



Published in final edited form as:

J Youth Adolesc. 2017 March ; 46(3): 668–681. doi:10.1007/s10964-016-0549-4.

Discrepancies in Autonomy and Relatedness Promoting Behaviors of Substance Using Mothers and Their Children: The Effects of a Family Systems Intervention

Jing Zhang¹ and Natasha Slesnick¹

¹Department of Human Sciences, The Ohio State University, 135 Campbell Hall, 1787 Neil Avenue, Columbus, OH 43210, USA

Abstract

Parents' and children's autonomy and relatedness behaviors are associated with a wide range of child outcomes. Yet, little is known about how parents and children's autonomy and relatedness behaviors jointly influence child outcomes. The current study captured this joint influence by exploring the longitudinal trajectory of mother-child discrepancies in autonomy and relatedness behaviors and its association with child problem behaviors. The effects of a family systems intervention on the trajectory of mother-child discrepancies were also examined. The sample included 183 substance using mothers and their children (M age = 11.54 years, SD = 2.55, range 8–16; 48 % females). Both the mother and child completed an assessment at baseline, 6- and 18-month post-baseline. A person-centered analysis identified subgroups varying in mother-child discrepancy patterns in their autonomy and relatedness behaviors. The results also showed that participation in the family systems therapy was associated with decreased mother-child discrepancies, and also a synchronous increase in mother's and child's autonomy and relatedness. Additionally, increased mother-child discrepancies and mother-child dyads showing no change in autonomy and relatedness was associated with higher levels of children's problem behaviors. The findings reveal a dynamic process of mother-child discrepancies in autonomy and relatedness behaviors related to child outcomes. The findings also support the effectiveness of the family systems therapy, and highlight the importance of understanding the complexities in family interactions when explaining children's problem behaviors.

Keywords

Autonomy and relatedness; Discrepancy; Family systems intervention; Children's behavior problems

Correspondence to: Jing Zhang.

Author Contributions JZ conceived of the study, performed the statistical analysis, and drafted the manuscript; NS participated in the design and coordination of the study and helped to draft the manuscript. Both authors read and approved the final manuscript.

Conflicts of interest The authors report no conflict of interests.

Ethical Approval The ethical standards of the American Psychological Association have been closely adhered to in this study. The original study was approved by The Ohio State University's IRB.

Informed Consent Participating mothers provided informed consent for themselves and their children, and children provided written assent.

Introduction

As a critical developmental task during adolescence, levels of autonomy and relatedness have been long studied in their association with children's behavioral and psychosocial outcomes. Autonomy refers to independent thinking and self-determination in social interactions, while relatedness refers to the ability to maintain close and supportive relationships with parents (Allen et al. 1994). Although sometimes studied as two separate constructs, researchers of child relational and psychological outcomes have conceptualized autonomy and relatedness as one single construct (Allen et al. 1994; Oudekerk et al. 2015). Autonomy and relatedness is associated with an array of child outcomes, including friendships (Oudekerk et al. 2015), romantic relationships (Oudekerk et al. 2015; Smetana and Gettman 2006), ego development and self-esteem (Allen et al. 1994), and problem behaviors (Kuperminc and Allen 1996; Samuolis et al. 2005). Children who are able to achieve a balance between autonomy and relatedness in their relationship to parents are often well-adjusted personally, socially, and academically (Hodges et al. 1999).

