Constellations of Dyadic Relationship Quality in Stepfamilies: A Factor Mixture Model

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Abstract

Stepfamilies are an increasingly common family form, marked by distinct challenges, opportunities, and complex networks of dyadic relationships that can transcend single households. There exists a dearth of typological analyses by which constellations of dyadic processes in stepfamilies are analyzed holistically. Factor mixture modeling, a form of latent variable mixture modeling, is employed to identify population heterogeneity with respect to features of mother-child, stepfather-child, nonresident father-child, and stepcouple relationships using a representative sample of 1,182 adolescents in mother-stepfather families with living nonresident fathers from Wave I of the National Longitudinal Study of Adolescent to Adult Health. Results favor a four-class factor-mixture solution with class-specific factor covariance matrices. Class 1 ($n = 302$, 25.5%), the *residence-centered* pattern, was marked by high-quality residential relationships. Class 2 ($n = 307$, 26%), the *inclusive* pattern, was marked by high-quality relationships across all four dyads, with an especially involved nonresident father-child relationship. Class 3 ($n = 350$, 29.6%), the *unhappy couple* pattern, was marked by very low stepcouple relationship quality. Class 4 ($n = 223$, 18.9%), the *parent-child disconnection* pattern, was marked by distant relationships between youth and all three parental figures. The *residence-centered* and *inclusive* patterns encompassed some positive correlations between dyadic relationships, whereas the *unhappy couple* and *parent-child disconnection* patterns encompassed some negative correlations between dyadic relationships. The patterns present with differences across socio-demographic and substantive covariates, and highlight important opportunities for the development of new and innovative interventions, particularly to meet the needs of stepfamilies that reflect the *parent-child disconnection* pattern.

Keywords

factor mixture modeling; latent class analysis; relationship quality; stepchildren; stepfamily; youth

Prior to age 18, an estimated one-third of youth in the United States will reside in a stepfamily household (Pew Research Center, 2011). Stepfamilies form when one or both partners in a new committed relationship bring a child or children from a previous

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relationship (Ganong & Coleman, 2017). Stepfamily scholars favor this inclusive definition of stepfamilies, which encompasses both married and cohabiting partnerships. The majority of stepfamilies—roughly 80%—are reared by a biological mother and stepfather (Kreider & Ellis, 2011).

Over the past several decades, stepfamilies have drawn considerable scholarly and clinical attention. This focus on stepfamilies is warranted on several fronts. For one, stepfamilies are an increasingly common family form. Stepfamilies are also marked by distinct challenges that are generally not experienced by biological nuclear families (Coleman, Ganong, & Russell, 2013). Further, stepfamilies, just like any other family, represent a central developmental context for the adults and youth who reside in them.

Amid family structural transitions and stress, family processes are a proximal determinant of family resilience, collective and individual goal attainment, and individual well-being (Hetherington, Bridges, & Insabella, 1998; Walsh, 2002). Family processes in stepfamilies are relatively complex and ambiguous. This is largely because stepfamilies merge together existing and new dyadic relationships that vary in function and transcend single households (Coleman et al., 2013).

Past research highlights the centrality of resident parent-child, stepparent-child, nonresident parent-child, and stepcouple relationships (Coleman et al., 2013); however, less is known about the ways in which relationship quality across these four dyads cluster together and interrelate to form distinct patterns of stepfamily processes. The identification of holistic stepfamily-process patterns can enrich understanding about youth adjustment in stepfamilies, highlight processes that promote or hinder stepfamily resilience, and inform the development of stepfamily interventions that address issues linked to varying stepfamily experiences (Coleman, Ganong, & Fine, 2000). The general aim of the current study was to identify the presence of distinct stepfamily-process patterns with respect to features of mother-child, stepfather-child, nonresident father-child, and stepcouple relationships in a representative sample of youth residing in mother-stepfather families. To properly frame the current study, I begin by overviewing relevant background information, theory, and research.

Stepfamilies: Challenges and Opportunities

Although stepfamilies are increasingly common, the pathways to and initiation of stepfamily life (e.g., divorce, death of a parent) can be strenuous. Moreover, few social or legal guidelines are available to help individuals successfully navigate family transitions (Coleman et al., 2013). As a result, stepfamilies often face challenges, such as children experiencing loyalty binds between parental figures, stepcouple disagreements about parenting strategies, family role and boundary ambiguity, competing expectations and values among stepfamily members, shifts in financial and social resources, stepparent-child conflict, and disruptions in parent-child relationships (Brown & Manning, 2009; Coleman et al., 2013; Jensen & Shafer, 2013; Jensen, Shafer, & Larson, 2014; Papernow, 2013). These challenges can be stressful for individuals in stepfamilies.

Stepfamilies also bring together individuals with distinct family and relationship histories, structurally forge together existing and new dyadic relationships, and encompass relationships that transcend single households. Whereas biological nuclear families generally include parental and parent-child dyads, central relationships in stepfamilies generally include resident parent-child, stepparent-child, nonresident parent-child, and stepcouple dyads.

Although complicated at times, the formation of new dyads in stepfamilies can generate positive opportunities for youth and adults (Sweeney, 2010). For example, the entrance of a stepparent can bolster youths' social capital and social support networks; provide meaningful support and companionship to youths' biological parents; and result in increased household income and other tangible assets, which can help ease the financial stress that often accompanies single parenthood (Sweeney, 2010). In all, the diverse array of dyadic relationships adds complexity to the stepfamily experience, and the quality and output of these relationships has implications for stepfamily functioning and individual well-being. Below I highlight the primacy and interconnectedness of four common stepfamily dyads.

Common Stepfamily Dyads

Resident parent-child

High-quality resident parent-child relationships are generally marked by warmth, affection, closeness, nurturance, support, emotional engagement, and good communication. The parent-child relationship can provide a sense of continuity, stability, and safety for stepfamily members, especially youth (Jensen & Shafer, 2013). Youths' perceptions of parent-child relationship quality in stepfamilies have also been linked to youth adjustment and willingness to form relationships with new stepparents (Jensen & Harris, 2017a; Jensen, Lippold, Mills-Koonce, & Fosco, 2017; Jensen & Shafer, 2013; King, 2006). Although the resident biological parent-child relationship is not unique to stepfamilies, the amount of change and variability in this relationship is magnified in the context of stepfamily life. Indeed, parents often struggle in their efforts to foster strong emotional bonds with their new romantic partner while simultaneously maintaining strong bonds with their children. In some instances, gains in one relationship can be obtained at the expense of other relationships, especially early on in stepfamily development (Papernow, 2013).

Stepparent-child

Mutually satisfying stepparent-child relationships are central antecedents to stepfamily functioning and stability (Papernow, 2013). Stepparent-child relationships are generally more variable than parent-child relationships, and stepparents can assume one of many different roles in the lives of their stepchildren (e.g., Weaver & Coleman, 2005). Even in the best cases, high-quality stepparent-child relationships require significant amounts of time to develop (Coleman, Ganong, & Jamison, 2011; Papernow, 2013). If achieved, stepparent-child relationships marked by warmth, closeness, good communication, support, and affection (as perceived by youth) can promote youth adjustment across a number of physical, behavioral, and psychological well-being indicators (Bzostek, 2008; Jensen & Harris, 2017a,

2017b; Jensen et al., 2017; Jensen, Shafer, & Holmes, 2015; King, 2006); and positively influence other stepfamily relationships (King, Thorsen, & Amato, 2014).

Nonresident parent-child

Although present in many single-parent families, nonresident biological parent-child relationships are a prominent feature of many stepfamilies. The quality of this relationship is highly variable, particularly between nonresident fathers and youth (Aquilino, 2006), and influenced by post-divorce/separation custody arrangements and the quality of the coparental relationship (Sobolewski & King, 2005). Relationship quality between a nonresident biological parent and youth is often indicated by the frequency and type of contact, quality of communication, and perceived emotional closeness. Youth perceiving high levels of closeness or involvement with nonresident fathers can promote youth adjustment (Amato & Gilbreth, 1999).

