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Latent profiles of non-residential father engagement six years after divorce predict long term offspring outcomes

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Abstract

This study examined profiles of non-residential father engagement (i.e., support to the adolescent, contact frequency, remarriage, relocation, and interparental conflict) with their adolescent children ($N = 156$) six to eight years following divorce and the prospective relation between these profiles and the psychosocial functioning of their offspring, nine years later. Parental divorce occurred during late childhood to early adolescence; indicators of non-residential father engagement were assessed during adolescence, and mental health problems and academic achievement of offspring were assessed nine years later in young adulthood. Three profiles of father engagement were identified in our sample of mainly White, non-Hispanic divorced fathers: *Moderate Involvement/Low Conflict*, *Low Involvement/Moderate Conflict*, and *High Involvement/High Conflict*. Profiles differentially predicted offspring outcomes nine years later when they were young adults, controlling for quality of the mother-adolescent relationship, mother's remarriage, mother's income, and gender, age and offspring mental health problems in adolescence. Offspring of fathers characterized as *Moderate Involvement/Low Conflict* had the highest academic achievement and the lowest number of externalizing problems nine years later compared to offspring whose fathers had profiles indicating either the highest or lowest levels of involvement but higher levels of conflict. Results indicate that greater paternal psychosocial support and more frequent father-adolescent contact do not outweigh the negative impact of interparental conflict on youth outcomes in the long-term. Implications of findings for policy and intervention are discussed.

Keywords

divorce; conflict; externalizing; academic functioning; fathers

Approximately 40-45% of children in the United States are impacted by parental divorce before the age of 18 (Shoen & Canudas-Romo, 2006). Although there is considerable evidence that children of divorce are at an increased risk of behavior problems and academic

underachievement in adolescence (e.g., Jeynes, 2002; Marshal, 2002) and mental health problems in adulthood (e.g., Amato, 2001), other studies find small or non-significant effects of divorce (Kessler et al., 2010). As such, focus has shifted toward understanding the factors that account for variation in children's long-term adjustment following parental divorce (Amato, 2010; Lansford, 2009). One issue that has been the subject of considerable interest to researchers, policy makers, and families is the role of non-residential father engagement in the post-divorce family environment. Investigations in this area have focused mainly on the amount of contact between non-residential fathers and their children, quality of the father-child relationship, and level of conflict between the father and mother following marital dissolution (Sandler et al., 2012). Contextual factors such as parental remarriage and relocation have also generated attention because of their potential contributions to the post-divorce father-child relationship (e.g., Braver, Ellman, & Fabricius, 2003; Juby, Billette, Laplante, & Le Bourdais, 2007). Much remains to be learned about how these factors relate to each other and jointly contribute to the long-term psychosocial functioning of offspring.

From an ecological systems perspective (Bronfenbrenner, 1992; Magnusson & Stattin, 1998), the role of the non-residential father in the promotion of the long-term well-being of their offspring is the summation of a network of inter-related influences (e.g., Modecki & Wilson, 2009). Within this framework, the contribution of any one variable is meaningful only in terms of its relation to other aspects. Accordingly, a person-centered approach provides a powerful alternative to the more commonly used variable-centered approach for understanding relations between father engagement and the psychosocial functioning of their offspring. The current study is the first to use a person-centered analysis to identify meaningful latent profiles of non-residential father engagement, based on adolescent report on multiple indicators, in a sample of youth who had experienced parental divorce in late childhood to early adolescence. Specifically, we examine fathering profiles six to eight years following divorce when youth had reached mid-to-late adolescence - a time of relatively greater stability for youth (i.e., following the transition to puberty and entry into high school) and their caregivers. In addition, we examine prospective associations between these profiles and indicators of young adult psychosocial functioning nine years later.

Non-Residential Father Engagement and Youth Well-Being: A Constellation of Factors

A number of studies have examined whether youth outcomes are associated with the amount of contact maintained with their non-residential father following divorce. This research has almost solely focused on short-term relations between level of father-child contact and youth well-being, and findings have been mixed. A number of reviews have concluded that non-residential father-child contact is *not* a good predictor of offspring outcomes following divorce (Amato & Gilbreth, 1999; Kelly, 2006). However, several recent studies utilizing more rigorous methodologies have shown that more frequent father-child contact is related to fewer behavior problems (Coley & Medeiros, 2007; Dunn, Cheng, O'Connor, & Bridges, 2004). One reason for the inconsistency may be that the impact of non-residential father-

child contact is better understood in terms of its functional relation with other aspects of the post-divorce environment.

There is substantial evidence that the *quality* of the father-child relationship is more important than *quantity* of contact in affecting youth outcomes (Sandler et al., 2012). Father-child relationships that are characterized by low-pressure interactions, authoritative parenting, or social and emotional support have been consistently related to the positive adjustment of youth (e.g., Carlson, 2006; Stewart, 2003). Even with low levels of father contact many youth may feel close to their father, and these youth are better adjusted than those who do not report feeling close to their non-residential father (Dunn et al., 2004; King & Sobolewski, 2006). Thus, particular configurations of contact and psychosocial support are likely more central to offspring psychosocial functioning than the independent effects of either of these variables.

Another critical dimension of the post-divorce family environment is whether the relationship between the custodial mother and non-residential father is conflictual. Conflict often increases in the period immediately following the separation and divorce and then decreases over time. However, for approximately 8 to 20 percent of divorced families, conflict persists over a prolonged period of time (Hetherington, 1999; King & Heard, 1999). Interparental conflict has been associated with lower levels of non-residential father contact, and the relation between father-child contact and youth psychosocial functioning has been found to vary as a function of the level of interparental conflict (Whiteside & Becker, 2000). Several studies have found that frequent contact with the non-residential father is related to positive outcomes in offspring if interparental conflict is low and negative outcomes if conflict is high (Kelly, 2006). However, other studies have found a positive relation between father contact and youth adjustment in high conflict families up to five years post-divorce, suggesting that interparental conflict over the long term may not be detrimental if youth have frequent contact and a supportive relationship with the non-residential parent (Fabricius & Luecken, 2007; Healy, Malley, & Stewart, 1990; Kurdek, 1986).

