Relationship Types Among Adolescent Parents Participating in a Home-Visiting Program: A Latent-Transition Analysis

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Young parents (less than 25 years of age) have been shown to have especially low rates of father involvement and union stability. However, research has also shown that parenting experiences of young fathers may not be uniform. There is a need for more research that assesses both the multidimensionality of relationship typologies and their temporality. Using a large longitudinal sample of low-income, young mothers enrolled in a randomized control study of a home-visitation program ($n = 704$; 61% program, 39% control), we evaluated how mother–father relationship dynamics changed over time. Ten mother-reported indicators of relationships (e.g., coresidence, marital status, types of father support) were used to conduct a latent-class analysis of relationship types. A 4-class solution was identified at each time point: Single Parent, Supportive Nonresident Partner, Supportive Resident Partner, and Questioning/Ambivalent Coupling. Latent-transition analyses were used to evaluate stability of relationships across 2 years. At each transition, a large proportion of women moved from one relationship class to another, indicating heterogeneity in relationship dynamics of adolescent parents. Results revealed the potential of a home-visiting program targeted at young parents to favorably promote more stable and supportive mother–father relationships and coparenting arrangements.

Keywords: adolescent parents, father involvement, latent-class analysis, home visiting

Research on fathering has progressed substantially in the last several decades, greatly expanding the knowledge base on the contribution of fathers to child development and no longer focusing solely on the negative effects of father absence (Bocknek, Brophy-Herb, Fitzgerald, Schiffman, & Vogel, 2014). It is now widely established that fathers' involvement in parenting plays a significant role in promoting children's socioemotional, behavioral, and academic functioning (Cabrera & Bradley, 2012). Greater father involvement has also been found to be a significant contributor to greater maternal psychological well-being, which impacts the child indirectly by buffering him or her from the harmful effects of maternal depression (Goodman, Lusby, Thompson, Newport, & Stowe, 2014; Lewin et al., 2014).

Young Fathers: An Overlooked Population

In the United States, men become fathers at 27 years, on average (Stykes, 2011). As a group, young fathers (younger than 25 years) have received little attention in the extant literature (Lemay, Cashman, Elfenbein, & Felice, 2010; Scott, Manlove, Steward-Streng, & Moore, 2012). The most consistent finding about young fathers is that their union and residential status with the mother of the child is often volatile, and that their coparenting efforts tend to cease within the first years following the birth of the child (Fagan & Lee, 2012; Scott et al., 2012). Research findings have suggested that low rates of marriage and the associated instability in the family structure and financial welfare of households headed by young parents is linked to children's development (Mollborn & Lovegrove, 2011). There is a growing literature documenting the links between inconsistent father presence and compromised child outcomes, such as less optimal emotion regulation (Bocknek, Brophy-Herb, et al., 2014).

A particular challenge for researchers is the fact that traditional ways of measuring father involvement and relationship/union status do not reflect the complexities of modern coupling. Specifically, the life-course transition sequence in which parenting follows from cohabitation and subsequently marriage does not describe the reality for many young couples (Carlson & Meyer, 2014). Consequently, when surveys apply traditional definitions of union status (e.g., single, married), only 8–11% of young fathers are identified as married, and a majority fall

into the category of "not in union" (Hamilton, Martin, Oster-man, & Curtin, 2014; Scott et al., 2012). Although informative, these numbers do not fully acknowledge the heterogeneity that often accompanies relationships among young people. For example, a qualitative study that asked low-income, mostly un-married inner city African American and Puerto Rican youth to describe their romantic relationships found that relationship types ranged from purely sexual to romantic but not yet com-mitted to serious with a partner or a baby's father/mother (Singer et al., 2006). Another qualitative study of long-term unmarried—and, at times, noncohabitating—parents, often liv-ing in the midst of multiple stressors and risks, found that the nature of these relationships was dynamic, going through peri-ods of "suspension" as partners worked through and coped with significant barriers to marriage (Roy, Buckmiller, & McDowell, 2008). Both studies underscore the limitations of existing quan-titative typologies of paternal involvement, as well as the need to examine how these relationships change over time.

Few researchers have followed young parents longitudinally to understand how relationship dynamics might change over time for these couples. Longitudinal studies with other high-risk groups do, however, provide insight into family dynamics among poor and unwed parents, which may offer some useful lessons for under-standing young parents' relationships. For example, Ryan, Kalil, and Ziol-Guest (2008) examined covariation between patterns of romantic involvement and father involvement over time among nonresident couples and found that consistent romantic involve-ment *or* re-establishing romantic relations between parents was positively associated with greater father involvement. Similarly, a study of both residential and nonresidential romantic relationships reported that consistent romantic relationships between parents predicted father involvement *regardless* of residential status (Ryan, Tolani, & Brooks-Gunn, 2009). A third study involved the development of relationship categories by accounting for both family structure at birth of the child and stability since birth (Waldfogel, Craigie, & Brooks-Gunn, 2010). This approach al-lowed the authors to contrast traditional (stable married) families to the following six categories of families: stable cohabitation, stable single, cohabitation to marriage, married at birth (unstable), cohabiting at birth (unstable), and single at birth (unstable). The authors found that union stability was most important for chil-dren's health outcomes, whereas family structure was predictive of behavioral outcomes. These studies underscore the need to account for the fluidity in parents' relationships in tandem with the impor-tance of examining different aspects of parents' relationships to fully understand father involvement, and looking forward, how parents' relationship status and father involvement may affect children's outcomes.