Stepcouple

High-quality couple relationships often encompass adult reports of positive communication, affection, relationship satisfaction, and stability (Amato, Booth, Johnson, & Rogers, 2007). Stepcouples differ from couples in biological nuclear families as they are often burdened by stress originating from other stepfamily subsystems and tensions with ex-partners (Shafer, Jensen, Pace, & Larson, 2013). Stepparents can also experience a "stuck outsider" position, often causing them to feel put off by both stepchildren and their new partner (Papernow, 2013). Whereas in biological nuclear families couples have time to forge normative and predictable patterns of behavior prior to introducing children into the family system, stepcouples are formed in the context of existing family relationships and processes—a context into which stepparents can have difficulty integrating (Papernow, 2013). Consistent with emotional security theory, conflict between a biological parent and stepparent has been linked to youth maladjustment (Dunn, O'Connor, & Cheng, 2005; Jensen & Harris, 2017a). Conflictual or otherwise low-quality stepcouple relationships can also impair parent-child and stepparent-child relationships (Cox & Paley, 1997; Dunn et al., 2005). Conversely, youth are more likely to report being close to a resident stepfather when they report that their mother and stepfather agree on parenting and argue infrequently (Jensen & Shafer, 2013).

Theoretical Framework

In addition to past research, several theoretical perspectives support a holistic and inclusive view of dyadic relationships in stepfamilies. For one, *family systems theory* posits that individual behavior and outcomes cannot be divorced from the complex network of relationships in which the individual is embedded (Cox & Paley, 1997). Families are viewed as complex systems, made up of interrelated subsystems. One portion of the family system cannot be influenced without impacting the whole system and other system components. Thus, an understanding of stepfamily functioning can be optimized when features of multiple individuals and relationships are examined together.

A systems perspective would also posit the existence and aid in the prediction of distinct patterns of stepfamily relationship quality. As systems, families strive for equilibrium via

goal attainment, adaptation, integration, and pattern maintenance (Robbins, Chatterjee, & Canda, 2012). When stepfamily members share common goals (e.g., forging a cohesive family unit) and demonstrate a sufficient and unified use of family resources, equilibrium can resemble a constellation of universally high-quality dyadic relationships (although other states of equilibrium are certainly possible). Importantly, stepfamilies can restrict family boundaries to include primarily those who reside in the household, or expand boundaries to include nonresident biological parents and other nonresident kin (Ganong & Coleman, 2017). Thus, stepfamily equilibria marked by high-quality dyadic relationships could pertain only to residential relationships or to all dyadic relationships of which children and parents are a part, regardless of the number and location of households involved. In these contexts, high-quality dyadic relationships can be positively reinforcing due to positive spillover effects and circular causality (Cox & Paley, 1997; Robbins et al., 2012). Moreover, these types of stepfamilies might have greater access to resources, such as education and income, which help facilitate the interactions needed to acquire and maintain positive stepfamily relationships.

Systemic equilibrium can become disrupted, or take on a more conflictual form, when stepfamily members have divergent values and goals—a phenomenon known as systemic rebellion (Robbins et al., 2012). Divergent goals among parents might be particularly influential, as parents generally wield the most power in families. For example, if a parent's goal centers on creating a high-quality parental relationship, a constellation of stepfamily relationship quality might emerge that reflects a high-quality parental relationship and strained parent-child relationships. Alternatively, a resident biological parent might value the maintenance of high-quality relationships with his or her children, leading to the production of high-quality parent-child relationships and a strained couple relationship. The goals of and resources available to nonresident parents can also influence their parenting behaviors (e.g., Russell, Beckmeyer, Coleman, & Ganong, 2016), and thus influence the make-up of parent-child relationship quality and other stepfamily dynamics. Youth in stepfamilies are also capable of possessing goals that diverge from those of their parents, leading to strained and conflictual parent-child relationships. Moreover, triangulation tactics might be used among system members who possess divergent goals and seek to rebel against the stepfamily system (e.g., a child forming a coalition with a nonresident biological parent against the stepparent).

Whereas systems theory frames goal-consensus as the adhesive that holds systems together, *conflict theory* highlights the inevitability and role of change, conflict, and goal-divergence within systems (Robbins et al., 2012). Thus, the concept of systemic rebellion is particularly congruent with conflict theory. From this perspective, stepfamily members likely possess divergent goals and compete for the resources needed to attain those goals. For example, stepparents and children might compete with each other for attention from the biological parent. Conflict theory would posit the existence of relationship-quality constellations marked by disparities across stepfamily dyads, and the potential for negative interdependencies between dyadic relationships. That is, gains in one dyadic relationship might be attained at the expense of other dyadic relationships as a result of conflict and limited resources. Extant research and clinical literature render conflict theory a meaningful perspective, and, together with systems theory, a full gamut of relationship-quality

constellations is theoretically possible, ranging from universally high-quality and positively related to disparately high-quality and negatively related.

Person-Oriented Analyses of Stepfamily Relationship Quality

In relation to these theoretical perspectives, person-oriented analyses (e.g., mixture modeling) offer a holistic view of participants in a sample and cluster together individuals who appear to share previously unobserved commonalities across measured phenomena (i.e., population heterogeneity). These types of quantitative analyses are scarce in the stepfamily literature, although at least two notable studies exist. Using cluster analysis, Schrodt (2006) identified five constellations of stepfamily functioning with respect to measures of stepfamily dissension, involvement, avoidance, flexibility, and expressiveness. More recently, Amato, King, and Thorsen (2015) used latent class analysis and identified four latent classes, each with a unique pattern of mother-child, stepfather-child, and nonresident father-child closeness.

There are valuable opportunities for ongoing person-oriented analyses of dyadic relationship quality in stepfamilies. For one, information about the stepcouple relationship should be included alongside information about parent-child relationships. In addition, advancements in mixture modeling make it possible to model latent relationship-quality factors with multiple items and relationship dimensions, thereby handling measurement error and providing stronger and richer constructs. Another important question in this area of research remains: are there distinct subtypes of stepfamily relationships with different patterns of interrelationships between dyads? To date, no study of which I am aware has applied the methods needed to quantitatively identify such subtype-specific dyadic interrelationships—complex features that reflect tenets of the theories reviewed above, and that are now detectable as a result of methodological advancements. Understanding the extent to which stepfamilies vary in their experience of positive, negative, or no correlations between the quality of various dyadic relationships could greatly inform practice and intervention efforts designed to strengthen stepfamily relationships and promote individual well-being.

Current Study

Taken together, previous research and theory suggest that dyadic relationships in stepfamilies are highly variable, interrelated, and associated with individual and family outcomes. In addition, population heterogeneity likely exists with respect to constellations of dyadic relationship quality in stepfamilies; however, little is known about the actual composition of such constellations. Particularly lacking is an investigation of heterogeneity with respect to patterns of interdependence across various dyadic relationships in stepfamilies. The current study aimed to address these gaps in the literature by identifying latent constellations of multidimensional factors pertaining to mother-child, stepfather-child, nonresident father-child, and stepcouple relationship quality. Another aim was to identify constellation-specific patterns of interdependence across dyadic relationships. Comparative demographic profiles of each latent class were also generated, and the validity of stepfamily-process patterns was examined in the context of stepcouple stability and youth adjustment. The current study focused on stepfamilies with adolescent stepchildren because adolescents

tend to experience greater hardship in response to family transitions compared to younger children (Jensen & Howard, 2015), and adolescence is a sensitive and pivotal developmental period (Sawyer et al., 2012).

Methods

Data and Sample

Data came from Wave I of the National Longitudinal Study of Adolescent to Adult Health (Add Health). Add Health began as a school-based study with a nationally representative sample of adolescents in grades 7 through 12 during the 1994–1995 school year. A randomly selected subset of adolescents from school rosters were administered in-home surveys, resulting in a sample of 20,745 adolescents at Wave I (1995). Concurrently, in-home parent interviews were conducted.

At Wave I, 2,756 adolescents reported living in a household with a biological mother and stepfather. The current study focused on mother-stepfather families for two reasons: (a) nearly 80% of all stepfamilies in the United States are headed by biological mothers and stepfathers (Kreider & Ellis, 2011), and (b) Add Health contains a relatively small number of father-stepmother families or stepfamilies headed by same-sex couples. Participants were included in the analytical sample if they indicated that their nonresident biological father was still living and had valid Wave I sampling weights so that representative estimates could be obtained. Thus, the final analytical sample included 1,182 adolescents (mean age: 15.64 years, $SD = 1.70$). Nearly 53% of the sample was female and 74% of the parents indicated being married to the stepparent (as opposed to unmarried cohabitation or missing response). Nearly 62% of adolescents identified as non-Hispanic White, 19% as non-Hispanic Black, 3% as non-Hispanic Asian, 2% as non-Hispanic Other/Native American, and 14% as Hispanic. Average stepfamily duration was 6.72 years ($SD = 4.11$ years).