Most studies examining autonomy and relatedness focus on children's behaviors toward parents. Very few studies have also examined the influence of parents' behaviors toward children, even though research suggests that parents' behaviors toward children contribute to the explanation of child developmental outcomes (i.e., self-esteem and ego development) (Allen et al. 1994). Further, among this limited body of research examining both parents' and children's behaviors, researchers generally focus on the respective main effects of either parents' or children's behaviors (Allen et al. 1994; Samuolis et al. 2005). Few studies have examined the interplay between parents' and children's behaviors. Indeed, research shows that correlations between parents' and children's autonomy and relatedness behaviors are small to moderate (Samuolis et al. 2005). Moreover, parents' and children's relatedness and autonomy behaviors differ in their association with child's behavior problems (Samuolis et al. 2005). This suggests that discrepancies exist between parents' and children's autonomy and relatedness behaviors toward each other. The literature notes that parent-child discrepancies may signal disrupted family interactions, having implications for child outcomes (Feinberg et al. 2000; Grills and Ollendick 2002; Guion et al. 2009). However, no prior studies have examined parent-child discrepancies in autonomy and relatedness behaviors and the related effects on child outcomes. Additionally, researchers suggest that autonomy and relatedness among parent-child dyads may be a dynamic process with children seeking and parents granting autonomy during adolescence (Butner et al. 2009; Holmbeck and O'Donnell 1991). However, limited studies have examined the longitudinal trajectory of autonomy and relatedness within parent-child dyads. Thus, the first goal of this study was to investigate the interplay between parents' and children's autonomy and relatedness by examining the longitudinal trajectory of parent-child discrepancies in autonomy and relatedness behaviors, and its associations with children's behavioral outcomes among a group of substance using mothers and their children.

Researchers note that examination of parent-child discrepancies within high-stress familial contexts may be most fruitful given such discrepancies are influential in individual adjustment outcomes (Butner et al. 2009). In this study, we examined families with substance using mothers that often experience significant stress. Research suggests that

parental substance use is associated with punitive and authoritarian parenting behaviors (i.e., high control combined with low warmth) (Lang et al. 1999; Miller et al. 1999, Nair et al. 2003) and low monitoring of children (Fals-Stewart et al. 2004), likely placing children at risk for behavior problems (Fals-Stewart et al. 2004). Moreover, families with a substance using parent often experience high levels of conflict, which is another risk factor associated with children's behavior problems (Conners-Burrow et al. 2013). Understanding the dynamic process of parent-child discrepancies in autonomy and relatedness behaviors in families stressed by parental substance use may help elucidate mechanisms influencing developmental outcomes of children in these families.

In addition to the limited understanding of the dynamic process of parent-child discrepancies in autonomy and relatedness, even less is known about how interventions influence this process. There is growing evidence that family-based interventions can improve parent-child interaction (Guo and Slesnick 2013), protecting children from negative behavioral outcomes. Families stressed by parental substance are usually characterized by severely disrupted family interactions. Interventions are necessary to spur and facilitate change in these family relationships. Possibly, family-based interventions influence child behavioral outcomes by impacting parent-child discrepancies. Thus, the second goal of this study was to examine the effects of a family systems intervention on the longitudinal trajectory of parent-child discrepancies in autonomy and relatedness over time.

Parent-Child Discrepancies in Autonomy and Relatedness Promoting Behaviors

From a clinical perspective, parent-child discrepancies reflect disrupted family communication, which is associated with family conflict and poor child outcomes (Feinberg et al. 2000; Grills and Ollendick 2002; Guion et al. 2009). For example, greater parent-child discrepancies with regard to parenting behaviors are found to be associated with children's increased internalizing behaviors and lower social competence (Guion et al. 2009). Abar and colleagues also found that greater parent-child discrepancies in reports of parental monitoring were associated with a greater likelihood of children's alcohol use. However, from a developmental perspective, researchers argue that parent-child discrepancies reflect a dynamic normative process of children seeking autonomy and parents granting autonomy. This process may facilitate adjustment of parent-child relationships and in turn foster positive development of children (Butner et al. 2009; Holmbeck and O'Donnell 1991). Although these two perspectives seem contradictory, researchers suggest that they may be compatible in understanding the dynamic process of parent-child discrepancies (Butner et al. 2009; Holmbeck and O'Donnell 1991). Specifically, initial parent-child discrepancies may be positive because they serve to trigger the adjustment of parent-child relationships and promote children's adaptive adjustment, which subsequently leads to decreased parent-child discrepancies. However, parent-child discrepancies that persist and do not spur change may be associated with increased conflict and poorer development of children and subsequently, lead to escalating discrepancies over time.