Gaining a more nuanced understanding of young parents' rela-tionships is important, as it may help inform interventions. To date, evaluations of programs to promote responsible father involve-ment have demonstrated relatively small effects (Lundquist et al., 2014). Among possible reasons for modest results is a lack of clarity on what specific outcomes are expected from men partici-pating in these programs (Fagan & Kaufman, 2014), which high-lights the need for more contextually relevant definitions of fa-therhood.

Home Visiting as a Way to Involve Young Fathers

Given that young fathers' involvement is highest during the first years of the child's life and may decline afterward if not supported (Fagan & Lee, 2012), it has been suggested that engaging them early (i.e., during mother's pregnancy or postpartum) may make fathers more likely to participate in parenting decisions related to their children (Hans & Thullen, 2009). A major barrier to this approach, however, is that young fathers often view service pro-viders who work with families with infants (e.g., staff of hospitals, schools, and social service agencies) as unsupportive or as obsta-cles to their involvement with their children (Lemay et al., 2010). This could be due to the fact that many service providers focus on the mother as primary caregiver and may even hold negative views about potential detrimental influences of young fathers on the children and family (Fragile Families Research Brief, 2000).

It has been suggested that home-visiting programs are well poised to promote a father's involvement, regardless of whether he is coresident with the child or still romantically involved with the mother (Thullen et al., 2014). Because services tend to occur over multiple visits and in one's place of residence, as opposed to a formal setting, home visitors may have an ideal vantage point for establishing a positive relationship with the father by being re-sponsive to his needs and unique challenges and providing com-fortable opportunities to define his role in the family and increase parenting confidence (Anderson, Aller, Piercy, & Roggman, 2015). Further research is needed to explore whether home visiting supports the development of a positive mother–father coparenting relationship among young parents.

The Present Study

We used a large longitudinal sample for this study ($n = 704$) of low-income, young mothers enrolled in a home-visitation evalua-tion study to explore heterogeneity in mother–father relationship configurations, as well as their temporality. Responding to the need for a more nuanced and contextualized categorization of mother–father relationships among young parents, we used a va-riety of mother-reported indicators deemed to be important com-ponents of responsible fatherhood, including the amount of time father spends with the family, provision of economic security to the family, emotional support to the mother, and cooperative parenting, in addition to marital and residence status. Using latent-transition analysis (LTA), we first derived and validated a typol-ogy of relationship configurations and then evaluated how mother–father relationship configurations changed across the first 2 years of the child's life. We also explored which mother, father, and child characteristics were associated with membership in specific relationship classes at baseline and investigated the role of moth-er's participation in a home-visiting program for young parents in predicting class membership at each assessment point, as well as transition probabilities to and from classes over time. Finally, recognizing that maternal reporting on the father of the child might be influenced by other factors, such as maternal psychological well-being (Raskin, Fosse, & Easterbrooks, 2015), we controlled for the time-varying effect of maternal depressive symptoms on class membership at each transition time point.

Hypotheses

First, there would be at least three distinct mother–father relationship configurations, including a single-mother/absent-father class; a traditional-couple class (defined by a co-occurrence of child-bearing, cohabiting, and marriage), and a complex-family/questioning-couple class, in which fathers were supportive but not resident or legally tied. Based on current literature on union status of adolescent fathers, we expected the single parenthood class to be the largest, followed by the class described by family complexity; we expected low rates of traditional coupling. Second, the developmental course of mother–father relationships during the child's infancy would depend on the class at baseline. We expected high relationship instability over time for mothers not in the traditional coupling arrangements at baseline, as well as a lasting effect of single parenthood on mothers' relationship status across time. Specifically, we predicted greatest stability over time for single-parent class (i.e., rates of transitioning out of this class would be low at each time point), and greatest instability for the complex-family/questioning-couple class (i.e., high rates of transitioning out of the complex family/questioning couple into other classes). Third, membership in certain relationship classes (single parent, complex family) would be associated with higher levels of risk (e.g., father unemployment, residential mobility). Finally, participation in a home-visiting program for young mothers would promote higher rates of transitioning into supportive relationships with involved fathers.

Method

Analytic Sample

Data were drawn from a randomized controlled trial (RCT) evaluation of Healthy Families Massachusetts (HFM), a newborn home-visiting program for all first-time young parents. HFM provides families with home visits, goal-setting activities, group-based activities, and linkages and referrals to other resources. The overarching goal of this program is to promote positive health and development among families and their young children.

HFM is a universal program, meant to serve every first-time parent under 21 in Massachusetts; however, there were several eligibility requirements for participating in the RCT evaluation: Participants had to be consenting females who were 16 years of age or older, had received no HFM services in the past (i.e., no transfers or re-enrollments), were English- or Spanish-speaking, and were cognitively able to provide informed consent.