Measures

As shown below, measures for or dimensions of each dyadic relationship had some overlap, but some differences—differences that are consistent with the unique dynamics that often mark different parent-child and couple relationships in stepfamilies (e.g., Amato et al., 2007; Amato & Gilbreth, 1999). The multiple items or dimensions were used to model latent factors for the quality of each dyadic relationship, and construct labels were assigned with consideration of the key measures used. In addition, because information about parent-child relationships stemmed from youth perceptions (Jensen & Howard, 2015) and information about the couple relationship stemmed from parent perceptions, the results should be interpreted accordingly.

Mother-child closeness—Mother-child closeness was a latent factor measured from the youths' perspective with five items ($\alpha = .85$). The first two items asked participants to indicate how close they felt to their mother and how much they thought their mother cared about them. Response options for these two items ranged from 1 (*not at all*) to 5 (*very much*). The remaining three items asked participants to indicate how much they agreed or disagreed with the following statements: "Most of the time, your mother is warm and loving

toward you," "You are satisfied with the way your mother and you communicate with each other," and "Overall, you are satisfied with your relationship with your mother." Response options for these items ranged from 1 (*strongly agree*) to 5 (*strongly disagree*), and were reverse coded such that higher values indicated a closer relationship.

Stepfather-child closeness—Stepfather-child closeness was a latent factor measured from the youths' perspective with the same five items ($\alpha = .90$) used to measure mother-child closeness. Each item was worded such that youth were asked about features of the stepfather-child relationship. Higher values indicated a closer relationship.

Nonresident father-child involvement—Nonresident father-child involvement was a latent factor measured from the youth's perspective with three items ($\alpha = .83$). The first item asked youth how close they felt to their biological father; response options ranged from 1 (*not close at all*) to 5 (*extremely close*). The remaining two items asked youth how often in the last 12 months they stayed overnight with their nonresident biological father; and how often in the last 12 months they talked to him in person or on the telephone, or received a letter from him. Response options for these two items ranged from 0 (*not at all*) to 5 (*more than once a week*). Thus, higher values indicated a more involved relationship.

Stepcouple relationship quality—Stepcouple relationship quality was a latent factor measured from the biological mother's perspective with the following two items: "How would you rate your relationship with your current (spouse/partner)?" and "How much do you fight or argue with your current (spouse/partner)?" Response options for the former ranged from 1 (*completely unhappy*) to 10 (*completely happy*), and response options for the latter ranged from 1 (*a lot*) to 4 (*not at all*). Higher values indicated a higher-quality relationship.

Covariates—Consistent with previous research and a stepfamily development perspective (Hawkins, Amato, & King, 2007; Hetherington et al., 1998; Jensen & Howard, 2015; King et al., 2015; Papernow, 2013), the following socio-demographic covariates at Wave I were used to help validate the analytic solution, once estimated: youth sex (*female* [1], *male* [0]), youth age (continuous item in years), youth racial/ethnic identity (dummy codes for non-Hispanic White, non-Hispanic Black, Hispanic, and Asian/Native American/Other), mother's education (*less than high school* [1], *completed high school/GED* [2], *some college* [3], *college degree or more* [4]), stepfather's education (coded the same as mother's education), household income (continuous item in thousand-dollar units), parental marital status (*married* [1], *unmarried cohabiting* [0]), mother's past romantic relationships in the last 18 years (continuous item), stepfamily duration (continuous item in years), and household composition (continuous item representing the number of household residents). Additional substantive items from Wave I were used to further validate the analytic solution. Stepcouple stability was measured with an item that asked the biological mother to indicate if, in the past year, she and her current spouse/partner talked to each other about separating (*no* [1], *yes* [0]). Youth depression was measured with a 9-item version of the Center for Epidemiologic Studies Depression Scale ($\alpha = .80$; Radloff, 1977); items asked youth to indicate how often they experienced a number of depressive symptoms in the past week

(e.g., felt depressed, felt sad, felt too tired to do things). Response options ranged from 0 (*never or rarely*) to 3 (*most or all of the time*); higher values indicated higher levels of depression. Youth delinquency was an 8-item scale (α = .74) that asked youth to indicate how often in the past 12 months they engaged in various delinquent behaviors (e.g., deliberately damaged the property of another, stole items, hurt someone in a fight, threatened others). Response options ranged from 0 (*never*) to 3 (*5 or more times*); higher values indicated higher levels of delinquency. Youth self-esteem was a 6-item scale (α = .85) that asked youth to indicate the extent to which they agreed or disagreed with statements such as "you feel loved and wanted," "you feel socially accepted," "you have a lot of good qualities," and "you like yourself just the way you are." Response options ranged from 1 (*strongly agree*) to 5 (*strongly disagree*), and were reverse coded such that higher values indicated higher levels of self-esteem.

Data Analysis

To address the central aims of the current study, I used factor mixture modeling (FMM), a form of latent variable mixture modeling. FMM is a hybrid of factor analysis (FA) and latent class analysis (LCA; Muthén, 2008). The FA portion of the analysis accounts for measurement error and imposes a factor structure on the mean vector and covariance matrix of observed variables, and the LCA portion of the analysis explores unobserved population heterogeneity by detecting subgroups within the population that appear to cluster around distinct response patterns and model parameters (Collins & Lanza, 2010).

I compared the fit of two FMM specifications. The first of these models, known as *latent class factor analysis* (heretofore referred to as FMM-1; Clark et al., 2013), specifies a non-parametric factor distribution and only allows factor means (α) to vary across classes (Muthén, 2008). This specification; for $k = 1, 2, \ldots, K$ latent classes with p observed indicators, $\mathbf{y}$, and m factors; is illustrated as follows:

$$\mathbf{y}_{ik} = \boldsymbol{\nu}_k + \boldsymbol{\Lambda}\boldsymbol{\eta}_{ik} + \varepsilon_{ik}$$

$$\boldsymbol{\eta}_{ik} = \boldsymbol{\alpha}_k$$

where $\mathbf{y}_{ik}$ represents a p vector of individual i's observed responses in latent class k; $\boldsymbol{\nu}_k$ is a p vector of item intercepts; $\boldsymbol{\Lambda}$ is a p x m factor-loading matrix; $\boldsymbol{\eta}_{ik}$ is an m vector of factor scores; $\boldsymbol{e}_{ik}$ is a p vector of item residuals; and $\boldsymbol{a}_k$ is an m vector of factor means. With this specification, class-specific factor covariance matrices are fixed to zero (and not shown in the equations), meaning that no within-class factor variances or inter-factor covariances are estimated.

The second FMM specification, known as *mixture factor analysis* (heretofore referred to as FMM-2; Clark et al., 2013), specifies a parametric factor distribution and allows factor covariance matrices, in addition to factor means, to be freely estimated across latent classes (Muthén, 2008). This approach is illustrated mathematically as follows:

$$\mathbf{y}_{\mathrm{ik}} = \boldsymbol{\nu}_k + \boldsymbol{\Lambda}\boldsymbol{\eta}_{\mathrm{ik}} + \boldsymbol{\varepsilon}_{\mathrm{ik}}$$

$$\boldsymbol{\eta}_{\mathrm{ik}} = \boldsymbol{\alpha}_k + \boldsymbol{\zeta}_{\mathrm{ik}}$$

$$\boldsymbol{\zeta}_{\mathrm{ik}} \sim N(\mathbf{0},\, \boldsymbol{\Psi}_k)$$

Where $\boldsymbol{\zeta}_{ik}$ is an *m* vector of residuals that is assumed to have a normal distribution, mean of 0, and covariance matrix $\boldsymbol{\psi}_k$. Thus, the factor covariance matrix, $\boldsymbol{\psi}_k$, is estimated and class-specific.

Preliminary FA and LCA models were used to identify the best-fitting number of factors and latent classes—information to be used when selecting FMM specifications (Clark et al., 2013). In terms of comparing the fit of preliminary models and FMM specifications, models with the following were favored: lower Akaike Information Criterion (AIC), Bayes Information Criterion (BIC), and adjusted BIC (aBIC) values (Clark et al., 2013); higher entropy and mean posterior probability values; class sample-sizes larger than 30; and significant bootstrap likelihood ratio tests. Perhaps most important, the substantive and theoretical fit of model parameters was considered when selecting a final FMM solution (Clark et al., 2013). Because mixture-model solutions can be unreliably derived from local log-likelihood maxima, I also used recommended sets of random start values to examine whether the log likelihood of each tested model could be replicated (Muthén & Muthén, 2012).