A family systems perspective suggests that relations between interparental conflict, contact with the non-residential father, quality of the father-child relationship, and youth outcomes post-divorce will also be affected by other aspects of the post-divorce family “system” (Minuchin, 1985). Changes in the father’s family structure (e.g., remarriage) and relocation of the father are particularly common over the long-term (Juby, Le Bourdais, & Marcil-Gratton, 2005). Relations between father remarriage and frequency of father-child contact are complex, with some studies showing that father remarriage is associated with less frequent contact over time (Furstenberg & Cherlin, 1991; Juby et al., 2007), and other studies demonstrating that fathers who maintain high levels of contact with their children post-divorce are more likely to remarry (Stewart, Manning, & Smock, 2004). The impact of non-residential father remarriage on child outcomes is unclear, but it has been suggested that the preoccupation of remarried parents with their new family can interfere with the parent-child relationship and impact child adjustment (Hetherington, Bridges, & Insabella, 1998). Relocation of the non-residential father is also related to multiple aspects of engagement with his children. In families in which the non-residential father relocates, father-child relationship quality and frequency of contact tend to be low (Braver et al., 2003; Kelly &

Lamb, 2003). However, findings are mixed as to whether relocation is harmful or helpful to long-term youth outcomes, with one retrospective study suggesting adverse effects of father relocation (e.g., Braver et al., 2003) and a more recent longitudinal investigation reporting better outcomes in young adults whose fathers had relocated (Kalil, Mogstad, Rege, & Votruba, 2011). Such heterogeneous findings point to complex relations among aspects of the post-divorce family environment in shaping youth outcomes post-divorce.

Other aspects of the post-divorce family “system” that may affect the associations between non-residential fathering and long-term youth outcomes are characteristics of the mother. Yet such factors that are known to be associated with non-residential fathering, youth functioning, or both have not been reliably controlled for in previous studies of non-residential fathering (Sandler et al., 2012). Maternal parenting quality, for example, is related to youth outcomes following parental divorce and represents an important contextual factor likely associated with relations between non-residential father engagement and youth adjustment (King & Sobolewski, 2006; Simons, Lin, Gordon, Conger & Lorenz, 1999; Whiteside & Becker, 2000). In addition, mother’s socioeconomic status post-divorce and mother’s remarriage are related to level of non-residential father involvement and youth functioning after divorce (Dunn et al., 2004; Lansford, 2009).

The Current Study

Given that aspects of the post-divorce family environment and father involvement are interdependent, it is arguably more empirically and clinically relevant to examine them as a constellation of influences rather than attempting to identify independent, linear contributions of each factor to the long-term psychosocial adjustment of youth (Bauer & Shanahan, 2007). No previous research has used a person-centered approach to identify patterns of non-residential father engagement after divorce. The current study used latent profile analysis to characterize profiles of non-residential father engagement six to eight years post-divorce based on the adolescent’s report of frequency of contact with the father, father-adolescent relationship quality, and adolescent exposure to interparental conflict, as well as father’s relocation and remarriage status. In addition, much remains to be learned about how patterns of engagement relate to offspring long-term outcomes, as research has not consistently identified relations between different aspects of non-residential father engagement and different psychosocial outcomes among youth. Therefore, we also examined relations between profiles of father engagement in adolescence and offspring internalizing and externalizing problems and level of academic achievement nine years later when offspring were young adults. Finally, as noted above, the current study addresses limitations of previous research by controlling for characteristics of the non-residential mother as well as youth characteristics, such as age (Aquilino, 2006; Manning et al., 2003) and gender (Cooksey & Craig, 1998; Seltzer, 1991) that are related to non-residential father contact and may influence the association between the parent-adolescent relationship and adolescent psychosocial adjustment over the long-term (Brown, 2004; Mitchell, Booth, & King, 2009). As such, the current study provides a stringent test of the prospective effects of father engagement on offspring outcomes in young adulthood controlling for these potentially influential variables as well as earlier levels (i.e., adolescence) of internalizing and externalizing problems and academic achievement.

Method

Participants

Participants were 156 adolescents and their custodial mothers who were assigned to a condition (29.6% control; 70.4% intervention) and had participated in a randomized controlled study of a preventive intervention (the New Beginnings Program) designed to reduce mental health problems of children who experienced parental divorce. Details of recruitment are described in detail by Wolchik et al. (2000, 2002), and are summarized briefly here. Potential participants were identified by reviewing randomly selected divorce decrees (within 2 years prior to the baseline assessment) of families with children between ages 9 -12. Letters and telephone calls were used to recruit families; 20% of the sample was recruited through supplemental methods (e.g., media, referrals). Families interested in participating in the study were eligible if the primary custodial parent was female, neither child nor mother was in treatment for mental health problems, mother had not remarried at the time of recruitment, and custody arrangements were expected to be stable during the initial study follow-ups. Families were excluded and referred for treatment if the child scored above 17 on the Children's Depression Inventory or 97th percentile on the Externalizing Subscale of the Child Behavior Checklist or endorsed an item about suicidal ideation.

Families participated in six waves of data collection. Because a father-child contact measure appropriate to our research question was not included until wave 5, and also given the paucity of research on the father-adolescent relationship several years after parental divorce and its relation to offspring long-term functioning, the current study focuses on waves 5 and 6, which occurred six and fifteen years after the post-test, respectively. Of the 240 families that participated in the randomized controlled trial, 209 adolescents (87%) participated in the 6-year follow-up (wave 5). Of these participating families, six families had rejoined and six adolescents resided with their fathers by wave 5; thus, these 12 families were excluded from the current study. Forty-two adolescents reported no in-person contact with their father ($n = 21$) or had missing data for in-person contact ($n = 21$); both groups were excluded from the main analyses because at least one-in person contact per year was required for adolescents to provide a valid report on levels of interparental conflict and father psychosocial support. As discussed in Analytic Strategy, however, exploratory post-hoc analyses were conducted to examine potential differences in young adult outcomes between the latent father engagement profiles and the no contact group ($n = 21$). There were no differences on any of the young adult outcomes between youth whose fathers belonged to the latent profiles and those with missing contact data, or between youth whose fathers had no contact and those with missing contact data

The final sample size at wave 5 was 156 youth (51.3% female) between 15 and 19 years old ($M = 16.84$, $SD = 1.10$). At wave 5, parents had been divorced an average of 7.18 years ($SD = 0.56$), and 44% of custodial mothers and 52.7% of non-residential fathers had remarried or lived with someone as if married. Of the non-residential fathers, 25.3% had relocated from the metropolitan area by wave 5. For mothers and fathers respectively, ethnicity was 87.8% and 87.2% White, non-Hispanic; 7.1% and 6.4% Hispanic; 1.9% and 3.2% African

American; 1.3% and 1.3% Asian/Pacific Islander; and 1.9% and 2.2% other. At wave 5, mother's average annual gross household income was between \$45,001-\$50,000.