All procedures were approved by the Institutional Review Board at Tufts University. Eligible women who consented to the study were randomly assigned to either the program group or the control group. A total of 837 participants were recruited for the study (62% program group, $n = 517$); however, 16% ($n = 133$) did not participate in the evaluation because they asked to be withdrawn or were deemed ineligible ($n = 91$) or were never located ($n = 42$) by the research team. Data for the current study were drawn from the phone interviews, which were collected at three time points: about 1 month after enrollment (Time 1, T1), about 12 months after enrollment (T2), and about 24 months after enrollment (T3). Phone interviews were completed by 684 mothers at T1 (97%), 564 at T2 (80%), and 594 at T3 (84%). Details on the methodology

of the larger evaluation study are presented elsewhere (Tufts Interdisciplinary Evaluation Research, 2015). Below we briefly describe measures used in the present study.

Measures

Demographic characteristics (T1). Maternal characteristics included age at childbirth and at T1, whether she enrolled in the study while still pregnant, her ethnic background, whether she moved at least once in the past year, and perceived financial hardship. Fathers' characteristics included age, education, employment, and whether he had children with other partners. Child's characteristics included age and sex.

Indicators of mother–father relationship configuration (T1, T2, T3). During the phone interviews, mothers were asked a series of questions pertaining to aspects of their relationship with the father of their baby and the father's involvement in their lives. From these questions, we developed the following 10 relationship indicators at each of the three time points.

Cohabitation (Indicator 1). Mothers reported whether fathers lived with them ($= 1$) or not ($= 0$).

Emotional support (Indicator 2). Mothers reported whether fathers provided emotional support ($= 1$) or not ($= 0$).

Help with parenting (Indicator 3). Mothers reported whether fathers provided physical help with parenting ($= 1$) or not ($= 0$).

Financial support (Indicators 4 and 5). Mothers reported whether fathers provided financial or material support ($= 1$) or not ($= 0$), and if yes, whether he also provided money ($= 1$) or not ($= 0$), to distinguish it from other types of material support, such as housing, transportation, or food.

Frequency of contact (Indicators 6 and 7). Mothers were asked about the amount of time fathers spent with them in the past month, based on a 6-point Likert scale ranging from *none* ($= 1$) to *daily* ($= 6$). Answers were collapsed into *none*, *less than daily*, and *daily* and dummy-coded. Two indicator variables were used in analyses: daily (yes $= 1$, no $= 0$) and less than daily (yes $= 1$, no $= 0$), with none as the omitted referent.

Relationship status (Indicators 8, 9, and 10). Each mother was provided a list of mutually exclusive categories of relationship status and asked to choose the one that best described her current status. The options included being single, dating the child's father, dating a different partner, being in an engaged or a committed relationship with the child's father, being in an engaged or a committed relationship with a different partner, being married to the child's father, or being married to a different partner. The answers were collapsed and dummy-coded into the following variables: dates the child's father (yes $= 1$, no $= 0$); is engaged or married to the child's father (yes $= 1$, no $= 0$); is in any relationship status with another partner (yes $= 1$, no $= 0$); or is single (yes $= 1$, no $= 0$). The first three indicator variables were used in analyses, with single serving as the omitted referent variable.

The Center for Epidemiological Studies–Depression scale (CES-D; T1, T2, and T3). The 20-item CES-D (Radloff, 1977) assesses symptoms experienced during the past week (e.g., "I felt that I could not shake off the blues even with help from my family or friends") rated on a 4-point Likert scale ($0 = $ *not at all* to $3 = $ *a lot*). The CES-D has demonstrated strong psychometric properties in both clinical and epidemiological studies (Radloff, 1977) with diverse groups (Naughton & Wiklund, 1993), including ad-

olescents 14 years of age and older (Sharp & Lipsky, 2002) and postpartum women (Radloff, 1991). An overall score reflecting severity of symptoms was created for each time point by summing the items.

Home-visiting program. Mothers who were randomly assigned to receive home-visiting services were coded as 1; mothers in the control group were coded as 0.

Analytic Approach

Analyses proceeded in the following steps. First, we conducted three separate latent-class analyses (LCA), one for each time point. LCA uses multiple observed indicators (i.e., variables) to identify underlying population subgroups (i.e., latent classes) characterized by different patterns of behaviors and is useful when it is not known beforehand which participants belong to which subgroups (Butera, Lanza, & Coffman, 2014). A latent categorical variable (i.e., underlying class membership) is used to model unobserved heterogeneity in the sample, and observed variables (questionnaire items) within each latent class are assumed to be independent (Lubke & Muthén, 2005). Conditional item probabilities (probabilities of endorsing an item for individuals within a given class) are used to attach substantive meaning to the latent classes (Nylund, Asparouhov, & Muthén, 2007).

At each time point, modeling started with a two-class model and continued until a model with the proper number of classes was found based on our hypotheses, as well as the following statistical criteria: the Bayesian information criterion (BIC; Schwarz, 1978), bootstrap likelihood ratio test (BLRT; Nylund et al., 2007), and Lo–Mendell–Rubin test (LMR; Lo, Mendell, & Rubin, 2001). The BIC index is based on the log likelihood of a fitted model, with a penalty for the number of model parameters. BLRT and LMR are likelihood tests that compare the improvement in model fit between neighboring class models and provide a p value that can be used to decide whether inclusion of one more class offers superior fit to the data. In choosing the final solution, we followed common practice (Nylund et al., 2007) by selecting the model with a low BIC value and significant BLRT and LMR tests, in addition to assessing the theoretical fit, entropy (a measure of classification certainty), and size, prevalence, and interpretability of each class.