In line with this argument, taking a family systems perspective, other researchers suggest that parent-child dyads may exhibit a dynamic and reciprocal process of autonomy and relatedness behaviors (Allen et al. 2002). For instance, in a family system, either the parent

or child could be insecure and preoccupied with attachment, and thus, are not able to tolerate increasing autonomy from the other party within the dyad given that increasing autonomy implies separation. As a result, insecurely preoccupied parents or children may undermine each other's autonomy over time (Allen et al. 2002). On the contrary, secure parents or children may facilitate each other's autonomy while maintaining close relationships. In this sense, within well-functioning parent-child dyads, the parent and child will approximate each other in their autonomy and relatedness promoting behaviors over time, while parent-child increased or persistent discrepancies in autonomy and relatedness behaviors may signal chronically problematic parent-child interactions.

Longitudinal Trajectory of Autonomy and Relatedness Behaviors between Parents and Children

The discrepancy literature in regard to family relationships and child outcomes has typically focused on cross-sectional associations between discrepancies and child outcomes (Reidler and Swenson 2012), or how discrepancies at one time point influence later outcomes (Abar et al. 2015; Wang and Benner 2015). Very few studies have examined the longitudinal trajectory of parent-child discrepancies and its related effects on child outcomes. Even fewer studies have examined the longitudinal effects of interventions on parent-child discrepancies. Nevertheless, from a family systems perspective, autonomy and relatedness exhibiting behaviors within parent-child dyads reflect a dynamic and reciprocal process. According to Cox and Paley (1997), families have the ability to adapt to changes exerted by external forces on the existing family system. During this process, the existing family system's equilibrium will be disrupted and a new equilibrium will emerge in response to the changed circumstance. In the case of intervening in parent-child autonomy and relatedness behaviors, changes induced by interventions may interrupt the originally achieved equilibrium of parent-child autonomy and relatedness behaviors, and as a response, parents and children will adapt their behaviors in order to achieve a new equilibrium, likely leading to changes in parent-child discrepancies over time.

It should be noted that individuals in a family may vary in their response to external forces (i.e., interventions), with some family members exhibiting flexibility and being able to adjust to meet the demands created by new circumstances, while others either resist change or exhibit deteriorated behaviors (MacPhee et al. 2015). As such, changes in parent-child discrepancies may be attributed to either improved or deteriorated interaction behaviors of parents or children, which need to be distinguished. Thus, while examining the parent-child discrepancy trajectory, it is also important to understand individual response trajectories within the mother-child dyads.

The Current Study

This study used a randomized experimental design to test whether participation in Ecologically-Based Family Therapy (EBFT, Slesnick and Prestopnik 2005, 2009) was associated with the joint trajectory of mother-child discrepancies, and mothers and children's individual responses in autonomy and relatedness behaviors. The association between this joint trajectory and children's problem behaviors was also examined. Grounded

in an ecological systems perspective (Bronfenbrenner 1979), EBFT is a family systems intervention that aims to disrupt the development and maintenance of problem behaviors within a family through improving social interactions within and across different systems. Prior research has shown the effectiveness of EBFT in disrupting dysfunctional family interactions and improving behavioral and health outcomes in families stressed by substance use problems (Guo and Slesnick 2013; Slesnick et al. 2013). Among mothers and children participating in EBFT, it was expected that mother–child discrepancies would decrease over time, and mothers and children would improve in their individual autonomy and relatedness behaviors.