Procedure

At each wave of data collection, trained staff conducted separate home interviews with offspring and mothers. Confidentiality was explained, mothers and adolescents/young adults signed consent and assent forms, and families received monetary compensation for their participation at each wave. Following the baseline (wave 1) assessment, families were randomized to one of two intervention versions (mother-only and mother-plus-child program) or the literature control condition. The intervention was designed to prevent mental health problems in children, and details of the program are provided in other publications (e.g., Wolchik et al., 2000, 2002, 2013). Importantly, fathers were not involved in the intervention, and there were no program effects on adolescents' contact with fathers, quality of the father-adolescent relationship, or interparental conflict. Given that both of the intervention conditions have been found to similarly influence offspring mental health outcomes (Wolchik et al., 2000, 2002, 2013), intervention vs. control status was controlled for in all analyses.

Measures

Table 1 lists the means and standard deviations for all study variables.

Contact with non-residential father—Two indices were used to assess adolescent report of non-residential father contact at wave 5, which occurred six to eight years following divorce: *in-person contact* and *telephone contact* (valid reports of frequency of father contact were not available in the assessments prior to wave 5). Two items from the Adolescent/Non-Residential Parent Contact Scale (Braver et al., 1991) were used: “How often has your (dad/mom’s ex-husband) visited with you during the past year?” and “How often has your (dad/mom’s ex-husband) had phone or mail contact with you during the past year?” For both items, responses were rated (1) not at all, (2) once a year, (3) several times a year, (4) 1-3 times a month, (5) once a week, and (6) several times a week. We selected adolescent reports of contact as the most valid indicators of father-adolescent time together, and these were moderately correlated with mother reports of in-person contact, $r(154) = .52$, $p < .001$, and phone/email contact, $r(154) = .40$, $p < .001$. The two adolescent reports of contact were significantly correlated, $r(154) = .716$, $p < .001$. However, previous research has shown that a number of issues influence non-residential fathers’ success in maintaining in-person contact (e.g., financial constraints, geographic distance between father’s and offspring’s residences, mother’s “gate-keeping”; see Dunn, 2004). In recognition of this and to better identify the distinct combination of factors that characterize non-residential fathers engagement, these two dimensions of contact (in-person and telephone) were examined separately.

Adolescent exposure to interparental conflict—At wave 5, adolescents completed the six-item Frequency and seven-item Intensity subscales of the Children’s Perception of Interparental Conflict Scale, which measures youths’ perceptions of conflict between parents across time (CPIC; e.g., “They may not think you know it, but your parents argued or

disagreed a lot.”; Grych, Seid, & Fincham, 1992). Lutzke, Wolchik and Braver (1996) have shown that this measure is reliable in older children ($\alpha = .79$) and correlates with children’s adjustment problems, $r(330) = .41, p < .001$. Adolescents responded on a three-point scale: (1) true, (2) sort of true, and (3) false; higher scores reflect greater perceived exposure to interparental conflict ($\alpha = .89$).

Paternal psychosocial support—At wave 5, adolescents completed the five-item Father Support Scale (FSS; e.g., “How often has your [dad/mom’s ex-husband] told you good things about yourself during the past month?”), an inventory based on the Children’s Inventory of Social Support (CISS; Wolchik, Ruehlman, Braver, & Sandler, 1989). The FSS taps five support functions: advice, emotional support, positive feedback, co-participation in fun activities, and helping behavior (i.e., help with homework, fixing something, loaning something). Items were measured on a four-point scale (1) almost never, (2) sometimes, (3) often, and (4) a lot of times. Wolchik et al. (1989) reported adequate psychometric properties for the CISS ($\alpha = .83$) as well as evidence of validity such that the measure was significantly correlated with child adjustment problems, $r(102) = -.20, p < .05$. The scale had adequate reliability in the current sample ($\alpha = .85$).

Remarriage and relocation of the father and mother’s remarriage and income—At wave 5, mothers reported on whether their ex-husband had remarried and whether he lived in the metropolitan area; responses were scored as dichotomous items (0 = no, 1 = yes).

Covariates

Analyses examining differences across father profiles controlled for youth gender and age, intervention status, mother’s gross household income at wave 5, mother’s remarriage at wave 5, and quality of the mother-adolescent relationship at wave 5. Although the intervention condition was not significantly related to any of the father profile indicators, it was significantly related to offspring psychosocial functioning at post-test, 6-year follow-up and 15-year follow-up (Wolchik et al., 2000, 2002, 2013); therefore, intervention status (intervention vs. control) was included as a control variable in all analyses. Mothers reported their average gross income at wave 5 (six years following divorce) based on a 21-point scale that listed income in \$5,000 increments. Mother’s remarriage was a dichotomous variable measured via mother report (0 = no, 1 = yes). The quality of the mother-adolescent relationship was measured based on a standardized mean composite of adolescent-report on the 16-item Acceptance and 16-item Rejection subscales of the Children’s Report of Parenting Behavior Inventory (CRPBI; Schaefer, 1965; e.g., “Your mother cheered you up when you were sad.”). Items were measured on a three-point scale from (1) like your mother to (3) not like your mother and coded such that higher numbers reflected greater warmth and acceptance. Wolchik et al. (2000) has indicated this is a reliable ($\alpha = .86$) measure of mother-adolescent relationship quality and Wolchik, Wilcox, Tein, and Sandler (2000) reported that the acceptance measure was negatively associated with internalizing problems, $r(676) = -.16, p < .001$, in children from divorced families. The composite had excellent reliability in the current sample, $\alpha = .94$.

Adolescent/Young Adult Psychosocial Functioning

Internalizing problems—At wave 5, adolescent internalizing problems were assessed using the Children’s Depression Inventory (CDI; Kovacs, 1981, 1985) and the Revised Children’s Manifest Anxiety Scale (RCMAS; Reynolds & Richmond, 1978). The 27-item CDI assesses affective, cognitive, and behavioral symptoms of youth depression, with responses scored on a three-point scale. The 28-item RCMAS measures a chronic state of anxiety, with items rated on a dichotomous scale (1 = no, 2 = yes). A standardized composite of internalizing problems was formed by averaging raw scores on the two scales. Higher raw scores reflect a greater number of internalizing problems. This composite has been shown to be reliable ($\alpha = .95$) and valid, such that internalizing was positively correlated with mental disorder symptom counts, $r(216) = .59, p < .001$, among youth from divorced families (Zhou et al., 2008) and reliability in the current sample was high ($\alpha_{w5} = .92$). Nine years later, at wave 6, young adults completed the 36-item internalizing subscale of Achenbach’s Young Adult Self-Report form (YASR; Achenbach, Dumenci, & Rescorla, 2003; e.g., “There is very little that I enjoy.”). Items were rated on a 3-point scale (0) not true to (2) very true or often true and the raw score was used such that higher scores indicate more internalizing problems. Previous research has shown the YASR to be a reliable measure of mental health problems in this age group (Achenbach et al., 2003). In this sample, internalizing scores were negatively correlated with young adult reports of their general health, $r(154) = -.52, p < .001$, and had strong internal consistency ($\alpha_{w6} = .90$).