After selecting and validating separate measurement models for T1, T2, and T3, we compared them cross-sectionally to establish whether similar classes were emerging at each time point and whether any of the classes declined in size over time. We subsequently fit an LCA for T1 with covariates to explore which demographic characteristics described participants in each class to further validate and contextualize the measurement model. To address the concern that inclusion of the covariates might affect the latent-class formation, we employed the bias-adjusted 3-step method of modeling with auxiliary variables (Asparouhov & Muthén, 2014), specifying the covariates as predictors of the latent class.

Our final step was to fit a series of LTA models. LTA is an autoregressive model in which class membership at each time point is estimated by an LCA and changes in class membership over time are evaluated by estimating transition probabilities, which are conditional probabilities of class membership at time = t, conditional on the state at time = $t - 1$.

The first LTA model was fit without covariates and investigated whether participants remained in the same classes at each time point or transitioned from class to class. To evaluate patterns of transitioning from class to class at each time point, the model estimated a first-order transition matrix for each time point (i.e., the multinomial logistic regression of the T1 latent-class variable predicting T2 latent classes, and T2 predicting T3).

The second LTA model included two covariates. The first covariate was depressive symptomatology at each time point. As stated earlier, this was done to control for the possibility that transitions from one class to another were not due to changes in mothers' psychological state, which could influence their reporting on the father. The second covariate was program-group membership (home visiting vs. control). This variable was allowed to influence both the probabilities of latent-class membership at each time point and the latent-transition probabilities, which permitted us to test the hypothesis that membership in the home-visiting group would predict higher probability of transitioning into a supportive partner class.

Results

LCA Findings

At each time point, a 4-class LCA solution was determined to be the most parsimonious explanation of the data based on the BIC, entropy, LMR and BLRT criteria. Table 1 shows model fit statistics at each time point. As shown, the four-class solution had superior model fit at T1 and T3 (the lowest values for BIC, along with the highest entropy, and significant p value for the LMR and BLRT tests). At T2, the four-class solution had excellent model fit, however, the BIC continued to decrease and entropy values increased up to six classes. After examining the size, prevalence, and interpretability of classes in the five- and six-class solutions, we determined that the models continued to further divide one class, Single Parent, into smaller, but very similar, classes. We thus chose the four-class solution for T2 as it provided the clearest class distinction and the most substantively interpretable results, and allowed us to maintain comparability of models across time points.

Table 2 shows conditional item probabilities and percentage of participants in each class at T1, T2, and T3. Conditional item probabilities at each time point were very similar, which indicates that the meaning of the classes remained the same across three time points. In other words, the same measurement model produced the most meaningful classes and was a parsimonious solution. As shown, mothers were classified into the following classes: Single Parent, Supportive Nonresident Partner, Supportive Resident Partner, and Questioning/Ambivalent Coupling. Mothers classified to be in the Supportive Resident Partner class were likely to endorse items pertaining to cohabitation, provision of emotional physical, financial support by the father, including money, as well as father's daily presence and being either engaged or married. Mothers classified to be in the Single Parent class were not likely to endorse any items pertaining to father support or presence, or being in a relationship. Mothers classified to be in the Supportive Nonresident Partner class were likely to endorse items pertaining to father support and presence, but did not endorse items pertaining to cohabitation or being engaged or married to the father of the child. In fact, mothers in this class were likely to describe their

Table 1
Fit Statistics for Latent-Class Analyses for Times 1, 2, and 3

Time point	Number of classes	BIC	Entropy	LMR p value	BLRT p value
T1	2	6150.71	.90	.000	.000
	3	5548.13	.96	.000	.000
	4	**5121.11**	**.97**	**.000**	**.000**
	5	5261.50	.97	.000	.000
	6	5244.09	.95	.000	.667
T2	2	5295.30	.89	.000	.000
	3	4919.42	.93	.000	.000
	4	**4736.92**	**.95**	**.000**	**.000**
	5	4705.07	.95	.000	.000
	6	4677.19	.96	.000	.000
T3	2	5501.28	.87	.000	.000
	3	5058.48	.93	.000	.000
	4	**4944.45**	**.96**	**.000**	**.000**
	5	4863.84	.95	.000	.000
	6	4814.66	.93	.000	.000

Note. LMR = Lo-Mendell-Rubin test; BLRT = bootstrap likelihood ratio test. Bold values indicate the class solution selected at each time point.

relationships with the baby's father as dating. Finally, mothers classified to be in the Questioning/Ambivalent Coupling class were likely to endorse items pertaining to provision of emotional, physical, and financial support by the father; however, they were unlikely to endorse the item pertaining to cohabitation. What makes this class different from the Supportive Resident and Supportive Nonresident partner classes is that mothers were most likely to describe fathers as present less than daily (though still present). In addition, there was no clear pattern of endorsement of items pertaining to mothers' relationship status.

