orientation (Consensual and Pluralistic) will have similar levels of adjustment problems across adoptive and nonadoptive families.
H4b:	FCPs that favor control over conversation (Protective) or use neither orientation (Laissez-Faire) will show more child adjustment problems in adoptive families relative to nonadoptive families.

Method

Sample

Participants were 592 families recruited to a longitudinal research project designed to investigate sibling influences on adolescent drug and alcohol use (McGue et al., 2007). All study families included two parents, the target child (referred to as the adolescent; M age = 16.01 years, $SD = 1.44$), and a younger sibling (referred to as the sibling; M age = 13.69 years, $SD = 1.57$) who was within 5 years of the adolescent's age. In 284 families, both children were adopted, in 100 families, the adolescent was adopted and the sibling was biologically related to the parents, and in 208 families both children were biologically related to the parents.

Adoptive families were identified through records from three large adoption agencies (600 and 700 placements each year). Biological families were identified using state birth records. Researchers located 90% of the identified adoptive families and 85% of the identified biological families. Once located, a parent in each family was interviewed to establish study eligibility. In addition to the children's age requirement, study eligibility was limited to families

living within driving distance of the research lab and to children with no physical or mental handicap that would preclude completing the day-long intake assessment, and all adopted children had to have been placed for adoption prior to 2 years of age ($M = 4.7$ months, $SD = 3.4$ months).

Participating were 63% of the eligible adoptive families and 57% of the eligible biological families. To determine the representativeness of participating families, a brief phone interview assessing parents' education, occupational status, marital status, and the number of parent-reported behavioral disorders in the participating children was administered to 73% of nonparticipating but eligible families. Results showed that the study sample is generally representative of the population of eligible families from which it was drawn and is not markedly different from families with parents living with two or more children in the metropolitan region where the university is located (McGue et al., 2007).

Procedures

Participating family members visited the research lab to complete informed consent forms, self-report surveys, two 5-minute videotaped family interactions, and the revised Diagnostic Interview for Children and Adolescents (DICA-R) (Welner, Reich, Herjanic, Jung, & Amado, 1987). Self-report surveys were independently completed by each family member. Among other things, these surveys assessed adolescent externalizing behavior and family and individual demographic characteristics. The videotaped family interactions were designed to elicit family interactions, including conversation and control behaviors. Videotaping took place in a room decorated to look like a living room or dining room, with family members seated around a dining table. Although the video camera was inconspicuously placed in a bookcase, family members were aware that they were being videotaped. A trained interviewer explained the tasks to the family members, but left the room for videotaping. For the first task, families were presented with a novel object, a Rorschach inkblot, and asked to come to a consensus about what the inkblot resembled. For the second task, families were presented with a moral dilemma (Kohlberg, 1981). In the story, a man whose wife has been diagnosed with a fatal disease but cannot afford to buy the only drug that can save her life. Families were asked to decide (a) whether the man should steal the drug for his wife and (b) whether he should also steal the drug for a stranger in need.

Trained interviewers administered the DICA-R (Welner et al., 1987) to the adolescents and their mothers. The DICA-R had been modified to include additional questions and probes necessary for complete coverage of DSM-IV childhood disorders. Adolescents' symptoms were reported by themselves and by their mothers. All interview data were reviewed by at least two individuals with advanced clinical training who were blind to other family members' symptoms and diagnoses. These reviewers coded every symptom and diagnostic criterion. A symptom was considered present if either the adolescent or the mother reported it. Kappa coefficients for disorders are as follows: Attention deficit hyperactivity disorder (ADHD, .77), Conduct Disorder (CD, .80), and Oppositional Defiant Disorder (ODD, .73).

During their visit, the adolescents also nominated teachers to provide information about the child's behavior at school. Nominated teachers were mailed a rating form, and teacher reports were received for 69% of the adolescents. Participants were compensated for their travel expenses and given a modest honorarium as compensation for their time.

Measures

FCP—A family's communication pattern is determined by observing the extent to which the family relies on conversation orientation and conformity orientation to create a shared reality. We used Latent Class Analysis to estimate each family's most likely communication pattern

(see Analysis Plan, below). The measures used to assess conversation orientation and conformity orientation, which are described below, were used as indicators of a FCP latent factor.