Externalizing problems—At wave 5, adolescents completed a 27-item self-report measure of aggressive and hostile behaviors that included items from the Divorce Adjustment Project Externalizing Scale (Program for Prevention Research, 1985); items were added to assess delinquent behavior. Items were rated on a three-point scale from (0) not true to (2) often true. Zhou et al. (2008) report acceptable internal consistency among youth from divorced families ($\alpha = .90$) and validity, such that parents and adolescents reports of externalizing were positively correlated, $r(204) = .35, p < .01$. Reliability in the current sample was acceptable ($\alpha_{w5} = .84$). Nine years later at wave 6, young adults completed the 30-item externalizing subscale of YASR (Achenbach et al., 2003; e.g., “I do things that may cause me trouble with the law.”). Items were rated from (0) not true to (2) very true or often true. In this sample, externalizing scores were negatively associated with young adult reports of their general health, $r(154) = -.44, p < .001$, and reliability was adequate ($\alpha_{w6} = .86$).

Academic functioning—At wave 6, questionnaires and Authorization to Release Information forms were mailed to school principals requesting the unweighted (4.0 scale) cumulative GPA earned during high school. Cumulative high school grade point average (GPA), assessed using school records, was used to control for academic achievement during adolescence. For youth who did not graduate, cumulative GPA encompassing all completed grades was used. Eighty-seven percent of offspring had graduated from high school and GPA ranged from .33-3.96. Young adult academic achievement was measured at wave 6 via self-report using the following question: “What is the highest level of school you have completed? Include any college, technical, or vocational training.” Responses were rated on a 10-point scale from (1) 8th grade or less to (10) PhD, JD, MD.

Analytic Strategy

All analyses were conducted in MPlus version 7 with full information maximum likelihood estimation (FIML), which uses all available data points, even for cases with some missing responses (Muthén & Muthén, 2012). Latent profile analysis (LPA) is a *person-centered* statistical technique that assigns individuals (in this case, fathers) to one mutually exclusive latent profile based on a number of observed continuous and categorical variables of interest (McCutcheon, 1987). Resulting profiles are then characterized based on common patterns of responses within and between the profiles (Roesch, Villodas, & Villodas, 2010). Rather than the researchers creating a cut-score to group individuals (e.g., median-split to identify high and low conflict groups), LPA assumes that an underlying latent variable determines an individual's class membership. The LPA technique thus allows researchers to identify profiles of people as opposed to groups of variables.

Observed variables in the current study included past year frequency of telephone and in-person contact with the non-residential father, level of psychosocial support provided by the non-residential father over the past month, adolescent awareness of the frequency/intensity of ongoing interparental conflict between the non-residential father and custodial mother, father relocation, and father remarriage, all of which were assessed six to eight years following the divorce. To create latent profiles of non-residential father engagement, father relocation and remarriage were modeled as categorical indicators, and in-person contact, telephone contact, interparental conflict, and paternal psychosocial support were modeled as continuous indicators. Profiles were specified with indicator variances free to vary across latent profiles. The probability of a father belonging to a specific profile and his categorization in that profile was calculated as a function of the scores on these variables. Estimates of associations between indicators and the latent profiles were represented as means for continuous variables (e.g., average value for conflict for fathers in a specific profile) and as probabilities (e.g., probability of having remarried) for categorical variables. To determine whether the characteristics of the profiles were significantly different, the equality of means for each indicator was compared across latent profiles using the Wald's model test.

Profile differences based on covariates not included in the model were tested using the AUXILIARY option with the e-setting in MPlus (Muthén & Muthén, 2012). This approach uses pseudo class draws to form Wald chi-square tests for mean comparisons (Clark & Muthén, 2009). In the pseudo class method, multiple random draws are made from each father's posterior probability distribution to ascertain his profile membership. Having a number of random samples allows fathers to switch into adjacent profiles, and gives a feel for the variability related to the distribution (Clark & Muthén, 2009). Mean tests are then computed based on these draws. Using class membership as an observed variable results in incorrect standard errors because the analyses fail to take uncertainty of classification into account (Clark & Muthén, 2009). Thus, the pseudo-class draws method represents an improvement over assigning individuals to a latent profile based on their highest posterior probability of being in a given class.

Prospective relations between non-residential father engagement profiles and indicators of young adult psychosocial functioning were then assessed. These analyses tested the hypothesis that father profiles would be differentially associated with young adult outcomes (i.e., internalizing problems, externalizing problems, or academic achievement), controlling for the wave 5 assessment of the outcome being examined (i.e., adolescent internalizing, externalizing or academic achievement), youth age and gender, mother's remarriage, mother-child relationship, intervention status, and mother's gross household income. Separate analyses were run for each young adult outcome, again using the AUXILIARY option with the e-setting to test the equality of means of the target variable across profiles. Figure 1 describes the study's conceptual model.

Finally, as noted earlier (see Participants), 21 non-residential fathers and their adolescents were excluded from the primary analyses because they reported having no in-person contact in the past year and thus interparental conflict and paternal psychosocial support were not assessed. However, we conducted exploratory post-hoc comparisons between the latent father engagement profiles and this no-contact group to explore differences in offspring outcomes in young adulthood between the no-contact group and each of the latent engagement profiles.

Results

Because no previous research has taken a person-centered approach to assessing non-residential father engagement post-divorce, we made no a priori hypotheses regarding the number of profiles that would emerge. To ensure that profiles were meaningful, stable, and not over-extracted, the decision was made *a priori* to exclude solutions with profile sizes comprised of less than 5% of the total sample. In addition, we considered model parsimony and interpretability as well as profile size. Several latent profile models were examined, with one to four profiles specified. As shown in Table 2, the three-profile solution was the best fit for the data. Specifically, the Lo-Mendell-Rubin likelihood ratio test (Lo, Mendell, & Rubin, 2001) and the bootstrapped likelihood test (McLachlan, 1987) indicated a significant improvement in model fit for the three-profile versus two-profile solution. The standardized means for the continuous indicators of the three-profile solution are depicted in Figure 2, and all categorical and continuous indicators for each profile are described in Table 3. Separation between the three profiles was strong (entropy = .83; Clark & Muthén, 2009). Multivariate Wald's tests indicated that there were no differences across profiles based on intervention status, mother's gross income, youth gender or age, mother-adolescent relationship quality or mother's remarriage.