Table 2 also shows that the sizes of the relationship classes remained relatively stable overtime. Although no class was consistently the largest, the Supportive Nonresident Partner class was the smallest at each time point (13%, 15%, and 11%, respectively). The Single Parent class consistently comprised about a third of the sample at each time point. The size of the Supportive Resident Partner class decreased from 35% at T1 to 22% at T3, and the size of the Questioning/Ambivalent Coupling class increased from 25% at T1% to 36% at T3.

Next, we compared mothers in each T1 class based on several demographic characteristics. As shown in Table 3, mothers in each class were quite similar to each other, barring a few notable exceptions. Specifically, relative to mothers in the Supportive Resident Partner class, mothers in the Questioning/Ambivalent Coupling class were younger, less likely to be at least 18 years old at birth of the child, more likely to be non-Hispanic Black (relative to non-Hispanic White), and less likely to report financial hardship. Relative to mothers in the Single Parent class, mothers in the Supportive Resident Partner class were less likely to report that their child's father had other children and that he was employed, but had otherwise similar characteristics. Finally, relative to mothers in the Single Parent class, mothers in the Questioning/Ambivalent Coupling class were less likely to have moved in the past year, but otherwise had similar characteristics. Of note, mothers in the Supportive Nonresident Partner class did not differ from mothers in the other three classes.

LTA Findings

Our next step was to investigate whether participants remained in the same classes at each time point or transitioned from class to class, by fitting a longitudinal model (LTA). Based on the results discussed above (specifically, that the measurement models of three LCAs conducted separately for each time point were similar) we imposed the assumption of measurement invariance for the indicators of latent class across time (as is typical in LTA).

Logistic regression coefficients for the model are presented in Table 4. As shown, there was no association between membership in the home-visiting program group and the latent classes at any time point. There was a significant association between depressive symptoms at both T2 and T3 for mothers in the Single Parent class, compared with the Supportive Resident Partner class. Specifically, for each one-unit increase in depression symptoms, the odds of being in Single Parent class compared with the odds of being in the Supportive Resident Partner class increased at both T2 and T3, after controlling for the effects of program membership.

Table 5 displays probabilities of moving from one class to another, conditional on prior membership status, both for the full sample as well as for the home-visiting and control groups separately. As shown, the probability of membership in the same latent status at two consecutive times of measurement was highest of the Single Parent class (.68 between T1 and T2, and .89 between T2 and T3), followed by Supportive Resident Partner class (.51 for T1 to T2, and .48 for T2 to T3) and Questioning/Ambivalent Coupling class (.45 for T1 to T2, and .60 for T2 to T3). The only class marked by high instability was the Supportive Nonresident Partner class; mothers in this class were the least likely to remain members at two consecutive times (.26 at both T1–T2 and T2–T3 transition points), meaning that most mothers transitioned out of this class into other classes. There was no prevailing class that these mothers transitioned into (probabilities of cross-over to other classes ranged from .16 to .34).

Separate models for the home-visiting and control groups revealed several transition probabilities with marked differences

Table 2

Conditional Item Probabilities and Percentage of Participants in Each Class for the Four-Class LCA Solutions at Times 1, 2, and 3

Items	Supportive resident partner	Single parent	Supportive nonresident partner	Questioning/Ambivalent coupling
T1				
N = 675	35%	27%	13%	25%
Father lives with mother	.61	.00	.33	.05
Emotional support	1.00	.14	.99	.96
Physical help with parenting	1.00	.03	.95	.89
Financial or material support	.89	.05	.77	.68
Provides money	.75	.02	.63	.51
Father spends time less than daily	.00	.21	.00	.91
Father spends time daily	1.00	.01	1.00	.00
Dating FOB	.00	.04	.81	.23
Engaged or married to FOB	1.00	.04	.00	.45
Other man	.00	.22	.06	.03
T2				
N = 563	28%	30%	15%	26%
Father lives with mother	.76	.01	.43	.09
Emotional support	.98	.05	.94	.86
Physical help with parenting	.99	.11	.99	.88
Financial or material support	.91	.12	.79	.70
Provides money	.83	.07	.67	.53
Father spends time less than daily	.00	.17	.00	.79
Father spends time daily	1.00	.02	1.00	.00
Dating FOB	.00	.03	.81	.19
Engaged or married to FOB	1.00	.00	.00	.23
Other man	.00	.35	.04	.11
T3				
N = 593	22%	32%	11%	36%
Father lives with mother	.78	.01	.39	.10
Emotional support	.99	.09	.94	.75
Physical help with parenting	.98	.08	.97	.80
Financial or material support	.93	.00	.84	.79
Provides money	.85	.00	.75	.65
Father spends time less than daily	.00	.10	.00	.63
Father spends time daily	1.00	.00	1.00	.00
Dating FOB	.00	.01	.70	.09
Engaged or married to FOB	1.00	.02	.00	.14
Other man	.00	.45	.08	.24

Note. LCA = latent-class analysis; FOB = father of baby.

between the home-visiting and control groups. At the T1–T2 transition point, mothers in the home-visiting group were disproportionally more likely to remain in Supportive Nonresident Partner class (transition probabilities: .31 program vs. .18 control), as well as less likely to transition out of Supportive Nonresident into Questioning/Ambivalent Coupling class (.23 program vs. .37 control). At the T2–T3 transition point, mothers in the home-visiting group had a higher probability (.23 program vs. .09 control) of transitioning out of the Questioning/Ambivalent Coupling into the Supportive Resident Partner class and a lower probability of remaining in the Questioning/Ambivalent class (.56 program vs. .69 control).