Following the selection of a best-fitting FMM solution, I conducted a series of validation analyses to examine the extent to which socio-demographic and substantive covariates differed between latent classes. I also examined class differences with respect to relationship-quality item scores. Validation analyses were conducted using the 3-step procedure, a robust approach that adjusts for classification uncertainty (Asparouhov & Muthén, 2014). Mplus 7.31 was used for all substantive analyses (Muthén & Muthén, 2012). Missing data was handled with full information maximum likelihood (Enders, 2010). A maximum likelihood estimator with robust standard errors (i.e., MLR) was used, sampling weights were incorporated to generate representative model parameters, and standard errors were adjusted for potential within-school clustering among participants. Preliminary calculations indicated that the factor-structure specification was over-identified and sufficiently powered to yield reliable tests of model fit (Kline, 2011; MacCallum, Browne, & Sugawara, 1996). The Office of Human Research Ethics at the author's university reviewed procedures proposed for the secondary analysis and determined that the submission does not constitute human subjects research.

Results

Model Comparisons

Table 1 displays model fit indices associated with all preliminary LCA/FA and FMM specifications. The log-likelihood of each model shown was successfully replicated, providing evidence that the model solutions were not produced by local log-likelihood maxima. Starting with the preliminary LCA models, information criteria indicated incremental improvement in model fit when the number of latent classes was increased from one to five; however, the five-class solution produced a class in which only 23 cases were assigned. This class sample size represented less than 2% of the total sample, and indicated that the five-class solution might be an over-extraction. Bootstrap likelihood ratio tests indicated that a higher number of classes significantly improved model fit (tests significant at $p < .05$). Taken together, results from preliminary LCA suggested that models with two to four latent classes should be examined in the context of FMM. In terms of preliminary FA, only the fit of a four-factor model was evaluated because the factor structure was hypothesized a priori, consistent with a confirmatory FA approach. Thus, all subsequent FMM specifications included a four-factor structure.

Turning to the four-factor FMM specifications, information criteria ultimately favored the four-class FMM-2 model (AIC = 41021.3; BIC = 41503.4; aBIC = 41201.7). Across FMM-2 models, the four-class solution yielded the highest entropy value and acceptable average posterior probabilities for Classes 1, 2, 3, and 4 (.84, .89, .83, and .86, respectively; Nagin & Odgers, 2010). The four-class FMM-2 model also yielded a highly interpretable and theoretically meaningful solution. Thus, the four-class FMM-2 model was selected as the best-fitting solution.

Factor-Mixture Solution

Patterns of Stepfamily Processes—Again, class scores were estimated using the 3-step procedure, which adjusts for classification uncertainty (Asparouhov & Muthén, 2014). In Class 1, the *residence-centered* pattern ($n = 302$; 25.5%), participants reported above-average mother-child closeness ($Z = .49$), stepfather-child closeness ($Z = .77$), and stepcouple relationship quality ($Z = .73$); however, youth in this class reported below-average levels nonresident father involvement ($Z = -.57$). In Class 2, the *inclusive* pattern ($n = 307$; 26%), participants reported above-average mother-child closeness ($Z = .31$), stepfather-child closeness ($Z = .28$), nonresident father-child involvement ($Z = 1.27$), and stepcouple relationship quality ($Z = .38$). Most notable was the extent to which nonresident father-child relationship involvement deviated positively from the sample mean (about 1.3 standard deviations). Participants in Class 3, the *unhappy couple* pattern ($n = 350$; 29.6%), reported above-average mother-child closeness ($Z = .42$), nearly average stepfather-child closeness ($Z = -.07$), and below-average nonresident father-child involvement ($Z = -.21$) and stepcouple relationship quality ($Z = -1.18$). The very low level of stepcouple relationship quality was perhaps the most distinguishing feature of this class. In Class 4, the *parent-child disconnection* pattern ($n = 223$; 18.9%), participants reported below-average mother-child closeness ($Z = -1.51$), stepfather-child closeness ($Z = -1.23$), and nonresident father-child involvement ($Z = -.31$); however, levels of stepcouple relationship quality were

above average (Z = .17). Notably, levels of mother-child and stepfather-child closeness were very low in this class. Details relating to class-specific means across raw measurement items are reported in Table 2. Although succinct labels were assigned to each pattern, they are not intended to capture all points of distinction across patterns. Instead, they are intended to capture the general nature of each pattern by calling attention to a central distinguishing feature.

Figure 1 charts pattern differences using composite Z scores (where the sample-mean equals 0 with a standard deviation of 1) for each relationship-quality construct. This approach illustrates how the quality of dyadic relationships in each class deviates from sample mean levels in standard-deviation units. Because each dyadic relationship has a different raw sample mean, comparisons across dyadic relationships in a single class is less appropriate than comparisons across classes with respect to the same dyadic relationship. Each latent class had significant within-class variance for all four factors with one exception: there was not significant variance for nonresident father-child involvement in the *inclusive* pattern. Moreover, each class had unique patterns of inter-factor covariance, which is represented in Figure 1. Details about measurement parameters and class-specific covariance matrices are available upon request.

Factor-Mixture Validation

Table 3 displays class-specific means/proportions, standard errors, and Z scores for all covariates used to help validate the factor-mixture solution. Results indicated that the *parent-child disconnection* pattern had a significantly larger proportion of female youth (72%) than the *residence-centered* (48%), *inclusive* (44%), and *unhappy couple* (44%) patterns. Youth in the *parent-child disconnection* pattern (M = 15.87 years; Z = .14) were also significantly older than youth in the *inclusive* (M = 15.20 years; Z = −.26) and *unhappy couple* (M = 15.29 years; Z = −.20) patterns. The *inclusive* (79%) and *parent-child disconnection* (79%) patterns had a larger proportion of youth who identified as non-Hispanic White compared to youth in the *residence-centered* (68%) pattern. The *residence-centered* pattern (8%) had a larger proportion of youth who identified as Asian/Native American/Other compared to youth in the *inclusive* (1%) and *parent-child disconnection* (2%) patterns. Mothers in the *inclusive* pattern (M = 2.76; Z = .21) reported higher levels of education than mothers in the *residence-centered* pattern (M = 2.43; Z = −.15); household income was significantly higher among those in the *inclusive* pattern (M = 58.04 in thousands; Z = .18) compared to those in the *unhappy couple* pattern (M = 45.03 in thousands; Z = −.11). Mothers in the *inclusive* pattern (M = 2.15; Z = .13) also reported having more past romantic relationships in the past 18 years than mothers in the *unhappy couple* pattern (M = 1.98; Z = −.10). Stepfamily duration was significantly longer among those in the *residence-centered* (M = 6.65 years; Z = −.02), *unhappy couple* (M = 6.80 years; Z = .02), and *parent-child disconnection* (M = 7.39 years; Z = .16) patterns compared to those in the *inclusive* pattern (M = 5.54 years; Z = −.29).

In terms of stepcouple stability, the *residence-centered* pattern (96%) had a significantly larger proportion of mothers who indicated they had not discussed separating from their partners compared to the *inclusive* (88%), *unhappy couple* (63%), and *parent-child*

disconnection (83%) patterns; proportions in the *inclusive* and *parent-child disconnection* patterns were also higher than that in the *unhappy couple* pattern. Youth in the *parent-child disconnection* pattern ($M = 1.11$; $Z = .83$) reported significantly higher levels of depression than youth in the *residence-centered* ($M = .56$; $Z = -.28$), *inclusive* ($M = .57$; $Z = -.26$), and *unhappy couple* ($M = .61$; $Z = -.18$) patterns. Youth in the *residence-centered* pattern ($M = .10$; $Z = -.27$) reported significantly lower levels of delinquent behavior than youth in the *inclusive* ($M = .16$; $Z = -.10$), *unhappy couple* ($M = .27$; $Z = .26$), and *parent-child disconnection* ($M = .17$; $Z = -.07$) patterns; youth in the *inclusive* pattern reported significantly lower levels of delinquent behavior than youth in the *unhappy couple* pattern. Youth in the *residence-centered* pattern ($M = 4.30$; $Z = .37$) reported significantly higher levels of self-esteem than youth in the *inclusive* ($M = 4.17$; $Z = .16$), *unhappy couple* ($M = 4.17$; $Z = .15$), and *parent-child disconnection* ($M = 3.53$; $Z = -.91$) patterns; youth in the *inclusive* and *unhappy couple* patterns also reported higher levels of self-esteem than youth in the *parent-child disconnection* pattern.