Trained observers viewed the two family interaction tasks and globally rated 12 family interaction characteristics using the Sibling Interaction and Behavior Study Rating Scales, adapted from the Iowa Family Interaction Rating Scales (Melby et al., 1998). Each family member's behavior toward each of the other family members was rated using a scale ranging from 1 (*not at all characteristic of the person*) to 9 (*mainly characteristic of the person*). Before viewing study videotapes, observers received 100 hours of training and were required to pass written and observation examinations. Trained observers attended biweekly coder meetings for ongoing training and to prevent "rater drift." Observer reliability was assessed by randomly assigning 25% of all tapes to be rated by a second observer, and then comparing the primary and secondary ratings using intraclass correlations (Shrout & Fleiss, 1979; Suen & Ary, 1989). Intraclass correlations for scales used in this study ranged from .5 to .8, a level of reliability considered acceptable for these types of data (Kenny, 1991; Mitchell, 1979).

The present study used three observational scales to assess *conversation orientation*, Communication, Listening, and Warmth. Because observers rated a family member's behavior toward each of the other three family members, every family member received three scores for each scale. For example, using the Communication scale, observers rated the mother's ability to clearly and appropriately express her own point of view, needs, and desires when speaking to the father, to the adolescent, and to the sibling. Family members who expressed their views in a manner that encouraged conversation with other family members received higher scores than those who did not. The Listening scale assessed the extent to which a family member verbally or nonverbally or both verbally and nonverbally attended to each of the other family members when the other member was speaking. Here again, each family member received three Listening scores. The Warmth scale assessed each family member's verbal and nonverbal expressions of caring, concern, and support toward each of the other family members, for a total of three Warmth ratings per family member. The Control scale was used to assess *conformity orientation*. This scale measured the extent to which a family member attempted or succeeded in controlling or influencing the attitudes, behavior, and interactions of other family members.

Adolescent externalizing behavior—Adolescent adjustment problems were operationalized as externalizing behavior in a variety of contexts including general delinquency, symptoms of behavioral disorders, conflictual relations with parents, and trouble at school. To obtain this broad assessment of adolescent externalizing behavior, we used five measures derived from multiple information that were combined as a latent factor with five indicators. Because we were primarily interested in the small subset of adolescents who experience significant adjustment problems as compared to adolescents who experience relatively few problems, we used Latent Class Analysis (see Analysis Plan) to identify two groups differing in externalizing characteristics.

For the first indicator, we used the Delinquent Behavior Inventory (DBI; Gibson, 1967). This self-report questionnaire contains a list of 36 behaviors. For each behavior, adolescents reported if they had never (1), once (2), or more than once (3) engaged in the behavior. Example DBI items included "smashing, slashing, or damaging things," "cutting classes at school," "stealing things," and "using any kind of weapon in a fight." DBI responses were summed to create a self-report externalizing behavior measure ($\alpha = .89$).

Symptom counts obtained from the ADHD, CD, and ODD sections of the DICA-R (Welner et al., 1987) were used to create an externalizing symptoms measure (range = 0–28 symptoms).

As described above, adolescents and mothers completed the DICA-R. A symptom was considered present if either the adolescent or the mother reported it.

Trained observers rated adolescent behavior toward each parent, as described above, to create the third and fourth externalizing behavior measures. Using the hostility scale, observers assessed the extent to which the adolescent's behavior toward the mother and toward the father was characterized by conflict, anger, defiance, and contempt.

Teacher ratings of adolescent in-class behavior were used to create the final externalizing measure. Using a 67-item behavior checklist adapted from the Conners' Teacher Rating Scale (Conners, 1969) and the Rutter Child Scale B (Rutter, 1967), teachers compared the adolescent to the average student and rated how characteristic a behavior was of the adolescent (1 = *not at all characteristic* to 4 = *very much characteristic*). Example checklist items included "is defiant," "has difficulty concentrating on school-work," "is often truant," "initiates physical fights," and "obeys the rules" (reverse coded). Responses were summed ($\alpha = .97$, Spearman-Brown interteacher reliability = .82).

Analysis Plan

Testing our study hypotheses required that we develop two categorical latent variables, the FCP variable and the Adolescent Externalizing Behavior variable, and examine associations between these two variables and adoption status. Both categorical latent variables were created through Latent Class Analysis (LCA) performed using the statistical program Mplus 4.21 (Muthén & Muthén, 1998 – 2006).