Discussion

Research and policy have accumulated bountiful evidence of fathers' contributions to children's socioemotional, behavioral, and academic functioning (Bocknek, Hossain, & Roggman, 2014). Although great efforts have been made to include diverse fathers in studies, the majority of research to date has been conducted on lower risk, older fathers. In the current study, we aimed to fill

several gaps in the current fathering research. First, we sought to gain a better understanding of the complexities of mother–father relationships among young parents, given the scarcity of research on this topic. Specifically, we explored heterogeneity and temporal stability in union types across the first 2 years of a child's life. Second, we investigated which background characteristics correlated with various relationship configurations. Finally, we sought to inform intervention efforts to promote responsible fatherhood by evaluating whether mothers' participation in a home-visiting program was associated with being in, or transitioning into, more supportive and involved relationship configurations with the fathers of their babies.

Relationship Configurations and Prevalence

As we expected, our findings indicate that existing relationship categories (i.e., single vs. married) do not adequately capture the complexities of modern coupling, at least in this population of young parents. The results of our study offer an even more nuanced picture than we initially proposed. Specifically, though we hypothesized three relationship classes (i.e., single-mother/absent-

Table 3

Logistic Regression Coefficients for the Four-Class Model With Demographic Characteristics Based on a First-Order LCA Model at T1

| | Single parent | | | | | | Supportive resident partner | | | | Questioning/ Ambivalent coupling | |
| | Supportive resident partner | | Questioning/ Ambivalent coupling | | Nonresident partner | | Questioning/ Ambivalent coupling | | Nonresident partner | | Nonresident partner | |
Characteristics	B	OR	B	OR	B	OR	B	OR	B	OR	B	OR
Mother												
Age (in years) at T1	.14		−.10		−.05		−.24*		−.19		.05	
18 or older at birth		1.86		.54		1.01		.29***		.54		1.85
Pregnant at enrollment		1.10		.79		1.12		.72		1.02		1.41
Ethnic background (reference: non-Hispanic White)												
Non-Hispanic Black		.82		2.02		1.52		2.47**		1.86		.75
Hispanic		1.23		1.72		.87		1.40		.71		.51
Other non-Hispanic		1.16		1.51		1.67		1.31		1.44		1.11
Moved in the past year		.63		.40*		.45		.64		.72		1.13
Financial difficulties		1.79		1.01		1.78		.56*		.99		1.76
Father												
Age (in years) at T1	−.03		−.02		.01		.01		.04		.03	
Has other children		.37*		.62		.57		1.68		1.54		.92
Employed (part or full time)		2.33*		1.67		1.67		.72		.72		1.00
Education (reference: drop out)												
High school/GED		.87		1.23		.89		1.41		1.02		.72
College		.53		.82		.59		1.55		1.13		.73
Child												
Age (in months) at T1	−.03		−.03		−.01		.00		.02		.02	
Male child gender		.73		1.04		.82		1.44		1.13		.79

Note. LCA = latent-class analysis; T1 = Time 1.
* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 4

Logistic Regression Coefficients for the Four-Class LCA Model With Program (0 = Control, 1 = Home Visiting) and Depressive Symptoms Based on the First-Order LTA Model (Supportive Resident Partner is the Comparison Class)

Time point	Effect	β	SE	z	p value	OR
Time 1						
Single parent	Program	−.183	.243	−.753	.452	.83
	Depressive symptoms	.009	.011	.801	.423	1.01
Supportive nonresident partner	Program	−.125	.287	−.436	.663	.88
	Depressive symptoms	−.018	.014	−1.256	.209	.98
Questioning/Ambivalent coupling	Program	.117	.237	.493	.622	1.12
	Depressive symptoms	−.007	.011	−.581	.562	.99
Time 2						
Single parent	Program	.143	.539	.265	.791	1.15
	Depressive symptoms	**.030**	**.015**	**2.037**	**.042**	**1.03**
Supportive nonresident partner	Program	.332	.400	.831	.406	1.39
	Depressive symptoms	.014	.015	.915	.360	1.01
Questioning/Ambivalent coupling	Program	−.748	.472	−1.585	.113	.47
	Depressive symptoms	.010	.014	.725	.468	1.01
Time 3						
Single parent	Program	.013	.582	.022	.982	1.01
	Depressive symptoms	**.047**	**.019**	**2.490**	**.013**	**1.05**
Supportive nonresident partner	Program	−.100	.504	−.199	.842	.90
	Depressive symptoms	.018	.020	.911	.362	1.02
Questioning/Ambivalent coupling	Program	.507	.418	1.214	.225	1.66
	Depressive symptoms	.027	.017	1.634	.102	1.03

Note. LCA = latent-class analysis; LTA = latent-transition analysis; bold type indicates significant differences ($p < .05$).

father class, a traditional-coupling class, and a complex-family/ questioning-couple class), a four class solution better accounted for the heterogeneity among participants at three time points over the period of 2 years. Our hypothesis about complex unions was further clarified by the data. Specifically, not one, but two types of complex families emerged: A class in which there was full father support, but no legal or residential ties to the family, and a class in which there was less support and a greater degree of ambiguity about the exact role of the child's father in the family. The significance of this finding is in the notion that family complexity and nonmarital child bearing need not be purely negative phenom-

ena. One of the types of complex families we found, the Nonresident Supportive class, was in many aspects more similar to the traditional pattern of married parents than to the typical depiction of young fathers as not involved in the care of their reproductive partners and children (Roopnarine, Fouts, Lamb, & Lewis-Elligan, 2005).