Discussion

Results from the current study highlight four possible stepfamily subpopulations marked by unique constellations of dyadic relationship quality and patterns of relationship-quality interdependencies. The *residence-centered* pattern illustrates a stepfamily system in which residential relationships are perceived by youth as being high-quality or close and, in part, positively reinforcing. These stepfamilies could represent highly integrated, adaptable, and pattern-maintaining systems with unified goals and boundaries centered around household residents and a nuclear family model (Robbins et al., 2012). Given the low levels of perceived nonresident father-child involvement, nonresident fathers associated with this stepfamily type might be absent, disengaged, or excluded from the system.

Members of the *inclusive* pattern possess above-average residential relationships, but also possess a very involved nonresident father-child relationship as perceived by youth. Thus, these stepfamilies could represent highly integrated and unified systems with expanded boundaries that encompass key stepfamily dyads regardless of resident status (Robbins et al., 2012). In this context, system goals likely center around youth well-being and support, as parent-child relationships are positively reinforcing, signaling a unified coparental regime. Youth in this pattern might also feel motivated to maintain close ties to each parental figure. *Inclusive* stepfamilies are also marked by higher levels of mothers' education and household income—an indication that the family possesses the systemic resources needed to facilitate and sustain high-quality and involved dyadic relationships, especially the relationship between youth and nonresident fathers, by providing the means to pay for youth travel and other coparenting expenses. The *inclusive* pattern is also marked by a shorter average duration, indicating that other patterns marked by lower-quality relationships could take longer to form.

Whereas the *residence-centered* and *inclusive* patterns might possess goal-consensus and synergy (consistent with systems theory ideals) from a theoretical standpoint, the *unhappy couple* and *parent-child disconnection* patterns might illustrate goal-divergent and conflictual systems (consistent with conflict theory; Robbins et al. 2012). Stepcouple

relationships in the *unhappy couple* pattern are particularly burdened by conflict and unhappiness. The relatively low level of household income in this pattern might drive some of the discord among couples as a result of financial strain. Stepcouple relationship quality in this pattern is also sensitive to the quality of the nonresident father-child relationship. In the context of low-quality or overtly conflictual stepcouple relationships, youth might strive to avoid their primary residence, favoring involvement with the nonresident parent. Conversely, as stepcouple relationship quality improves, the stepfather might acquire greater acceptance from his stepchildren (Jensen & Shafer, 2013), resulting in stepchildren shifting time and energy away from the nonresident father in an effort to invest in the stepfather-child relationship. The *unhappy couple* pattern might possess other divergent goals, such that mothers seek to sustain strong bonds with their children, whereas stepfathers primarily seek to forge a strong stepcouple bond. Cases in which there are insufficient resources to realize both of those goals, stepfamilies could display close mother-child relationships and low-quality stepcouple relationships.

In the *parent-child disconnection* pattern, theoretical concepts introduced earlier—such as conflict, competition for resources, and triangulation processes—might be most apparent across and between mother-child and nonresident father-child relationships—an indication of a compromised coparental relationship. Moreover, youth in this group appear to adjust poorly to stepfamily life, perhaps as a result of their own divergent goals and systemic rebellion (e.g., youth giving priority to biological ties, peer relationships, or pre-stepfamily dynamics), leading to strained mother-child and stepfather-child relationships. This might be particularly true if mothers and stepfathers seek to attain goals that focus on developing the stepcouple relationship, as evidenced by a high-quality stepcouple relationship. Unfortunately, youth in the *parent-child disconnection* pattern also perceive relatively uninvolved nonresident fathers, giving them few sources of reliable parental support. The significantly larger proportion of female stepchildren in this group compared to the other groups matches previous research suggesting that female stepchildren, on average, report lower-quality parent-child relationships in stepfamilies than male stepchildren (Jensen & Howard, 2015). The higher average age of youth is also consistent with past research suggesting that older stepchildren report lower-quality stepfamily relationships than younger stepchildren (Jensen & Howard, 2015). Importantly, the theoretical concepts employed in this discussion, such as goal consensus/divergence, resource competition, and systemic rebellion, serve as one set of potential mechanisms that give rise to the relationship-quality variation exhibited in this study. These mechanisms, among others, warrant overt empirical attention in future research.

The four latent classes or patterns identified in this study are novel and build meaningfully on Amato and colleagues' (2015) latent-class solution of parent-child closeness in stepfamilies. One notable point of departure is the *inclusive* pattern, which exhibits very high levels of nonresident father-child involvement alongside above-average mother-child closeness, stepfather-child closeness, and stepcouple relationship quality. Another clear difference is the *unhappy couple* pattern, emphasizing the importance of including information about stepcouple relationship quality. Indeed, the quality of the stepcouple relationship was markedly different across each of the four identified patterns. Perhaps most notably, the analytical solution highlights distinct patterns of interdependencies between

dyadic relationships in each class— phenomena with little to no previous quantitative exploration. Until now, most extant research has used variable-centered analyses and found positive correlations between the quality of dyadic relationships in stepfamilies (e.g., Jensen & Harris, 2017a; King et al., 2014). This study marks the first typological examination of stepfamily relationship quality in which unique patterns of interdependence between relationship-quality constructs are identified, highlighting that stepfamilies can experience positive, negative, or no correlations between the quality of two or more specific dyadic relationships. The practical implications of this contribution are profound and discussed further below.

Pattern differences in terms of youth racial/ethnic identify are not easily interpretable; however, the fact that youth identifying as non-Hispanic Black or Hispanic are no more or less likely to be represented in any specific pattern suggests that these youth might not be at any particular risk in terms of stepfamily relationship quality. Stepfamilies with members identifying as Asian, Native American, or as members of other racial minority groups might possess distinct strengths as they have the most representation in the *residence-centered* pattern compared to the other patterns. On the other hand, stepfamilies with youth identifying as non-Hispanic White are less represented in the *residence-centered* pattern compared to other patterns. Future research should assess racial/ethnic identity and other socio-demographic factors as they relate to complex examinations of stepfamily relationship quality.

The factor-mixture solution is further validated by predictable pattern-differences across substantive covariates. Not surprisingly, the proportion of mothers who discussed ending the relationship with their partners was commensurate with the level of stepcouple relationship quality in each pattern. Differences in youth adjustment between patterns also provide tentative evidence that patterns of stepfamily processes are associated with youth well-being. A combination of below-average mother-child closeness, stepfather-child closeness, and nonresident father-child involvement (i.e., the *parent-child disconnection* pattern) is associated with the highest levels of depression among youth. In this context, youth likely have no solid parent-child relationship on which to rely when distressed or in need of support, leading to internalizing problems (Hetherington, 2003). On the other hand, higher levels of youth depression could drive the quality of stepfamily relationships (or at least youths' perceptions of them) downward.

Despite having near- or above-average parent-child closeness, youth in stepfamilies marked by unhappy and conflictual stepcouple relationships (i.e., the *unhappy couple* pattern) appear to exhibit higher levels of externalizing problems, such as delinquent behaviors. This link might be explained, in part, by emotional security theory, which focuses attention on children's regulatory response systems in the context of parental conflict or other threats to emotional security (Davies & Cummings, 1994). Alternatively, youth delinquency might stir conflict and discord in the stepcouple relationship. Youth self-esteem appears most closely associated with parent-child closeness and involvement, consistent with research on youth adaptation to family transitions (Hetherington, 2003). The similarity in well-being between youth in the *residence-centered* and *inclusive* patterns could stem from a compensatory phenomenon, such that youth derive psychological and behavioral benefits when the

cumulative quality across parent-child relationships is high, regardless of which specific parent-child relationship is most high-quality (e.g., King, 2006). Because measures of youth adjustment and stepfamily relationship quality are concurrent, causal associations and directionality should not be concluded.

Limitations, Future Research, and Practical Implications

Any conclusions drawn from this study should be tempered by some limitations. For one, the data used in this study were collected near the turn of the twenty-first century. Given the dynamic nature of family systems and parental roles, along with the societal norms and attitudes that shape them, efforts to generalize the findings should be done with some caution. Moreover, the advent of social media and growing prevalence of digital communication has undoubtedly influenced the ways in which families communicate and form or maintain relationships, particularly between youth and nonresident parents. This has implications for holistic analyses of family processes moving forward.