The FCPLCA model was created using a second-order latent factor structure. A set of 16 first-order latent factors, each with three indicators, served as indicators of the second order FCP latent factor. The 16 first-order latent factors assessed each family members' interaction with the three other family members for the three conversation orientation measures and the one control orientation measure (4 family members \times 4 measures). For example, the mother's Communication factor assessed her communication to the other family members and was indicated by the observer ratings of her communication to the father, to the adolescent, and to the sibling. The adolescent's and the sibling's gender were entered as covariates of the FCP latent factor.

The adolescent's Externalizing Behavior latent factor had five observed variables as indicators: (1) self-reported delinquency, (2) externalizing disorder symptoms, (3) observed hostility to the mother, (4) observed hostility to the father, and (5) teacher ratings. The adolescent's age and gender were entered as covariates of the Externalizing Behavior latent factor.

We had hypothesized the presence of four FCP and two Externalizing Behavior classes. To be confident that these were the most likely number of classes, we tested LCA models that had fewer and more classes than the hypothesized number. Because no single criterion is yet accepted for deciding the most likely number of classes within a population, we used a combination of theoretical and statistical criteria. First, we relied upon theory to provide the starting point for our model tests. Thus, to create the FCP variable, we tested models specifying one, two, three, four, and five classes. For the Externalizing Behavior variable, we tested one, two, and three classes. Statistical criteria included the Bayesian information criterion (*BIC*; Hagenars & McCutcheon, 2002) and the Lo-Mendell-Rubin adjusted LRT (*LMR*; Lo, Mendell, & Rubin, 2001). The *BIC* is a measure of model fit based on the -2 log likelihood statistic with a penalty for small samples and increasing parameters. A large decrease in the *BIC* value when the number of classes is increased indicates an improved fit for the model specifying the additional class. The *LMR* tests the null hypothesis that reverting to a model with one less class than specified would improve model fit. A statistically significant *LMR*

suggests that this hypothesis can be rejected and that the model being tested produced a significant improvement in model fit relative to a model with one less class. We also considered class sizes and model convergence. Models that produced classes with few or no members or that did not converge were rejected.

For each of our study hypotheses, we estimated the probability that an adolescent would be placed in the high externalizing subgroup on the basis of family communication patterns or adoption status or both. All probabilities were calculated as posterior probabilities, and all analytical models were run as mixture models using Mplus 4.21 (Muthén & Muthén, 1998 – 2006). The following provides a description of how we tested each of the study hypotheses.

Testing H1 required that we regress the two-class Externalizing Behavior latent variable on adoption status and two covariates, adolescent's age and sex using logistic regression. H1 would be supported if adopted adolescents had significantly greater odds of being placed in the high externalizing subgroup relative to nonadopted adolescents.

To test H2, we estimated the proportion of adoptive and nonadoptive families for each FCP class and statistically compared the adoptive and nonadoptive pairs of proportions using Fisher's exact tests. H2 would be supported if the tests showed that adoptive and nonadoptive families were distributed similarly across family communication patterns. Additionally, we regressed the FCP latent variable on adoption status and two covariates, adolescent and sibling gender, using multinomial logistic regression with the Laissez Faire family communication pattern as the reference group. H2 would be supported by this test if adoptive and nonadoptive families had even odds of placement within each family communication pattern.

Testing H3 required that we estimate the proportion of adolescents in the high versus the low externalizing subgroups for each family communication pattern. Proportions were compared statistically using Chi Square and Fisher's exact test. H3 would be supported if Consensual families had the smallest proportion of adolescents placed within the high externalizing subgroup, the Protective and Pluralistic families had similar, midlevel proportions, and the Laissez Faire families had the largest proportion of adolescents placed in the high externalizing subgroup.

To test H4, we estimated the models used to test H3 two more times, once using the sample of adoptive families and a second time using the sample of nonadoptive families. Thus, we obtained the proportion of adopted and nonadopted adolescents estimated to be in the high externalizing subgroup for each family communication pattern. Proportions were statistically compared using Fisher's exact test. H4 would be supported if adoptive Laissez Faire and Protective families had significantly higher proportions than nonadoptive Laissez Faire and Protective families and adoptive and nonadoptive Consensual and Pluralistic families had similar proportions.

Missing Values Analyses

Data from 592 families were available for these analyses, 318 of which had complete data on all study variables. Almost all missing data were due to missing teacher reports or fathers who did not participate in the observation tasks. As noted above, 31% of the teacher externalizing behavior ratings were missing. Also, in 23% of the families, fathers did not participate in the observational tasks. All other study variables had no more than 3% missing data.