As shown in Table 3, three profiles comprised of 32, 56, and 68 fathers emerged: *Low Involvement/Moderate Conflict* (20% of the sample), *Moderate Involvement/Low Conflict* (36% of the sample), and *High Involvement/High Conflict* (44% of the sample). The *Moderate Involvement/Low Conflict* profile was characterized by a significantly greater level of psychosocial support than the *Low Involvement/Moderate Conflict* profile and significantly lower levels of interparental conflict than either the *Low* or *High Involvement* profiles. Although the *Moderate Involvement/Low Conflict* profile was also characterized by significantly less support and contact than the *High Involvement/High Conflict* profile and

more likely than *High Involvement/High Conflict* fathers to relocate or remarry, *Moderate Involvement/Low Conflict* fathers maintained moderate in-person and telephone contact with their offspring, significantly more so than *Low Involvement/Moderate Conflict* fathers. The *Low Involvement/Moderate Conflict* profile was characterized by the lowest levels of in-person and telephone contact and also the lowest levels of psychosocial support compared to the other two profiles, along with significantly higher levels of interparental conflict compared to the *Moderate Involvement/Low Conflict* profile, as noted above. Similar to *Moderate Involvement/Low Conflict* fathers, the majority of *Low Involvement/Moderate Conflict* fathers had remarried (60%) and nearly one third had relocated (31%). The *High Involvement/High Conflict* profile was characterized by significantly greater levels of contact and psychosocial support relative to the other two profiles, but also significantly higher levels of interparental conflict compared to the *Moderate Involvement/Low Conflict* profile. Fathers with the *High Involvement/High Conflict* profile were significantly less likely to have relocated in comparison to the other two profiles.

Next, we examined whether the profiles predicted differences in offspring psychosocial adjustment nine years later, in young adulthood, after accounting for covariates and controlling for levels of psychosocial adjustment in adolescence. Overall, there were profile differences on young adult academic achievement, Wald's $X^2(2) = 9.11, p = .011$, and externalizing problems, Wald's $X^2(2) = 6.02, p = .049$. Post-hoc tests revealed that young adults with fathers in the *Moderate Involvement/Low Conflict* profile ($M_{ed} = 6.73, SE = .24$) had achieved a higher level of education relative to those with either *High Involvement/High Conflict* fathers ($M_{ed} = 5.89, SE = .31$), Wald's $X^2(1) = 4.33, p = .037$, or *Low Involvement/Moderate Conflict* fathers ($M_{ed} = 5.73, SE = .31$), Wald's $X^2(1) = 6.31, p = .012$. In addition, offspring with *Moderate Involvement/Low Conflict* fathers ($M_{ext} = 8.06, SE = 1.04$) exhibited fewer externalizing problems in young adulthood relative to offspring with *Low Involvement/Moderate Conflict* fathers ($M_{ext} = 11.80, SE = 1.51$), Wald's $X^2(1) = 3.95, p = .047$. Offspring with fathers in the *Moderate Involvement/Low Conflict* profile also exhibited fewer externalizing problems in young adulthood compared to offspring with *High Involvement/High Conflict* fathers ($M_{ext} = 10.75, SE = 1.13$), but this difference did not reach significance, Wald's $X^2(1) = 2.86, p = .09$. There were no significant differences between the *Low Involvement/Moderate Conflict* and *High Involvement/High Conflict* profiles on any of the indicators of young adult psychosocial functioning. There were no overall differences across the three profiles on offspring internalizing problems in young adulthood, Wald's $X^2(2) = .71, p = .70$.

Finally, we conducted exploratory analyses to compare the psychosocial adjustment of young adults whose fathers maintained contact (all those in the primary analyses) to young adults who had been excluded from the primary analyses because they reported no in-person contact with their father ($n = 21$). Each father from the primary analyses was assigned to the particular engagement profile for which his probability of membership was greatest. Regression analyses examined profile-group differences on each of the three indicators of offspring psychosocial functioning, controlling for intervention status, and Wald's tests were used to determine whether there were overall differences between the father engagement profiles and the no contact group. The following results are exploratory and should be

interpreted with caution. There were significant profile-group differences on academic achievement, Wald's $X^2(3) = 17.69, p = .0005$. Offspring whose fathers were classified in the *Moderate Involvement/Low Conflict* profile had higher academic achievement in young adulthood relative to offspring whose fathers had no contact with them during adolescence, $Z = 4.19, p < 0.001$; $B = 1.02$ (95% CI: .54 - 1.5). A trend toward profile-group differences on externalizing behaviors also emerged, Wald's $X^2(3) = 6.29, p = .098$. The trend indicated that offspring whose fathers were classified in the *Moderate Involvement/Low Conflict* profile reported fewer externalizing problems relative to offspring whose fathers had no contact, $Z = -1.97, p = 0.049$; $B = -1.924$ (95% CI: -3.84 - -.009).

Discussion

This is the first study to use a person-centered approach to identify latent profiles of non-residential father post-divorce engagement with their adolescent offspring. Participating adolescents had experienced the divorce of their parents in late childhood to early adolescence. Several aspects of the non-residential father-adolescent relationship (i.e., frequency of in-person and telephone contact, paternal psychosocial support) and the post-divorce family environment (i.e., interparental conflict, father relocation, remarriage status of the father) were used to capture profiles of father engagement six to eight years following divorce when youth had reached mid to late adolescence. Three profiles were identified (*Moderate Involvement/Low Conflict*, *Low Involvement/Moderate Conflict*, and *High Involvement/High Conflict*) and these profiles were related to two indicators of offspring psychosocial functioning nine years later, when offspring were young adults (academic achievement and externalizing problems). Results yielded a number of implications for research and interventions for families experiencing parental divorce.

The use of a person-centered approach allowed for the detection of unique combinations of positive and negative aspects of engagement, and consistent with a family systems perspective, reflects that elements within the non-residential fathering "sub-system" are interdependent (Minuchin, 1985). By identifying particular constellations of father engagement, rather than focusing on single variables, an interesting pattern emerged- two of the three profiles identified were not uniformly the most positive or most negative on all aspects of engagement. The *High Involvement/High Conflict* profile had the most extreme mixture of positive and negative features of father engagement. On average, fathers in this profile maintained contact with offspring between once and several times a week (significantly higher than the other two profiles) and provided greater psychosocial support to offspring than *Low Involvement/Moderate Conflict* and *Moderate Involvement/Low Conflict* fathers. Yet *High Involvement* fathers were also seen by their adolescent children as engaging in higher levels of interparental conflict compared to the other two profiles, significantly more so than the *Moderate Involvement/Low Conflict* profile. The emergence of this *High Involvement/High Conflict* profile is in contrast to variable-centered studies that have generally found that higher levels of interparental conflict are associated with less frequent contact between offspring and their non-residential father and lower levels of paternal psychosocial support (e.g., Whiteside & Becker, 2000).