A person-centered approach was used to identify distinct subgroups showing heterogeneous trajectories of autonomy and relatedness behaviors within mother–child dyads. Compared to a variable-centered approach that focuses on the relationship between variables (i.e., correlation and regression analyses), a person-centered approach identifies distinct subpopulations wherein individuals within the group show similar response patterns in their response to interventions, while individuals across groups differ in their response patterns (Jung and Wickrama 2008). A person-centered approach fits the analysis of the present study because in intervention studies, individuals assigned to the same treatment condition often show variability in their response to the treatment (Lutz et al. 1999), and examining them as a homogenous group would mask the heterogeneous response patterns exhibited by subgroups.

Taken together, based on a family systems perspective, this study attempted to identify subgroups varying in the co-occurrence patterns in regard to mother–child discrepancies, and mothers’ and children’s individual responses in autonomy and relatedness. It was expected that three subgroups would be identified: (1) decreased mother–child discrepancies in co-occurrence with increased, decreased, or unchanged mother/child individual responses in autonomy and relatedness; (2) no change of discrepancies in co-occurrence with a synchronous change in mothers’ and children’s individual responses; and (3) increased mother–child discrepancies in co-occurrence with mothers’/children’s increased, decreased, or unchanged individual responses. In both the discrepancy decreasing and increasing groups, different combinations between mothers’ and children’s individual responses may result in decreased or increased discrepancies. For example, when the mother exhibits higher initial levels of autonomy and relatedness compared to the child, the mother’s increased individual response, paired with the child’s decreased or unchanged individual response, may result in increased discrepancies. In contrast, the mother’s decreased or unchanged individual response, paired with child’s increased individual response, may result in decreased discrepancies. This hypothesis was exploratory due to the lack of relevant empirical studies.

This study also sought to examine associations between EBFT and group membership (e.g., decreasing, no change, increasing) controlling for individual-level baseline variables. Baseline variables included treatment condition, mother’s childhood abuse history (sexual and physical abuse), mother’s drug use, mother’s homelessness experiences (whether they ran away from home before the age of 18 years), and child’s sex and age. The literature suggests that child’s sex and age are associated with their autonomy and relatedness

behaviors towards parents (Holmbeck and Hill 1991; Silverberg and Steinberg 1987). Also, mothers' childhood abuse history, homelessness experiences, and drug use have been shown to impact their parenting behaviors and interaction with children (Crawford et al. 2011; Lang et al. 1999; Fals-Stewart et al. 2004; Seltmann and Wright 2013). It was expected that participation in EBFT would be associated with a higher likelihood of mother-child dyads showing decreased discrepancies. Moreover, this study examined associations between the discrepancy trajectory and children's problem behaviors. It was expected that decreased discrepancies would be associated with lower levels of problem behaviors of children.

Method

Participants

One hundred and eighty-three mother-child dyads participated in the study. Mothers were diagnosed with a substance use disorder and had at least one biological child in their care. Mothers were recruited from a community treatment center for substance use in a large Midwestern city. To be eligible for the study, mothers had to (1) be seeking outpatient treatment for their substance use disorder, (2) meet diagnostic criteria for an alcohol or drug use disorder as defined by DSM IV, and (3) have a child between the age of 8–16 years who either resided with the participating mother at least 50 % of the time in the past 2 years, or 100 % of the time in the past 6 months. Table 1 presents the demographic characteristics of the sample. Participating mothers' ages ranged from 22 to 54 years ($M = 33.9$). The mean age of the target child was 11.5 years with a range of 8–16 years old, with 51.9 % male. In addition, 60 % of families had an annual income of \$15,000 or below and only about 18 % of families had an annual income greater than \$30,000.

Procedure

Mothers were screened for eligibility at the community treatment center. Parental permission was obtained from eligible mothers, and then their child was contacted and engaged into the study. If more than one eligible child was identified, the child with more severe substance use as reported on the Form 90 (Miller 1996), or a higher problem behavior score on the Youth Self Report (Achenbach and Edelbrock 1982) was selected as the target child. All children in the household were invited to participate in the family systems therapy sessions.