Another way in which our study offered a more nuanced picture of young parents' coupling was the finding that single parents did not the comprise the largest class in this sample. This finding is important, as it underscores the limitations of conceptualizing households by young parents according to marital status (Savio

Table 5

First-Order Transition Probabilities for the Four-Class LTA Model, Times 1–3 Evaluated at the Sample Mean for All Covariates

			T2				T3		
Original class	Transition class	T1	Full sample	Control group	Program group	T2	Full sample	Control group	Program group
Single parent	Single parent		.68	.63	.71		.89	.85	.92
	Supportive nonresident partner		.05	.06	.04		.01	.00	.02
	Questioning/Ambivalent coupling		.21	.18	.23		.08	.11	.07
	Supportive resident partner		.06	.13	.02		.01	.03	.00
Supportive nonresident partner	Single parent		.16	.19	.14		.20	.15	.25
	Supportive nonresident partner		.26	**.18**	**.31**		.26	.30	.23
	Questioning/Ambivalent coupling		.28	**.37**	**.23**		.34	.34	.36
	Supportive resident partner		.30	.26	.33		.20	.22	.17
Questioning/Ambivalent coupling	Single parent		.25	.30	.22		.12	.12	.11
	Nonresident partner		.12	.17	.07		.10	.10	.10
	Questioning/Ambivalent coupling		.45	**.39**	**.50**		.60	**.69**	**.56**
	Supportive resident partner		.18	.14	.22		.18	**.09**	**.23**
Supportive resident partner	Single parent		.11	.12	.10		.12	.11	.13
	Supportive nonresident partner		.19	.24	.16		.15	.14	.17
	Questioning/Ambivalent coupling		.19	.12	.24		.24	.30	.20
	Supportive resident partner		.51	.53	.51		.48	.45	.50

Note. LTA = latent-transition analysis; values express the probabilities of transitions between latent statuses over time. Bold type is used for emphasis.

Beers & Hollo, 2009). Specifically, if being single were to be defined strictly as unmarried, mothers from other classes would have also fallen into the single-parent category and the rates of single parenthood at each assessment point would have been around 70%. However, by allowing the latent classes to be informed by a variety of indicators, we were able to show that not every unmarried mother experienced a complete absence of and lack of support from the father of her child. Many unmarried partnerships were, in fact, characterized by a great degree of the father's commitment to supporting his family and by his consistent presence (as in the Supportive Nonresident Partner class). This finding is in line with the literature suggesting that nonresidential fathers may still be present for their children and form positive relationships with them, which indicates that nontraditional fathering (i.e., unmarried, nonresidential) does not automatically mean low-quality parenting (Bocknek, Hossain, et al., 2014; Easterbrooks, Raskin, & McBrian, 2014).

Temporal Instability in Young Parents' Relationships

The current results confirmed our hypothesis about high relationship instability over time for young mothers not in traditional coupling arrangements at baseline, and the lasting effect of single parenthood on mothers' relationship statuses across time. Specifically, we found that at each transition, a large proportion of women moved from one relationship class to another, indicating instability in relationship configurations of adolescent parents. Such disruptions may have negative effects on the children, underscoring a need to support adolescent families.

These findings echo several well-documented themes in the literature. Consistent with the literature suggesting that young mothers are at higher risk of long-term (often lifelong) single parenthood (Borkowski, Farris, Whitman, Carothers, & Weed, 2007), we also found that being in the Single Parent class at an earlier time point predicted staying in this class a year later. Further, long-term single parenthood may negatively affect children by increasing the likelihood that they will grow up amid poverty and instability, as well as by detrimentally affecting mothers' psychological well-being. Although we used depressive symptomatology as a control variable, it is noteworthy that in our study depression was associated with higher odds of being in the Single Parent class than of being in the Supportive Resident Partner class. The literature also describes a dramatic social change in modern coupling, away from the traditional pattern in which cohabitation, marriage, and parenting are coterminous events, and toward greater family complexity, especially among low-income couples (Carlson & Meyer, 2014). In our sample, a majority of mothers were coparenting outside of marriage.

Correlates of Membership in Complex Relationship Classes

Our analyses comparing mothers in each class at T1 on several demographic and background characteristics did not reveal large group differences. Yet, the findings are helpful in gaining a better understanding of the two relationship classes marked by family complexity (i.e., Supportive Nonresident Partner and Questioning/Ambivalent Coupling classes).