Current research indicates that when missing data are unrelated to the study outcome (i.e., missing at random), recovering missing data using a reliable estimation procedure is preferable to case deletion (Schafer & Graham, 2002). For each externalizing behavior measure, we compared mean values for adolescents whose father did and did not participate in the

observational tasks or who did and did not have teacher report data. *T* test results showed no statistically significant differences on the basis of father participation. Adolescents without teacher report data, however, did report significantly higher externalizing behavior ($t = 3.14$, $p = .002$) and externalizing symptoms ($t = 4.15$, $p < .00$). To examine the possibility that our results could be biased by missing data, we tested each study hypothesis with and without listwise deletion of missing data. For every hypothesis, the pattern of findings was similar, although the smaller sample produced fewer statistically significant results.

Mplus handles missing data by adjusting model parameter estimates using full-information maximum-likelihood estimation (FIML; Muthén & Shedden, 1999; Schafer & Graham, 2002). To obtain reliable estimates, Mplus requires that the proportion of available data for each study variable and between each pair of variables be at least .10. These proportions were all above .53 and the majority were above .97. Therefore, we used the FIML option to deal with missing data.

Results

Estimating FCP Classes and Externalizing Behavior Classes

LCA results produced the strongest support for the four-class FCP model. The pattern of decline in the *BIC* statistic supported the four-class model over either the three- or five-class model. The class sizes estimated by the four-class model (Consensual = 6.7%, Pluralistic = 31.8%, Protective = 21.9%, Laissez Faire = 39.6%) were the most evenly distributed of all models tested, and most importantly, the patterns of family behavior estimated by the four-class model varied in theoretically expected ways. We rejected the five-class LCA model because it estimated a class containing just 1% of the families and produced a relatively small drop in the *BIC* (four- to five-class *BIC* change = 68.02) and a statistically insignificant *LMR* ($LMR = 182.85$, $p = .14$). The two-class model was also rejected because the relative decrease in the *BIC* statistic from the one- to the two-class model (*BIC* change = 1441.21) and the *LMR* statistic ($LMR = 952.55$, $p = .008$) supported the presence of more than two classes. The three-class model produced a good fit (two- to three-class *BIC* change = 258.94, $LMR = 376.76$, $p = .002$). But three problems with this model led us to reject it. First, the mean family behaviors produced by this model showed few interpretable patterns. Second, the model produced an uneven class distribution of two quite large classes and one small class. Finally, the *BIC* declines substantially from the three- to the four-class model (three- to four-class *BIC* change = 122.69), suggesting the possibility of a fourth class.

Evidence of the extent to which the four-class model estimated the expected family communication patterns is presented in Figure 1. Each bar in Figure 1 represents one family member's mean factor score. The first bar in every set depicts the mother's mean factor score. Thus, the left-most white bar represents the Control factor score mean of .38 estimated for mothers placed within the Protective family communication pattern. The second bar in every set depicts the father's mean. The third bar is the adolescent's mean, and final bar in every set is the sibling's mean factor score. (Standard errors and *t* values for the scores presented in Figure 1 are available upon request from the first author.)

As shown in Figure 1, Consensual families had two parents who were relatively high on control behavior and all family members tended to engage in high levels of communication, listening, and warmth. No one in the typical Pluralistic family showed high control, and members engaged in moderate levels of communication and listening and relatively little warmth. Protective families had one controlling parent and engaged in relatively little communication and moderate levels of listening and warmth. Finally, Laissez-Faire families consistently engaged in the lowest levels of all measured behaviors.

LCA estimation of adolescent externalizing behavior subgroups showed that a two-class model fit the data best (one-class $BIC = 15709.66$, two-class $BIC = 12610.97$, three-class $BIC = 12454.54$; two-class $LMR = 529.37$, $p < .00$, three-class $LMR = 240.15$, $p = .17$). The two-class model placed 79.9% of the adolescents in the low externalizing behavior subgroup and 20.1% in the high externalizing subgroup.