Both the mother and target child completed an assessment battery at baseline, and then families were randomly assigned to receive one of three intervention conditions: EBFT-home, $n = 62$, EBFT-office, $n = 61$, or Women's Health Education (WHE, mothers only), $n = 60$. Both home- and office-based EBFT provide the same treatment but are delivered in different settings. Previous research suggests that home-based family therapy may facilitate engagement and retention among families compared to office-based family therapy (Slesnick and Prestopnik 2009). However, EBFT has never been tested with substance using mothers with a child in their care. It is not known whether treatment response will differ between home- and office-based EBFT in this population. All women received treatment as usual through the community treatment center which included outpatient individual and group therapy. A follow-up assessment was conducted at 3-, 6-, 12- and 18-month post-baseline. Both the mother and child participated in the autonomy and relatedness interaction task at

baseline, 6- and 18-month post-baselines. Thus, data from baseline, 6-, and 18-month post-baseline were used. Participating mothers were offered a \$75 gift card while children were offered a \$40 gift card at completion of the baseline assessment and each post-baseline assessment.

Treatment Interventions

Ecologically-Based Family Therapy (EBFT) is a 12-session family systems intervention that targets dysfunctional family interactions associated with the development of problem behaviors. The first 1–2 sessions of EBFT aim to engage family members into the treatment, assess individual and family needs, strengths and weakness, and guide families towards considering current problems and potential solutions as residing in the family relationship. Sessions 3–12 focus on helping families identify and address aspects of the family relationship that contribute to the development and maintenance of mothers' substance use, as well as aspects of the family relationship that serve a protective function. New problem-solving skills are taught and practiced. Family cohesion and individuals' competence to appropriately communicate needs for change are facilitated. Discussion about mothers' substance use and plans for how children can support mothers' efforts towards sobriety unfold over the course of the treatment, depending upon the parents' willingness and tolerance. Cognitive-behavioral skills training is also conducted, aiming to change individuals' symptom-related thoughts, communication and coping skills, and emotional reactions. Because no differences were found in autonomy and relatedness between the office and home-based family therapy conditions, the two conditions were combined into one EBFT group. That is, *t* tests found no group differences in mother–child discrepancies or mother's and child's individual behaviors in autonomy and relatedness behaviors across the three times points.

The comparison condition was the Women's Health Education (WHE), a 12-session manualized educational intervention (Miller et al. 1998). WHE targets mother's understanding of her body, sexual behaviors, pregnancy and child birth, sexually transmitted diseases (STD's), human immunodeficiency virus (HIV), and AIDS. WHE provided equivalent therapist attention and expectancy of benefits, was not family-based and was delivered as individual therapy sessions.

Measures

Autonomy and Relatedness Promoting Behaviors—Both the mother and child participated in a 10-min interaction task at baseline, 6- and 18-month post-baselines. The mother–child dyads first rated 34 questions on the Areas of Change Questionnaire using a 7-point scale (ACQ; Margolin et al. 1983) separately. These questions inquire about behaviors that parents and children would like to change in their relationship. A sample item is “I want my child/I want my mother to show appreciation for things I do.” Items in which mothers and children most disagreed were identified as the discussion topic. Mothers and child then came together for a 10-min discussion on the identified topic with the goal to work toward a resolution. The 10-min interaction was video-recorded and coded using the Autonomy and Relatedness Coding System Manual (Allen et al. 2003) into autonomy and relatedness promoting or undermining behaviors (Allen et al. 2007). *Autonomy promoting behaviors*