Although *High Involvement/High Conflict* fathers differed from expectations generated by previous regression-based findings (Fabricius & Luecken, 2007), it is important to note that much of the divorce literature has not concurrently examined *both* contact and conflict. These findings suggest that studies should measure both contact and conflict, ideally over time, to better understand the degree to which families are engaging in chronic levels of moderate and high levels of interparental conflict. Our results found that 44% of families experienced high levels of conflict many years after divorce, a larger fraction than the figure of 20 – 25% of families that has been previously reported to be in high conflict six years following the divorce (Hetherington & Kelly, 2002). One possible difference may be that the current measure of conflict used youth report of conflict, while previous studies relied more heavily on parental reports (e.g. Maccoby & Mnookin, 1992). It may be that youth perceive more conflict than parents report. Other possible reasons for the discrepancy include sample differences, in that the current sample was of residential mothers who were enrolled in a prevention program as compared with previous samples that were enrolled in research studies. The current finding highlights the importance of additional research on the frequency and correlates of long-term interparental conflict.

Non-residential fathers with a *Moderate Involvement/Low Conflict* profile were characterized by significantly lower levels of contact and psychosocial support than the *High Involvement/High Conflict* profile, yet appeared to be fairly positively engaged in the lives of their adolescent children. These fathers maintained contact with offspring up to one to three times per month despite being highly likely to have remarried or relocated. Moreover, they provided a moderate level of psychosocial support to offspring (e.g., advice, emotional support, positive feedback) and were characterized as engaging in significantly lower levels of interparental conflict compared to fathers in the other two profiles.

In contrast to the other two profiles, low levels of positive engagement characterized the *Low Involvement/Moderate Conflict* profile, with fathers maintaining in-person contact once or several times a year on average and almost never offering psychosocial support to adolescents. Fathers in this profile also reportedly engaged in significantly more interparental conflict with the custodial mother compared to *Moderate Involvement/Low Conflict* fathers, but relatively less conflict compared to *High Involvement/High Conflict* fathers, although this difference was not statistically significant. They were also significantly more likely than *High Involvement/High Conflict* fathers to have relocated. Importantly, the *Low Involvement/Moderate Conflict* profile characterized only 20% of our sample, which is consistent with prior work that estimates roughly 17% of fathers have in-person contact with their offspring only several times a year (Smyth, 2005). The fact that fathers in this *Low Involvement* profile represented a small sub-set of our sample indicates that most non-residential fathers maintain positive engagement with their children several years after divorce.

Notably, the profile that was most protective for the long-term psychosocial functioning of offspring, *Moderate Involvement/Low Conflict*, was not characterized by the highest levels of either contact or psychosocial support, but instead was distinguished by the lowest levels of adolescent exposure to interparental conflict. Nine years later, offspring with fathers in this profile exhibited greater academic achievement relative to young adults whose fathers

belonged to the other two profiles and had significantly fewer externalizing problems relative to offspring with *Low Involvement/Moderate Conflict* fathers. This finding is consistent with prior research demonstrating that among children from divorced families, paternal psychosocial support is associated with better mental health outcomes and greater academic achievement (Amato & Gilbreth, 1999; Sandler et al., 2012). It is also in line with evidence that interparental conflict and weak father-child relationships are associated with more behavior problems in youths (Dunn et al., 2004; Grych, Fincham, Jouriles, & McDonald, 2000; Simons et al., 1999). However, our finding that greater academic achievement in offspring with fathers in the *Moderate Involvement/Low Conflict* profile relative to those with fathers in the *High Involvement/High Conflict* profile is novel. Prior research has found inconsistent relations between non-residential father contact and children's adjustment in high-conflict, divorced families (Fabricius & Luecken, 2007; Grych et al., 2000), but high quality father-child relationships have been relatively consistently related to fewer youth mental health problems (Sandler et al., 2012). Our results indicate that offspring who are exposed to high levels of interparental conflict six to eight years after divorce experience poorer psychosocial adjustment at a later developmental stage even if their non-residential father remained highly and positively involved.

There were no significant differences between youths with fathers who belonged to the *High Involvement/High Conflict* and *Low Involvement/Moderate Conflict* profiles. This further supports the notion that positive paternal involvement does not mitigate the effects of high levels of interparental conflict, but differs from prior research that has shown fewer negative outcomes among offspring who experienced a positive father-child relationship in the presence of high interparental conflict (Sandler et al., 2012). The difference between our investigation and prior studies may be due to the fact that the current study assessed adolescent exposure to interparental conflict six to eight years following the divorce and used a prospective longitudinal design to test relations between father engagement in adolescence and psychosocial adjustment in young adulthood.

Finally, exploratory post-hoc analyses indicated that young adults with fathers characterized by *Moderate Involvement/Low Conflict* evidenced greater academic achievement and a trend toward fewer externalizing problems compared to young adults who had no in-person contact with their fathers six to eight years after the divorce. However, there were no differences in young adult outcomes between the no-contact group and those whose fathers belonged to either the *High Involvement/High Conflict* or *Low Involvement/Moderate Conflict* profiles. What researchers and clinicians might infer from this is that father absence in lieu of ongoing interparental conflict may simply exchange one toxic condition for another, and offspring only do well academically and behaviorally when interparental conflict is low and fathers maintain some positive involvement.

Our results are also noteworthy in terms of what did not emerge as significant. In contrast to expectations, we found no differences across profiles in regard to offspring internalizing problems in young adulthood. A few speculations can be made as to why this might be. It is possible that the non-residential father is *less* influential in regard to youths' internalizing problems over the long-term. This is in line with research that has found strong relations between single fathering and externalizing problems in their adolescents two years post-

divorce but non-significant relations with internalizing problems (Breivik & Olweus, 2006). Alternatively, it may be that differences in internalizing problems across father engagement profiles would emerge for particular subgroups based on young adult characteristics, such as sex or temperament.

The developmental status of youth at the time they reported on aspects of non-residential father engagement and whether similar profiles and relations would emerge if non-residential fathering, interparental conflict, and youth outcomes were measured at an earlier age is worthy of discussion. Youth evaluated quality and quantity of contact with their non-residential father during a relatively stable period of adolescence: the majority of youth were between the ages of 15 and 17 and therefore had made the transition to puberty, completed the process of transitioning to high school, and presumably settled in to the new family structures that emerged following parental divorce. It is possible that the profiles revealed here might not be reflective of earlier patterns of father engagement when youths were in childhood or early adolescence. For example, more extreme negative and positive profiles may have emerged during the tumultuous time of pubertal transition and/or during earlier developmental periods characterized by less sophisticated cognitive abilities and greater reliance on parental support and guidance relative to later stages. Relatedly, although described here as a relatively stable time, mid to late adolescence is marked by increasing emphasis on peer relationships (Helsen, Vollebergh, & Meeus, 2000) and separation-individuation from the family unit (Blos, 1967). These aspects of this developmental period may have contributed to the current pattern of findings. Future research that examines how profiles of father engagement at earlier periods of development are related to concurrent and later youth outcomes is recommended.