Hypothesis Testing

Logistic regression results showed that adopted adolescents were more likely to be placed in the high externalizing subgroup relative to nonadopted adolescents (odds ratio (OR) = 3.21, 95% Confidence Interval (CI) = 1.75 – 5.90), supporting H1. Adolescents' gender and age also predicted externalizing subgroup placement. Boys ($OR = 5.68$, $CI = 3.07 – 10.51$) and older adolescents ($\beta = 0.320$, $CI = 0.15 – 0.49$) were most likely to be placed in the high externalizing subgroup.

Proportions of adoptive and nonadoptive families within each FCP were quite similar (Consensual: adoptive = 6.7%, nonadoptive = 3.8%; Pluralistic: adoptive = 31.3%, nonadoptive = 30.0%; Protective: adoptive = 20.5%, nonadoptive = 26.0%; Laissez Faire: adoptive = 41.1%, nonadoptive = 40.4%), supporting H2. Statistical comparisons using Fisher's Exact tests found no statistically significant differences between the proportions of adoptive and nonadoptive families within each FCP. Also, multinomial logistic regression results using Laissez-Faire as the comparison showed that adoptive and nonadoptive families had even odds of placement in each family communication pattern (Consensual $OR = 1.64$, 95% $CI = 0.70 – 3.84$; Pluralistic $OR = 1.07$, 95% $CI = 0.66 – 1.72$; Protective $OR = 0.76$, 95% $CI = 0.46 – 1.25$).

Across family communication patterns, proportions of adolescents in the high externalizing subgroup supported H3 (Consensual = 1.1, Pluralistic = 16.0, Protective = 13.4, Laissez Faire = 21.3; $\chi^2 = 150.76$, $p < .01$). Fisher Exact tests showed that the proportion of high externalizing adolescents estimated for Laissez-Faire families was significantly larger than the proportion for Pluralistic families ($p = .04$). There was no difference in proportions for Pluralistic and Protective families ($p = .11$). Small cell size (only one Consensual family adolescent was placed in the high externalizing subgroup) precluded comparing Protective and Consensual families.

Proportions of adopted and nonadopted adolescents within each FCP in the high externalizing subgroup followed the expected pattern (Consensual: adoptive = 2.6%, nonadoptive = 0.0%; Pluralistic: adoptive = 16.7%, nonadoptive = 12.3%; Protective: adoptive = 18.5%, nonadoptive = 4.1%; Laissez Faire: adoptive = 26.9%, nonadoptive = 7.8%), supporting H4. The nearly 5:1 difference in proportions for adoptive and nonadoptive adolescents in Protective families was statistically significant ($p = .047$), as was the 3:1 ratio for Laissez Faire ($p = .005$). Proportions of adoptive and nonadoptive adolescents in Pluralistic families were similar ($p = .36$). Small cell size precluded comparing proportions in Consensual families.

Discussion

On the basis of what is known about associations between family communication and adolescent adjustment from existing studies (Steinberg, 2001), much of what we report here is not unexpected. Our goal, however, was to apply the FCP Theory, which suggests that creating shared social reality among family members plays a central role in adolescent adjustment, to furthering our understanding of *adopted* adolescent adjustment. Our results support the FCP Theory and indicate that existing theories based largely on families with genetically related parents and children may not completely apply to complex families, like adoptive families.

As others have reported, we found that adoption status is associated with adolescent adjustment (Bimmel et al., 2003; Juffer & van IJzendoorn, 2005; Keyes, Sharma, Elkins, Iacono, McGue, 2007; Lee, 2003; O'Brien & Zamostny, 2003; van IJzendoorn et al., 2005). We also replicated early research showing that family communication patterns directly relate to adolescent adjustment such that children in families that emphasized a combination of conversation and conformity were least likely to have adjustment problems (Steinberg, 2001). Our findings go beyond previous work to show that adoption status and family communication patterns interact in important ways and better explain adopted adolescent adjustment. Specifically, adoptive families that emphasized conformity over conversation orientation (i.e., protective families) or that used neither conformity nor conversation orientation (i.e., laissez-faire families) either failed to mitigate the risks of adoption associated with adolescent adjustment or even amplified them. Adoptive families high in conversation orientation (i.e., consensual and pluralistic families) appeared to mitigate those risks to the extent that their risk for child adjustment problems was statistically undifferentiated from nonadoptive families.

This does not mean that conversation orientation is universally positive for adolescent outcomes. Our results demonstrate that communication without control from parents leads to poor child adjustment, regardless of adoption status. We estimated that 16.7% of adopted adolescent and 12.3% of nonadopted adolescents stemming from Pluralistic families were in the externalizing group, which for nonadopted adolescents was the highest proportion. Only when conversation orientation was paired with parental control in the form of conformity orientation was conversation orientation associated with superior outcomes.