include using reasoning to justify one's points and demonstrating confidence. *Relatedness promoting behaviors* include validating statements and displaying engagement and empathy in the communication with people. *Undermining autonomy behaviors* include discouraging the expression of autonomy by overpersonalizing a disagreement, recanting the other person's statement, or pressuring another person to agree. *Undermining relatedness behaviors* include expressing hostility or interrupting or ignoring the other person. This study used autonomy and relatedness promoting behaviors, which are studied as one single construct (Allen et al. 1994; Oudekerk et al. 2015). Eight relationship indices were generated based on the coding for mothers' and children's interaction behaviors. The interaction behaviors were further averaged on each dimension to generate an additional four indices reflecting the relationship quality at the dyadic level. Twenty percent of the observations were double-coded. Inter-rater reliability for the double-coded recordings was $ICC = 0.86$ on average, with the rater reliability good-to-excellent at baseline ($ICC = .84$), 6 months post-baseline ($ICC = 0.87$), and 18 months post-baseline ($ICC = 0.89$).

Mother-child discrepancy scores in autonomy and relatedness promoting behaviors were calculated by first creating the raw discrepancy scores (mother's score-child's score), and then the absolute value of the scores, as recommended by others (e.g., Wang and Benner 2014; Spilt et al. 2015). The absolute value assesses the change of the magnitude in regard to mother-child discrepancies over time. In addition to assessing the magnitude of mother-child discrepancies, the individual scores of both mothers and children were included in the analysis to provide information in regard to the directionality of change for individuals' behavior trajectories across three time points, i.e. showing increased or decreased autonomy and relatedness behaviors.

Children's Behavior Problems—The Child Behavior Checklist (CBCL; Achenbach 1991) includes 112 items assessing mother's perception of children's behaviors associated with internalizing and (i.e., withdrawn, somatic complaints, anxious/depressed) and externalizing symptoms (i.e., delinquency and aggression). This study used the raw scores of internalizing and externalizing behaviors at baseline and 18 months post-baseline. Higher scores indicate greater internalizing or externalizing problems. In the present study, baseline and 18-month follow-up coefficient alphas were: internalizing = .88 and .92 and externalizing, = .93 and .94, respectively.

Baseline Variables—Baseline variables included treatment condition, mother's drug use (the percentage of total days of alcohol and drug use, except for the use of tobacco, in the prior 90 days), mother's childhood sexual and physical abuse history (0 as no, 1 as yes), mother's homelessness experiences, i.e., whether they ran away from home before the age of 18 years (0 as no, 1 as yes), and child's sex and age (0 as 8–10 years old, 1 as 11–16 years old). These variables were added to the model as predictors of the joint trajectory of autonomy and relatedness behaviors within mother-child dyads.

Overview of Analyses

This study used an intent-to-treat design which consisted of the entire sample of 183 mother-child dyads. First, a joint trajectory latent class growth analysis (LCGA) (Nagin

2005) was performed to identify subgroups showing distinct co-occurring trajectories in regard to mother–child discrepancies, together with mothers’ and children’s individual response in autonomy and relatedness promoting behaviors. This analysis is a group-based analysis focusing on investigating different patterns in behavior overlap across subgroups (Nagin 2005). In the present study, subgroups were decided based on the joint trajectory of three individual trajectories, i.e., mother–child discrepancies, and mothers’ and children’s individual responses in autonomy and relatedness exhibiting behaviors. Subgroups varied in their mean intercepts and slopes. The trajectory model included the linear relationship between outcome variables and time points. $y_{itc}^{(1)}$ denotes individual mother–child dyad i ’s discrepancies at time t associated with latent class variable c . $y_{itc}^{(2)}$ and $y_{itc}^{(3)}$ denote individual mother i ’s and individual child i ’s responses respectively at time t associated with latent class variable c . $\beta_0^{(1)}$ and $\beta_1^{(1)}$ define the shape of the function for discrepancies, $\beta_0^{(2)}$ and $\beta_1^{(2)}$ define the shape of function for mothers’ individual responses, and $\beta_0^{(3)}$ and $\beta_1^{(3)}$ define the shape of function for children’s individual responses. $\bar{e}_{1c}^{(1)}$ and $\bar{e}_{2c}^{(1)}$ represent the mean-centered location of the latent class c for the intercept and the linear slope, respectively, for response $y_{itc}^{(1)}$. $\bar{e}_{1c}^{(2)}$ and $\bar{e}_{2c}^{(2)}$ represent the mean-centered location of the latent class c for the intercept and the linear slope, respectively, for response $y_{itc}^{(2)}$. Similarly, $\bar{e}_{1c}^{(3)}$ and $\bar{e}_{2c}^{(3)}$ represent the mean-centered location of the latent class c for the intercept and the linear slope, respectively, for response $y_{itc}^{(3)}$.