Strengths and Limitations

There were several limitations to the current study that must be taken into consideration. First, latent profile analyses are commonly applied to larger samples. Given that our sample size is relatively small, though not unprecedented (e.g. Acosta et al., 2008), the current findings would be bolstered by replication in larger samples. However, a recent simulation study showed that sample size is less critical for selecting the appropriate number of latent classes than the separation of the classes (Tein, Coxe, & Cham, in press). For the indicator variables in our study, the separation between classes in general was in the Cohen's $d = .8 - 1.25$ range, which is consistent with most published research (Tein et al., in press). Second, engagement measures were administered six to eight years following the divorce in an ethnically homogenous sample of mostly non-Hispanic White divorced families in which mothers had custody at the time of the divorce (which had occurred between 1992 and 1994). Furthermore, the sample included only mothers who had a child between the ages of 9 and 12 and who agreed to participate in an experimental study of a preventive intervention. Also, families were excluded if the child scored above 17 on the Children's Depression Inventory, scored above the 97th percentile on the Externalizing Subscale of the Child Behavior Checklist or endorsed an item about suicidal ideation or if the mother or child was receiving treatment for mental health problems. Future research should examine whether similar profiles are found within samples experiencing more severe mental health symptoms, within samples that are more ethnically diverse, or with regard to divorces that

occurred more recently. Further, we did not control for later father contact or interparental conflict in young adulthood. To better explicate the causal role of patterns of conflict on offspring's long term outcomes, studies that assess aspects of father engagement at multiple time points across development are needed. Likewise, our analyses did not account for early or later parental psychopathology, nor did we examine intervening factors that might help to explain the association between non-residential fathering profiles in adolescence and offspring psychosocial functioning in young adulthood. Regarding the later, longitudinal research with more frequent assessments is needed to unpack such intervening processes. Finally, the measures in the fathering profiles and externalizing measure were both completed by the offspring. Thus, concerns about shared method variance are raised. The fact that the internalizing outcome, which was also offspring report, was not significantly related to the profiles makes it unlikely that the significant effects were entirely due to shared methods, but future research should further validate profiles with outcomes reported by other family members.

In light of these limitations, this study makes a considerable contribution to the literature. Most notably, this is the first study to use a person-centered approach to capture the complex combination of aspects of the post-divorce family system by creating unique profiles of non-residential father engagement. The analyses identified three patterns of engagement based on a constellation of theoretically and empirically-based indicators of father involvement measured several years after divorce. In addition, key covariates were controlled for in the analyses, including mother's income, quality of the mother-adolescent relationship, mother's remarriage, and youth sex and age. Psychosocial functioning in adolescence was accounted for when examining relations between profiles and outcomes in young adulthood, which included both problematic (mental health problems) and adaptive (academic achievement) functioning. Finally, our measures of contact, conflict, and parenting quality were based on youth report and thus offer important insight into post-divorce parenting and family processes (Dunn, 2004).

Implications for Research, Policy, and Practice

The current study found that the father engagement profile that was most protective for youths was characterized by low conflict and moderate levels of father contact and psychosocial support. In contrast, two different patterns of father engagement prospectively predicted poorer psychosocial functioning in offspring. Specifically, in the presence of high interparental conflict, those with the highest level of father-adolescent contact and paternal psychosocial support and those with the lowest level of father-adolescent contact and psychosocial support both had poorer outcomes as compared to those in the moderately engaged, low conflict profile group. Moreover, results from an exploratory analysis suggested that offspring whose fathers had no in-person contact with them at all up to eight years post-divorce did no better in the long-term relative to offspring whose father's engagement was characterized by high levels of interparental conflict, and did significantly worse than youth whose parent maintained involvement and had low levels of conflict. In all, these findings underline the critical role of interparental conflict as a predictor of poor offspring adjustment following divorce. Changing levels of interparental conflict through interventions has proven notoriously difficult. Although divorce mediation shows promise

for resolving custody disputes and reducing interparental conflict (e.g., Sbarra & Emery, 2008), few parenting programs designed to reduce interparental conflict following divorce have demonstrated effectiveness (Goodman, Bonds, Sandler, & Braver, 2004). Our findings underscore the importance of developing and evaluating interventions that reduce offspring exposure to interparental conflict long after divorce has occurred.

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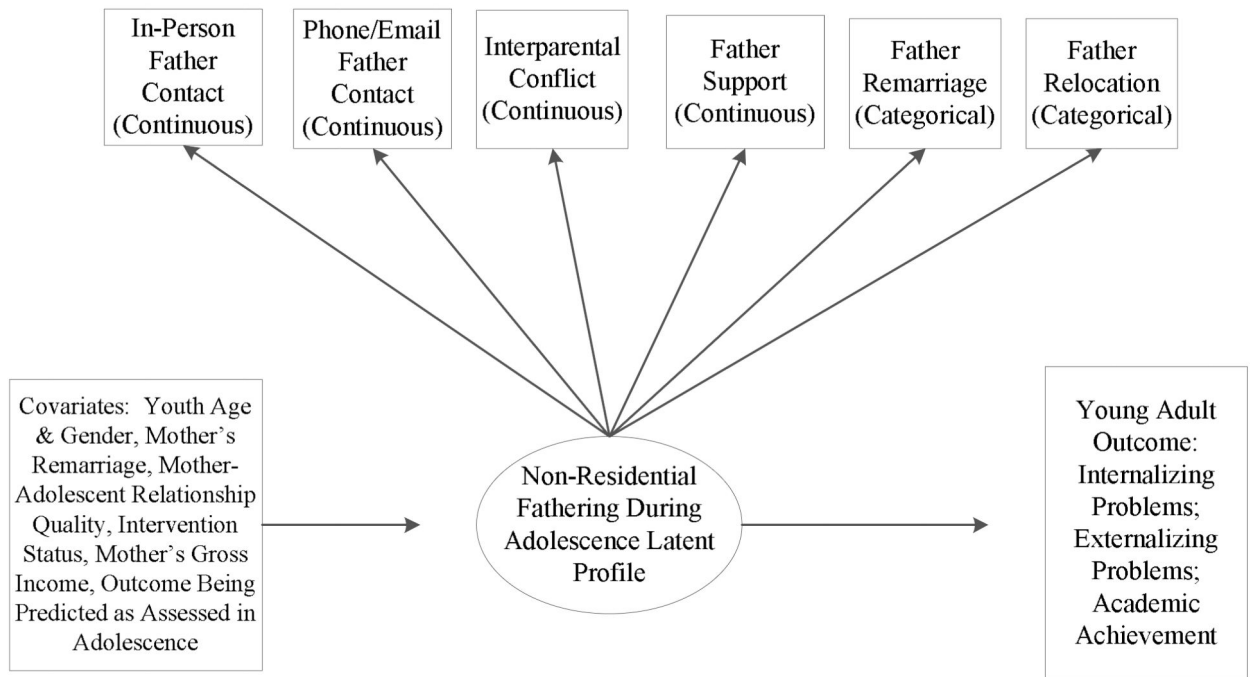


Figure 1. Conceptual model for tests of latent profile influences on outcomes in young adulthood.