Family communication patterns that placed adoptive families at particular risk for adolescent adjustment problems were the Protective and Laissez-Faire types. It is no surprise that these communication patterns are associated with adolescent adjustment problems. What we report that is new is that adoption status and family communication patterns interact such that adopted children in these families were at substantially greater risk for adjustment problems relative to nonadopted children. In fact, more than a quarter of adopted adolescents in Laissez-Faire families fell into the high externalizing subgroup compared to only 8% of the nonadopted adolescents. This suggests that adopted children may be much more sensitive to the parental indifference and neglect typical of Laissez-Faire families than nonadopted children. We also found that controlling parenting without communication is much more detrimental to adopted children than to nonadopted children. Adopted children in Protective families were at almost five times the risk of being placed in the high externalizing group compared to nonadopted children in Protective families.

Theory-Based Explanation of Results

We proposed that the interaction between adoption status and family communication pattern occurs because adoptive families face more challenges to creating a shared reality than nonadoptive families. According to FCP Theory, the existence of a shared reality means more accurate communication and fewer misunderstandings and conflict, reducing the risk of child adjustment problems (Koerner & Fitzpatrick, 2004, 2006). Genetically related family members likely share a sense of belonging based on physical appearance, blood ties, and shared social attitudes or cognitions based in genetic inheritance (Abrahamson et al., 2002; Alford et al., 2005; Olson et al., 2001; Tesser, 1993). All these shared characteristics facilitate their ability to create a shared reality, even in the absence of conversation. Adoptive families typically do not share these advantages.

In Protective families, where the parent(s) dictate the social reality, we speculate that nonadopted adolescents likely share at least some of their parents' cognitions. Therefore, they might accept their parents' regulatory messages, even if they are offered without much opportunity for discussion. Adopted adolescents probably have cognitive processes that differ

from their parents. Therefore, adopted adolescents in Protective families may find their parents' regulatory messages more difficult to accept. As a result, they are either less compliant or more likely to experience negative psychological consequences from their interactions with their parents, which are expressed in externalizing behaviors.

In Laissez-Faire families, where social reality is neither dictated nor discussed, rebellion against parental authority might play a lesser role in putting adopted adolescents at increased risk. The salient factor in Laissez-Faire families is the absence of shared reality. We propose that challenges to developing a sense of identity faced by adopted adolescents (Bimmel et al., 2003; Grotevant et al., 2001) are exacerbated in the absence of a shared reality. For adopted adolescents, questions about "who am I" can be complicated by limited information about birth parents and differences between themselves and adoptive family members. In nonadoptive Laissez-Faire families, genetically based similarities afford at least a minimal sense of shared reality, providing a foundation from which to answer questions about one's identity.

Limitations and Future Directions

Although they are based on theory, these arguments are yet to be fully tested. For example, we theorize that similarities among family members based on genetic relatedness is the most likely explanation for the interaction between adoption status and family communication pattern. We did not, however, measure cognitive processes. Conducting research that directly assesses how family members perceive their environments, and in particular, how children perceive their parents' regulatory messages will be an important next step in our research program. Also, this study used cross-sectional data. Therefore, it is possible that the observed family communication patterns developed in response to or in coincidence with child adjustment problems. Future, longitudinal tests of this theory are needed to understand better the complex processes proposed here.

Methodological strengths include using innovative methods for studying adoptive families and their communication. For example, this is the first study we know of that used observational data and latent cluster analysis to determine family communication patterns, as identified by the FCP Theory. All previous studies have used self-reports only (Koerner & Fitzpatrick, 2004, 2006). Also, rather than using mean adjustment scores to assess adolescent adjustment, we took serious the often repeated claim that only a small group of adopted children experiences adjustment problems and focused on predicting membership in that subgroup.

There are limits to the generalizability of this study's findings. For example, we focused on families with adolescent children. Family communication patterns may operate differently among families with younger or older children. As noted above, longitudinal investigations are needed. Also, as is characteristic of adoptive families, the families in our sample were more educated and had higher incomes than the general population. They also were from the Midwestern United States and the parents were predominantly Caucasian with European ancestry. Future studies that include, for example, stepfamilies will need to test the generalizability of our findings to families with more varied socioeconomic, regional, ethnic, and racial backgrounds.