$$\begin{aligned}
 y_{itc}^{(1)} &= \beta_0^{(1)} + \beta_1^{(1)} \text{Time}_{it} + \bar{e}_{1c}^{(1)} + \bar{e}_{2c}^{(1)} \text{Time}_{it} + \varepsilon_{it}^{(1)}, \\
 &\quad \varepsilon_{it}^{(1)} \sim N(0, \sigma^2) \\
 y_{itc}^{(2)} &= \beta_0^{(2)} + \beta_1^{(2)} \text{Time}_{it} + \bar{e}_{1c}^{(2)} + \bar{e}_{2c}^{(2)} \text{Time}_{it} + \varepsilon_{it}^{(2)}, \\
 &\quad \varepsilon_{it}^{(2)} \sim N(0, \sigma^{*2}) \\
 y_{itc}^{(3)} &= \beta_0^{(3)} + \beta_1^{(3)} \text{Time}_{it} + \bar{e}_{1c}^{(3)} + \bar{e}_{2c}^{(3)} \text{Time}_{it} + \varepsilon_{it}^{(3)}, \\
 &\quad \varepsilon_{it}^{(3)} \sim N(0, \sigma^{**2})
 \end{aligned}$$

The optimal number of subgroups was determined based on the following criteria: (a) theoretical consideration; (b) Bayesian information criterion (BIC) and the sample-size adjusted BIC (ABIC), of which a smaller value indicates a better model fit (Nylund et al. 2007); and (c) Bootstrap Likelihood Ratio Test (BLRT) that compares the fit between two nested models (Nylund et al. 2007), with a significant p value indicating that a model with k classes fits better compared to a model with $k-1$ classes. Additionally, entropy values close to 1 and latent class posterior probability close to 1 indicate good classification (Jung and Wickrama 2008). Nylund et al. (2007) recommend to use BLRT and ABIC for the selection of the optimal number of classes. Second, after the optimal model of LCGA was determined, following the 3-step method recommended by Asparouhov and Muthén (2014), the treatment condition and other individual-level variables were added to the model as the predictors of the group membership. Specifically, the group membership was regressed on the treatment condition and other individual-level variables with classification errors being taken into account. Third, following the same 3-step method, children’s problem behavior score at 18 months post-baseline was added to the model as a distal outcome with children’s problem behaviors and mother’s drug use at baseline controlled. That is, children’s problem

behaviors at 18 months was regressed on to group membership with classification errors being taken into account.

Results

Table 1 presents the demographic characteristics of the sample. The skewness of mothers' and children's autonomy and relatedness behaviors at baseline, 6- and 18-month post-baseline, and children's problem behaviors at 18 months fell between -1.96 and 1.96 . Chi square and the independent sample t tests showed that mother's sociodemographic as indicated in Table 1 were not significantly different between treatment conditions (p 's $> .05$). The follow-up completion rate across time ranged from 88 to 90 %. No participants had missing data across all time points, therefore, all participants ($n = 183$) were included in the analyses. The analyses were conducted with Mplus 7 (Muthén and Muthén 1998–2012). Full information maximum likelihood in the Mplus software was used to estimate missing data.