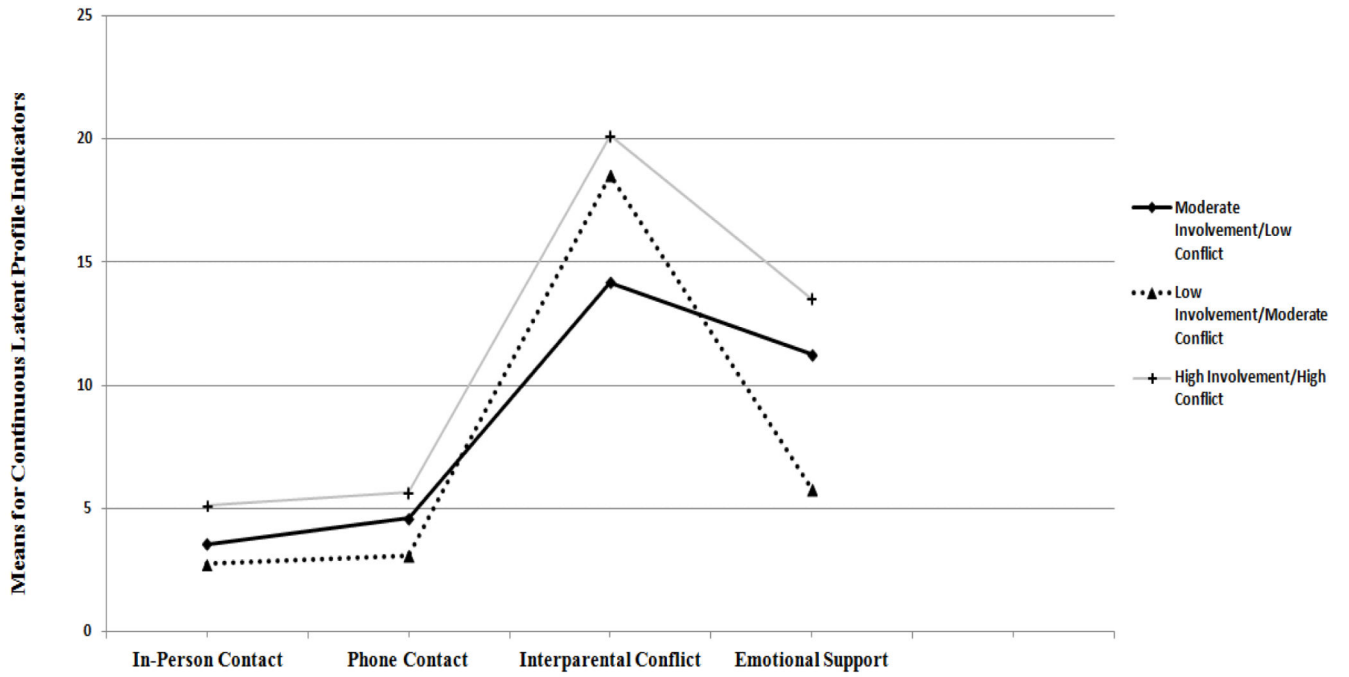


Figure 2.
 Standardized means for continuous indicators of latent profiles.
Note. Profiles also include binary indicator variables: father relocation (yes/no), father remarriage (yes/no).

Table 1

Descriptives for all study variables.

Father Profile Variables (during offspring adolescence)	
% Remarried	52.70
% Relocated	24.40
In-person Contact	4.08 (1.26)
Phone Contact	4.76 (1.16)
Interparental Conflict	17.99 (5.61)
Psychosocial Support to Child	11.81 (3.95)
Covariates¹	
% Youth Female	51.30
Youth Age	16.84 (1.10)
Mother's Gross Income	10.39 (5.15)
% Mothers Remarried	44.40
Mother Parenting	83.70 (10.77)
Youth High School GPA	2.92 (.71)
Adolescent Internalizing ²	-.10 (.94)
Adolescent Externalizing ²	9.15 (6.50)
Longitudinal Offspring Outcome Variables (9 years later)	
Highest Education Level Completed	6.18(1.89)
Young Adult Internalizing	11.50(9.22)
Young Adult Externalizing	10.02(7.56)

Note. Mean (SD).

¹ All covariates were assessed when offspring were in adolescence. In addition to those described here, experimental condition was also a covariate in all analyses.

² Standardized score.

Table 2

Model Fit Comparisons Classes 1 to 4.

	BIC	VLMR <i>p</i>	LMR <i>p</i>
Class 1	2680.61		
Class 2	2527.41	.004	.005
Class 3	2501.91	.003	.003
Class 4	2486.74	.88	.88

Note. BIC = Bayes Information Criteria; VLMR = Vuong-Lo-Mendell-Rubin likelihood ratio test; LMR = Lo-Mendell-Rubin likelihood ratio test. *p*-values correspond with tests comparing the estimated model (number of profiles on the same line) versus a model that has one less class (number of profiles on the line above). A small *p*-value supports retention of the more complex model.

Table 3

Characteristics of Profiles.

Father Characteristics 6 to 8 years post-divorce	Moderate Involvement/Low Conflict (36%)	Low Involvement/Moderate Conflict (20%)	High Involvement/High Conflict (44%)
% Remarried	^a 64%	^{a,b} 60%	^b 40%
% Relocated	^a 46%	^a 31%	^b 5%
In-person Contact	^a 3.56(.76)	^b 2.75(.59)	^c 5.12(.91)
Phone Contact	^a 4.63(.80)	^b 3.10(.69)	^c 5.64(.48)
Interparental Conflict	^a 14.19(1.12)	^b 18.54(4.60)	^b 20.16(6.04)
Support	^a 11.28(2.63)	^b 5.79(.91)	^c 13.51(3.66)

Note. Manifest indicators that do not share a superscript (i.e., within row) are significantly different at $p < .05$.