Also, in the context of mixture modeling, it can be challenging to actually prove whether latent classes truly exist (Bauer & Curran, 2003). Instead, latent classes should be viewed as helpful approximations of unobserved population heterogeneity, insomuch as validation analyses and substantive interpretations warrant it (Bauer & Shanahan, 2007). Moreover, the process of selecting a factor-mixture solution is informed by both objective information criteria and substantive interpretation. Thus, future research should seek to replicate the findings produced here, and alternative explanations for the final solution should be considered. I will note, however, that each identified stepfamily-process pattern is highly compatible with the theoretical framework used to guide and inform this study, lending confidence to the interpretation and validity of results.

I submit several additional recommendations for future research. First, future FMM specifications could include indicators of other important stepfamily relationships (e.g., sibling, coparental, and nonresident parent-stepparent relationships). Second, future research should incorporate stepfamilies reared by fathers and stepmothers or by same-sex couples. Third, although I highlight associations between stepfamily-process patterns and concurrent youth adjustment, future research should incorporate longitudinal data and assess the influence of patterns on youth adjustment over time. Longitudinal analyses can help overcome ambiguity relating to the temporal order of associations between family processes and youth outcomes (Hawkins et al., 2007; King et al., 2015). Fourth, other substantive predictors of stepfamily-process patterns could be explored, such as neighborhood characteristics and other features of the family's environment and context that reflect a systems perspective (Noah, 2015).

Future work in these areas, in combination with the results presented here, will help guide intervention development to promote youth and stepfamily well-being and increase theoretical understanding of diverse stepfamily experiences. Moreover, the results of this study highlight the need for ongoing intervention development, as most current stepfamily interventions employ a couple enrichment approach (Lucier-Greer & Adler-Baeder, 2012; Whitton, Nicholson, & Markman, 2008). About 29% of the stepfamilies in the sample had below-average stepcouple relationship quality (i.e., the *unhappy couple* pattern). Although

efforts to assist these stepfamilies are certainly warranted, other stepfamilies face different challenges, particularly regarding youths' relationships with their various parental figures (i.e., the *parent-child disconnection* pattern). Given the associations between youth adjustment and the patterns identified in this study, new interventions should be adapted or developed that focus on bolstering mother-child, stepfather-child, and nonresident father-child relationships. Unfortunately, this might not be as straightforward as it seems. Stepfamilies resembling characteristics of the *parent-child disconnection* pattern might experience negative correlations between mother-child closeness and nonresident father-child involvement, suggesting that gains in one relationship might compromise gains in the other. These types of challenges deserve thoughtful attention by intervention developers and practitioners.

Programs produced by the Oregon Social Learning Center show particular promise, and could provide opportunities for the development or adaptation of stepfamily interventions. Specifically, the *Marriage and Parenting in Stepfamilies* program incorporates social interaction learning theory and targets parenting skills and behaviors to improve youth outcomes (Forgatch, DeGarmo, & Beldavs, 2005). One of the targeted parenting cores is positive involvement. This element could be expanded, and greater focus could be placed on the quality of mother-child, stepfather-child, and nonresident father-child relationships. Additional adjustments could be made that accommodate complex interrelationships between these three dyadic relationships.

Acknowledgments

References

Amato, P., Booth, A., Johnson, D., Rogers, S. Alone together: How marriage in America is changing. Cambridge, MA: Harvard University Press; 2007.

Amato PR, Gilbreth JG. Nonresident fathers and children's well-being: A meta-analysis. Journal of Marriage and Family. 1999; 61:557–573.

Amato PR, King V, Thorsen ML. Parent-child relationships in stepfather families and adolescent adjustment: A latent class analysis. Journal of Marriage and Family. 2015; 78:482–497. [PubMed: 27022199]

Aquilino WS. The noncustodial father-child relationship from adolescence into young adulthood. Journal of Marriage and Family. 2006; 68:929–946.

Asparouhov T, Muthén B. Auxiliary variables in mixture modeling: Three-step approaches using Mplus. Structural Equation Modeling: A Multidisciplinary Journal. 2014; 21:329–341.

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Bauer DJ, Curran PJ. Distributional assumptions of growth mixture models: Implications for overextraction of latent trajectory classes. Psychological Methods. 2003; 8:338–363. [PubMed: 14596495]

Bauer, DJ., Shanahan, MJ. Modeling complex interactions: Person-centered and variable-centered approaches. In: Little, T.Bovaird, J., Card, N., editors. Modeling ecological and contextual effects in longitudinal studies of human development. Mahwah, NJ: Lawrence Erlbaum; 2007. p. 255-283.

Brown SL, Manning WD. Family boundary ambiguity and the measurement of family structure: The significance of cohabitation. Demography. 2009; 46:85–101. [PubMed: 19348110]

Bzostek SH. Social fathers and child well-being. Journal of Marriage and Family. 2008; 70:950–961.

Clark CL, Muthén BO, Kaprio J, D'Onofrio BM, Viken R, Rose RJ. Models and strategies for factor mixture analysis: An example concerning the structure underlying psychological disorders. Structural Equation Modeling: A Multidisciplinary Journal. 2013; 20:681–703.

Coleman M, Ganong L, Fine M. Reinvestigating remarriage: Another decade of progress. Journal of Marriage and Family. 2000; 62:1288–1307.

Coleman, M., Ganong, L., Russell, L. Resilience in stepfamilies. In: Becvar, D., editor. Handbook of family resilience. New York: Springer; 2013. p. 85-103.

Collins, LM., Lanza, ST. Latent class and latent transition analysis with applications in the social, behavioral, and health sciences. Hoboken, NJ: John Wiley & Sons; 2010.

Cox MJ, Paley B. Families as systems. Annual Review of Psychology. 1997; 48:243–267.

Davies PT, Cummings EM. Marital conflict and child adjustment: an emotional security hypothesis. Psychological Bulletin. 1994; 116(3):387. [PubMed: 7809306]

Dunn J, O'Connor TG, Cheng H. Children's responses to conflict between their different parents: Mothers, stepfathers, nonresident fathers, and nonresident stepmothers. Journal of Clinical Child and Adolescent Psychology. 2005; 34:223–234. [PubMed: 15901223]

Enders, CK. Applied missing data analysis. New York: Guildford Press; 2010.

Forgatch M, DeGarmo D, Beldavs Z. An efficacious theory-based intervention for stepfamilies. Behavior Therapy. 2005; 36:357–365. [PubMed: 16718303]

Ganong, L., Coleman, M. Stepfamily relationships: Development, dynamics, and interventions. 2. New York: Springer; 2017.

Ganong LH, Coleman M, Jamison T. Patterns of stepchild-stepparent relationship development. Journal of Marriage and Family. 2011; 73:396–413.

Hawkins DN, Amato PR, King V. Nonresident father involvement and adolescent well-being: Father effects or child effects? American Sociological Review. 2007; 72:990–1010.

Hetherington EM. Social support and the adjustment of children in divorced and remarried families. Childhood. 2003; 10:217–236.

Hetherington EM, Bridges M, Insabella GM. What matters? What does not? Five perspectives on the association between marital transitions and children's adjustment. American Psychologist. 1998; 53:167–184. [PubMed: 9491746]

Jensen T, Harris KM. Stepfamily relationship quality and stepchildren's depression in adolescence and adulthood. Emerging Adulthood. 2017a; 5:191–203.

Jensen T, Harris KM. A longitudinal analysis of stepfamily relationship quality and adolescent physical health. Journal of Adolescent Health. 2017b; Advance online publication. doi: 10.1016/j.jadohealth.2017.04.015

Jensen T, Howard MO. Perceived stepparent-child relationship quality: A systematic review of stepchildren's perspectives. Marriage & Family Review. 2015; 51:99–153.

Jensen T, Lippold M, Mills-Koonce R, Fosco G. Stepfamily relationship quality and children's internalizing and externalizing problems. Family Process. 2017; Advance online publication. doi: 10.1111/famp.12284

Jensen T, Shafer K. Stepfamily functioning and closeness: Children's views on second marriages and stepfather relationships. Social Work. 2013; 58:127–136. [PubMed: 23724576]

Jensen T, Shafer K, Holmes E. Transitioning to stepfamily life: The influence of closeness with biological parents and stepparents on children's stress. Child & Family Social Work. 2017; 22:275–286.

Jensen T, Shafer K, Larson J. (Step)parenting attitudes and expectations: Implications for stepfamily functioning and clinical intervention. Families in Society: The Journal of Contemporary Social Services. 2014; 95:213–220.