Although none of the characteristics we explored was associated with membership in the Supportive Nonresident Partner class,

pointing to the need to continue research in this area, several background characteristics distinguished Questioning/Ambivalent Coupling from the Single Parent and Supportive Resident Partner classes. Mothers in the Questioning/Ambivalent Coupling class were more similar demographically to the Single Parent class and quite distinct from the Supportive Resident Partner class. What distinguished mothers in the Questioning/Ambivalent Coupling class from mothers in the Supportive Resident Partner class were primarily maternal characteristics (specifically, being younger, giving birth before 18 years of age, being Black vs. White, and being less likely to report financial difficulties). From previous work (Tufts Interdisciplinary Evaluation Research, 2015), we know that younger adolescent mothers tended to live with their parents and report less financial stress than older mothers. Perhaps mothers in the Questioning/Ambivalent Coupling class were still living with their parents, which made them less dependent on support from their babies' fathers and allowed them to continue to explore whether they wanted to be in committed relationships with them. In some cases, delaying marriage may have allowed young women to question their relationships with the fathers of their children.

Another set of findings that helps us gain a better understanding of mothers in the Supportive Nonresident Partner and Questioning/Ambivalent Coupling classes is that, contrary to our hypotheses, membership in these classes was not a precursor of later membership in the Single Parent class. In fact, the Questioning/Ambivalent Coupling class was marked by relative stability over time, perhaps indicating that this type of relationship (less supportive, yet still present fathers) was satisfactory for many of the mothers, about half of whom maintained their membership in it. Further, we observed no pattern of crossing from the Supportive Nonresident Partner class into Single Parent class at a later time point. Mothers who were in this class at T2 were equally as likely to be in Single Parent class as in the Supportive Resident Partner class at T3. Taken together, these results indicate that the two classes describing family complexity could be "transitional" arrangements serving some developmental purpose, rather than being a marker of future relationship failure.

Effect of Home-Visiting Program on Mother–Father Relationships

We hypothesized that home visiting would promote membership in more supportive relationship classes with greater levels of father involvement. Interestingly, the home-visiting program did not influence initial relationship-class membership, but it did affect transition probabilities over time. Mothers who received home visits were more likely to maintain Supportive Nonresident partnerships (T1 to T2) over time, and to move from the more complex Questioning/Ambivalent Coupling into the more traditional and stable Supportive Resident partnerships (T2 to T3). These findings indicate that home visiting may foster successful adaptation of young couples who may otherwise be at risk of family dissolution.

Although the literature on father participation in home-visiting programs is sparse, available studies typically find low rates of attendance (Duggan et al., 2004; Holmberg & Olds, 2015). Fathers' involvement in home-visiting programs is related to both mothers' involvement in the program and parents' relationship quality (Sierau, Brand, & Jungmann, 2012), suggesting that pro-

grams' potential of cultivating parents' relationships may also lead to increased father involvement in home visits (Ramchandani & Iles, 2014). Young fathers in the Single Parent and Questioning/ Ambivalent Coupling classes might well be the least likely to participate in the home-visiting program, given their lack of or inconsistent relationships with mothers, but perhaps could have benefited the most, particularly vis-à-vis parenting support and coparenting (Duggan et al., 2004). Understanding how to encourage their participation is an important next step (Lewin et al., 2015). A recent pilot study showed that fathers could be incorporated into existing home-visitation services relatively easily (Guterman, 2012). However, two other recent studies of home-visiting services found that a father's participation was largely a function of the nature of his relationship with the mother, especially when the parents were not married or coresiding (Holmberg & Olds, 2015; Thullen et al., 2014). Therefore, it remains unclear whether the home-visiting framework offers an ideal point of entry to increase father participation.

Regardless of fathers' actual involvement in the home-visiting program, findings from the present study indicate that mothers' participation in the program promoted the formation and/or maintenance of supportive partnerships. In light of these findings, it is important for the proponents of the program to understand—and perhaps "institutionalize" in their training—the fluidity of young mothers' relationships and the potential of the program to support mothers in making decisions that move toward stable supportive relationships, both for themselves and for their children.

Limitations and Future Research

The findings are not without some important limitations. First, the sample was drawn from an evaluation of a home-visiting program for young mothers, and is thus generalizable only to the population eligible to receive these services. Second, the present study depends entirely on mother-reported data. Although we attempted to reduce reporting bias by controlling for depressive symptomatology, inclusion of fathers' independent reports of their relationships and involvement would improve the reliability and validity of the findings. Finally, these results are cross-sectional, which precludes causal interpretations. However, they represent an initial attempt to characterize the couples who choose to form these various relationship configurations.

Conclusion

Taken together, the present study has provided a portrait of relationship configurations among young parents that is parsimonious (characterized by four classes, which emerged reliably at each time point), yet indicates considerable relationship fragility (characterized by nuanced instability). We proposed a shift in how we view young parents toward a model that assumes a variety of life-course outcomes. The results of our study contribute to the growing literature that documents that becoming a parent at a young age is not a universally negative event (Easterbrooks, Chaudhuri, Bartlett, & Copeman, 2011; Moore & Brooks-Gunn, 2002). Further, the analysis revealed the potential of a home-visiting program targeted at young parents to favorably promote more stable and supportive mother–father relationships and coparenting arrangements.

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