To our knowledge, this is the first study to demonstrate an interaction between adoption status and family communication patterns. According to our theory, this interaction occurs as a function of parent-child genetic relatedness. This study is just a first step in fully testing this theory. If replicated through future studies, however, our theoretical model could also apply to other complex families in which parents and children are genetically unrelated such as step- or blended families and families formed through assisted reproduction. Thus, this study represents an initial step in what could potentially be a much wider field of study.

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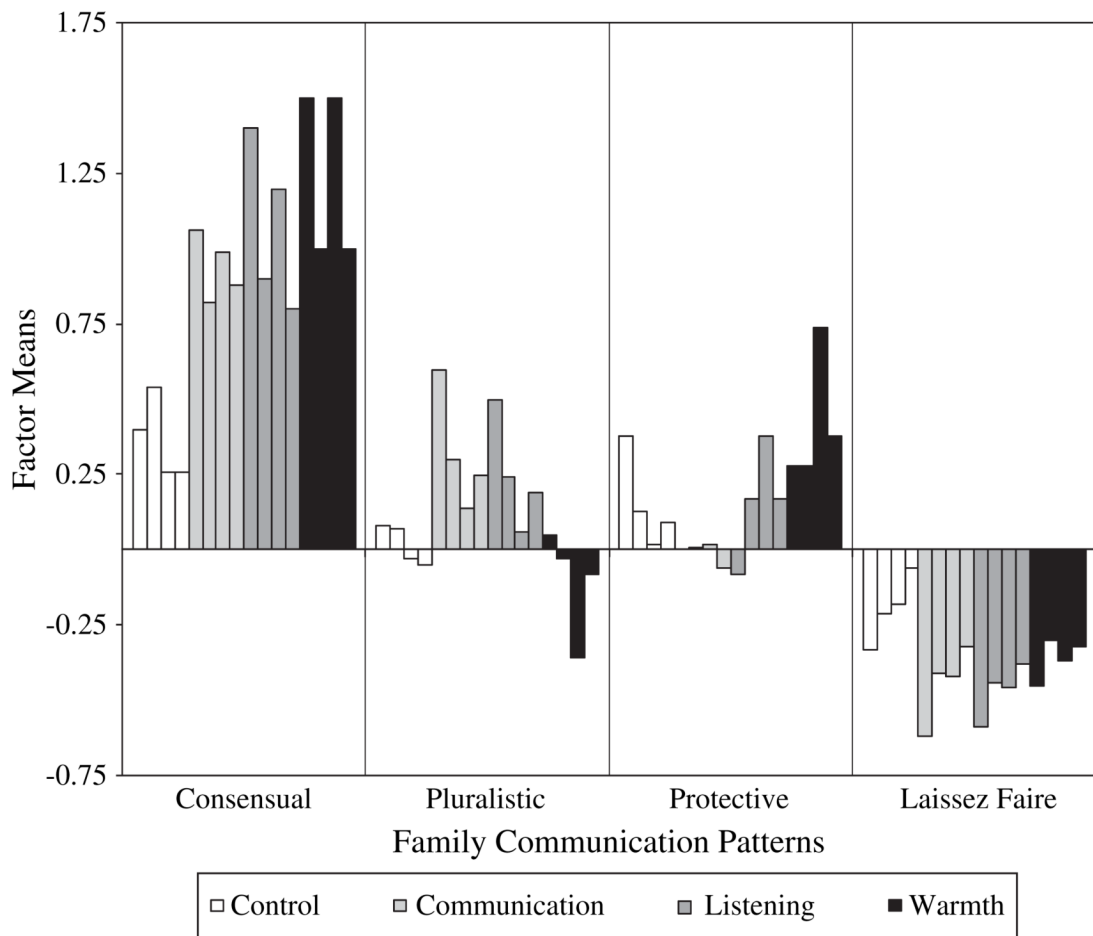


Figure 1. Graphical Presentation of Mean Factor Scores for the First-Order Factor Indicators of the Family Communication Patterns Latent Variable.
Note: First bar in every set: mother’s mean factor score. Second bar: father’s mean factor score. Third bar: adolescent’s mean factor score. Fourth bar: sibling’s mean factor score. Bars rising above 0 represent behavior levels above the overall mean. Bars falling below 0 represent behavior levels below the overall mean.