King V. The antecedents and consequences of adolescents' relationships with stepfathers and nonresident fathers. Journal of Marriage and Family. 2006; 68:910–928. [PubMed: 18270551]

King V, Amato PR, Lindstrom R. Stepfather-adolescent relationship quality during the first year of transitioning to a stepfamily. Journal of Marriage and Family. 2015; 77:1179–1189. [PubMed: 26508804]

King V, Thorsen ML, Amato PR. Factors associated with positive relationships between stepfathers and adolescent stepchildren. Social Science Research. 2014; 47:16–29. [PubMed: 24913942]

Kline, B. Principles and practice of structural equation modeling. 3. New York: The Guilford Press; 2011.

Kreider, R., Ellis, R. Living arrangements of children: 2009. Washington, DC: U.S. Census Bureau; 2011.

Lucier-Greer M, Adler-Baeder F. Does couple and relationship education work for individuals in stepfamilies? A meta-analytic study. Family Relations. 2012; 61:756–769.

MacCallum RC, Browne MW, Sugawara HM. Power analysis and determination of sample size for covariance structure modeling. Psychological Methods. 1996; 1:130–149.

Muthén, B. Latent variable hybrids: Overview of old and new models. In: Hancock, GR., Samuelsen, KM., editors. Advances in latent variable mixture models. Charlotte, NC: Information Age; 2008. p. 1-24.

Muthén, LK., Muthén, BO. Mplus user's guide. 7. Los Angeles, CA: Muthén & Muthén; 2012.

Nagin DS, Odgers CL. Group-based trajectory modeling in clinical research. Annual Review of Clinical Psychology. 2010; 6:109–138.

Noah AJ. Putting families into place: Using neighborhood-effects research and activity spaces to understand families. Journal of Family Theory & Review. 2015; 7:452–467. [PubMed: 26681979]

Papernow, P. Surviving and thriving in stepfamily relationships: What works and what doesn't. New York: Routledge; 2013.

Pew Research Center. Pew social & demographic trends survey. Washington, DC: Pew Research Center; 2011.

Radloff LS. The CES-D scale a self-report depression scale for research in the general population. Applied Psychological Measurement. 1977; 1:385–401.

Robbins, SP., Chatterjee, P., Canda, ER. Contemporary human behavior theory: A critical perspective for social work. 3. Upper Saddle River, NJ: Pearson; 2012.

Russell LT, Beckmeyer JJ, Coleman M, Ganong L. Perceived barriers to postdivorce coparenting: Differences between men and women and associations with coparenting behaviors. Family Relations. 2016; 65:450–461.

Sawyer SM, Afifi RA, Bearinger LH, Blakemore SJ, Dick B, Ezeh AC, Patton GC. Adolescence: a foundation for future health. The Lancet. 2012; 379(9826):1630–1640.

Schrodt P. A typological examination of communication competence and mental health in stepchildren. Communication Monographs. 2006; 73:309–333.

Shafer K, Jensen TM, Pace GT, Larson JH. Former spouse ties and postdivorce relationship quality: Relationship effort as a mediator. Journal of Social Service Research. 2013; 39:629–645.

Sobolewski JM, King V. The importance of the coparental relationship for nonresident fathers' ties to children. Journal of Marriage and Family. 2005; 67:1196–1212.

Sweeney MM. Remarriage and stepfamilies: Strategic sites for family scholarship in the 21st century. Journal of Marriage and Family. 2010; 72:667–684.

Walsh F. A family resilience framework: Innovative practice applications. Family Relations. 2002; 51:130–137.

Weaver SE, Coleman M. A mothering but not a mother role: A grounded theory study of the nonresidential stepmother role. Journal of Social and Personal Relationships. 2005; 22:477–497.

Whitton, SW., Nicholson, JM., Markman, HJ. Research on interventions for stepfamily couples: The state of the field. In: Pryor, J., editor. The international handbook of stepfamilies: Policy and practice in legal, research, and clinical environments. Hoboken, NJ: Wiley; 2008. p. 455-484.
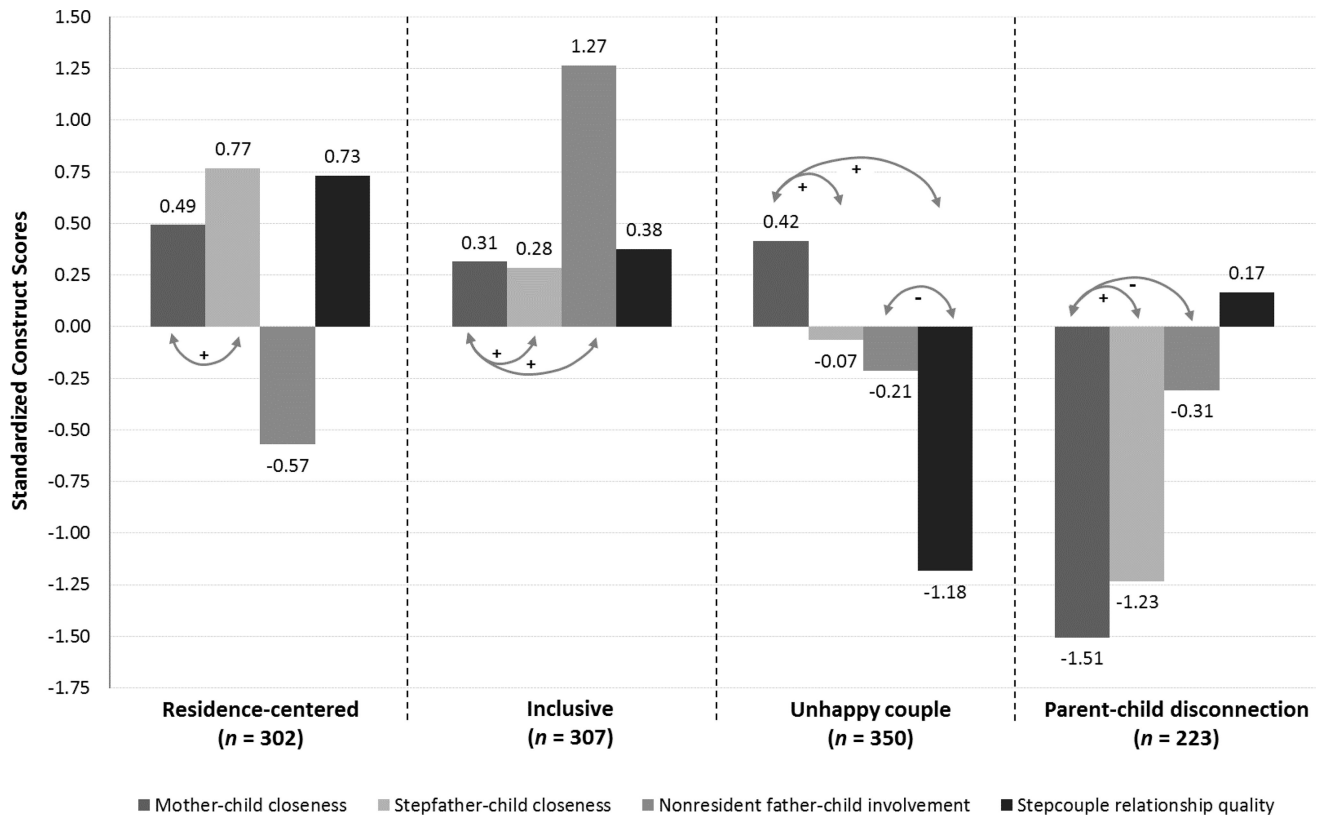
Figure 1.
Standardized Factor Means and Inter-Factor Correlations for Each Latent Class
Note: The values shown are standardized scores for each relationship-quality scale; the full-sample mean for each standardized scale is equal to 0 with a standard deviation of 1. Estimates were derived from weighted data. Two-sided arrows and signs represent class-specific inter-factor covariances.

Table 1

Model Fit Comparisons (N = 1,182)

Model	Log-Likelihood	Par.	AIC	BIC	aBIC	BLRT p-value	Size of smallest class
Latent class analysis							
One-class	−25334.436	30	50728.9	50881.1	50785.8		
Two-class	−23544.638	46	47181.3	47414.7	47268.6	0.000	353
Three-class	−22765.482	62	45655.0	45969.6	45772.7	0.000	101
Four-class	−22274.362	78	44704.7	45100.6	44852.8	0.000	101
Five-class	−21275.289	94	42738.6	43215.6	42917.0		23
Factor analysis							
Four-factor	−21027.305	51	42156.6	42415.4	42253.4		
Factor mixture analysis							
Two-class, four-factor							
FMM-1	−23544.638	46	47181.3	47414.7	47268.6		
FMM-2	−20635.509	65	41401.0	41730.9	41524.4		
Three-class, four-factor							
FMM-1	−22812.241	51	45726.5	45985.3	45823.3		
FMM-2	−20552.541	80	41264.9	41670.9	41416.8		
Four-class, four-factor							
FMM-1	−22464.309	56	45040.6	45324.8	45146.9		
FMM-2	−20415.654	95	**41021.3**	**41503.4**	**41201.7**		

Note. Par. = number of estimated parameters; AIC = Akaike Information Criterion; BIC = Bayesian Information Criterion; aBIC = adjusted BIC; BLRT = bootstrap likelihood ratio test. All models were replicated with recommended sets of random start values. FMM-1 = Factor mixture model with class-invariant factor loadings, class-invariant factor intercepts, factor covariance matrices fixed at zero, class-varying factor mean vectors. FMM-2 = Factor mixture model with class-invariant factor loadings, class-invariant intercepts, class-varying factor covariance matrices, class-varying factor mean vectors.

Table 2

Relationship-Quality Item Means, Standard Errors, and Z Scores Across Latent Classes

Factor/Item	Full Sample (unweighted)		Residence-centered (n = 302)			Inclusive (n = 307)			Unhappy couple (n = 350)			Parent-child disconnection (n = 223)		
	M	mean Z score	M	SE	mean Z score	M	SE	mean Z score	M	SE	mean Z score	M	SE	mean Z score
Mother-child closeness														
1 Closeness with mother	4.57	0.00	4.92	(0.02)	0.47	4.84	(0.04)	0.37	4.91	(0.03)	0.45	3.50	(0.07)	−1.43
2 Mother cares	4.87	0.00	5.00	(0.01)	0.27	4.97	(0.01)	0.20	4.96	(0.02)	0.18	4.58	(0.05)	−0.65
3 Mother is warm and loving	4.34	0.00	4.72	(0.04)	0.47	4.54	(0.05)	0.26	4.66	(0.03)	0.40	3.35	(0.10)	−1.22
4 Satisfied with communication Overall relationship	3.98	0.00	4.51	(0.05)	0.51	4.31	(0.06)	0.32	4.41	(0.04)	0.41	2.22	(0.07)	−1.67
5 satisfaction	4.28	0.00	4.65	(0.05)	0.40	4.57	(0.04)	0.31	4.61	(0.03)	0.35	2.90	(0.13)	−1.48
Stepfather-child closeness														
1 Closeness with stepfather	3.67	0.00	4.52	(0.04)	0.75	3.89	(0.10)	0.19	3.42	(0.25)	−0.22	2.73	(0.34)	−0.83
2 Stepfather cares	4.33	0.00	4.85	(0.03)	0.55	4.39	(0.05)	0.06	4.06	(0.07)	−0.29	3.93	(0.08)	−0.43
3 Stepfather is warm and loving	3.75	0.00	4.48	(0.04)	0.68	3.98	(0.05)	0.21	3.41	(0.07)	−0.33	3.16	(0.09)	−0.56
4 Satisfied with communication	3.63	0.00	4.39	(0.05)	0.68	3.98	(0.09)	0.31	3.18	(0.14)	−0.39	3.04	(0.25)	−0.52
5 Overall satisfaction	3.77	0.00	4.50	(0.04)	0.67	4.09	(0.09)	0.30	3.56	(0.33)	−0.19	2.84	(0.52)	−0.85
Nonresident father-child involvement														
1 Closeness with father	1.23	0.00	0.56	(0.07)	−0.42	2.88	(0.12)	1.04	1.05	(0.09)	−0.12	1.03	(0.11)	−0.13
Time spent overnight with														
2 father	2.39	0.00	1.22	(0.09)	−0.66	4.67	(0.03)	1.28	1.79	(0.39)	−0.34	1.99	(0.49)	−0.22
3 Frequency of contact	2.90	0.00	2.45	(0.15)	−0.22	4.25	(0.07)	0.92	2.66	(0.14)	−0.16	2.51	(0.19)	−0.26
Stepcouple relationship quality														
1 Relationship happiness	8.50	0.00	9.68	(0.04)	0.72	9.11	(0.09)	0.37	6.48	(0.18)	−1.22	8.74	(0.12)	0.15
2 Infrequency of conflict[a]	2.80	0.00	3.26	(0.07)	0.59	3.00	(0.07)	0.25	2.30	(0.08)	−0.65	2.91	(0.07)	0.14

Note. Means were estimated using the 3-step procedure. Estimates were derived from weighted data and standard errors were adjusted for potential within-school clustering. Item numbers correspond with the order of items described in the Methods section.

[a] Higher values indicate lower levels of conflict.

Table 3

Covariate Means, Standard Errors, Z Scores, and Differences Between Latent Classes

Covariate	Full Sample (unweighted) M	mean Z score	Residence-centered (n = 302) M	SE	mean Z score	Inclusive (n = 307) M	SE	mean Z score	Unhappy couple (n = 350) M	SE	mean Z score	Parent-child disconnection (n = 223) M	SE	mean Z score	Class differences, p .05
Youth is female	0.53	0.00	0.48	(0.04)		0.44	(0.04)		0.44	(0.05)		0.72	(0.05)		4 > 1, 2, 3
Youth age	15.64	0.00	15.49	(0.23)	−0.09	15.20	(0.20)	−0.26	15.29	(0.22)	−0.20	15.87	(0.17)	0.14	4 > 2, 3
Youth racial/ethnic identity															
White	0.62		0.68	(0.05)		0.79	(0.04)		0.70	(0.05)		0.79	(0.05)		2, 4 > 1
Black	0.19		0.14	(0.03)		0.10	(0.03)		0.15	(0.04)		0.13	(0.04)		
Hispanic	0.14		0.10	(0.03)		0.07	(0.02)		0.12	(0.03)		0.06	(0.02)		
Asian/Native American/Other	0.04		0.08	(0.03)		0.01	(0.01)		0.02	(0.01)		0.02	(0.01)		1 > 2, 4
Mother education	2.57	0.00	2.43	(0.09)	−0.15	2.76	(0.09)	0.21	2.55	(0.09)	−0.02	2.51	(0.14)	−0.06	2 > 1
Stepfather education	2.59	0.00	2.47	(0.11)	−0.13	2.69	(0.11)	0.10	2.52	(0.09)	−0.07	2.64	(0.11)	0.04	
Household income (in thousands)	50.02	0.00	50.40	(3.72)	0.01	58.04	(4.61)	0.18	45.03	(2.64)	−0.11	49.15	(4.36)	−0.02	2 > 3
Married (vs. cohabiting)	0.87		0.87	(0.03)		0.90	(0.03)		0.88	(0.03)		0.91	(0.03)		
Mother's past relationships	2.05	0.00	2.14	(0.09)	0.12	2.15	(0.06)	0.13	1.98	(0.06)	−0.10	2.20	(0.09)	0.20	2 > 3
Stepfamily duration	6.73	0.00	6.65	(0.44)	−0.02	5.54	(0.34)	−0.29	6.80	(0.35)	0.02	7.39	(0.46)	0.16	1, 3, 4 > 2
Household composition	3.77	0.00	3.85	(0.19)	0.06	3.65	(0.11)	−0.08	3.56	(0.13)	−0.14	3.61	(0.12)	−0.11	
Stepcouple stability	0.81		0.96	(0.02)		0.88	(0.02)		0.63	(0.03)		0.83	(0.03)		1 > 2, 3, 4; 2, 4 > 3
Youth depression[a]	0.70	0.00	0.56	(0.03)	−0.28	0.57	(0.03)	−0.26	0.61	(0.05)	−0.18	1.11	(0.09)	0.83	4 > 1, 2, 3
Youth delinquency[a]	0.19	0.00	0.10	(0.02)	−0.27	0.16	(0.02)	−0.10	0.27	(0.04)	0.26	0.17	(0.04)	−0.07	2, 3, 4 > 1; 3 > 2
Youth self-esteem[b]	4.08	0.00	4.30	(0.05)	0.37	4.17	(0.05)	0.16	4.17	(0.04)	0.15	3.53	(0.07)	−0.91	1 > 2, 3, 4; 2, 3 > 4

Note: Means and mean differences were estimated using the 3-step procedure. Estimates were derived from weighted data and standard errors were adjusted for potential within-school clustering. Means represent class-specific proportions for binary/dummy variables. Mean Z scores are only presented for continuous items.

[a]Range: 0 to 3.

[b]Range: 1 to 5.