Trajectory Groups of Autonomy and Relatedness

Table 2 presents the LCGA fit indices for the latent class solutions. The four-, five-, and six-class models had the similar value of ABIC and entropy. However, for the five- and six-class models, the class size for some classes was too small. Additionally, the four-class model was most consistent with the theoretical hypothesis of this study. Thus, based on the combination of theoretical consideration, sample size, and fit indices, the four-class model was considered optimal. Four subgroup trajectories were identified: (a) discrepancy decreasing in co-occurrence with children increasing and mothers remaining unchanged in autonomy and relatedness behaviors, labeled as the *discrepancy decreasing* group ($n = 43, 23.5\%$); (b) discrepancy increasing in co-occurrence with children decreasing and mothers increasing in autonomy and relatedness behaviors, labeled as the *discrepancy increasing* group ($n = 29, 15.8\%$); (c) discrepancy remaining stable in co-occurrence with children and mothers showing no change in autonomy and relatedness behaviors, labeled as the *stagnant* group ($n = 85, 46.4\%$); and (d) discrepancy remaining stable in co-occurrence with both children and mothers increasing in autonomy and relatedness behaviors ($n = 26, 14.2\%$), labeled as the *discrepancy unchanged* group. The posterior probability of group memberships were .91, .83, .89, and .90 for the four groups, suggesting low classification errors. Table 3 presents the intercepts and slopes for trajectory groups. Table 4 presents the means and standard deviations for discrepancy scores, and mothers' and children's individual responses across three times points. Across the four groups, mothers showed higher initial levels of autonomy and relatedness compared to children. In the discrepancy decreasing group, discrepancy scores decreased from baseline to 18 months (intercept = 6.19, $p < .001$; linear slope = -1.76 , $p < .001$), children showed an increase in their autonomy and relatedness behaviors from baseline to 18 months (intercept = 1.67, $p < .001$; linear slope = 1.20, $p < .001$), and mothers remained stable in their autonomy and relatedness (intercept = 7.87, $p < .001$; linear slope = $-.61$, $p > .05$). In the discrepancy increasing group, discrepancy scores increased from baseline to 18 months (intercept = 2.71, $p < .001$; linear slope = 2.29, $p < .001$), children showed a decline in their autonomy and relatedness from baseline to 18 months (intercept = 4.02, $p < .001$; linear slope = -1.32 , $p < .05$), and mothers showed an increase in their autonomy and relatedness (intercept = 6.71, $p < .001$; linear slope = .96, $p < .05$).

For both the stagnant (intercept = 2.11, $p < .001$; linear slope = $-.14$, $p > .05$) and discrepancy unchanged (intercept = 1.73, $p < .001$; linear slope = $.29$, $p > .05$) groups, the discrepancy score remained stable over time but due to different patterns of mother's and children's individual autonomy and relatedness. In the stagnant group, neither mothers (intercept = 7.71, $p < .001$; linear slope = $-.28$, $p > .05$) nor children (intercept = 6.17, $p < .001$; linear slope = $-.29$, $p > .05$) showed any changes in their autonomy and relatedness. In contrast, in the discrepancy unchanged group, both mothers (intercept = 3.58, $p < .001$; linear slope = 1.26 , $p < .01$) and children (intercept = 1.97, $p < .001$; linear slope = $.98$, $p < .01$) showed an increase in autonomy and relatedness. Figure 1 displays subgroup trajectories.

Treatment Effects

The *discrepancy increasing* group was used as the reference group. Table 5 presents the association between group membership, treatment condition and other baseline covariates. The findings showed that for mothers and children in the EBFT group, the odds of being in the *discrepancy decreasing group* versus the reference group, were 4.80 times higher (OR 4.80, $p < .05$, 95 % CI 1.22–18.92), and the odds of being in the *discrepancy unchanged group* versus the reference group was 6.77 times higher (OR 6.77, $p < .05$, 95 % CI 1.03–53.30). No treatment effects were found between the *stagnant group* versus the reference group. These findings indicate that EBFT was associated with a greater likelihood of improving mother–child interactions. Among all covariates, only child's gender was significantly associated with group membership. The odds of being in the discrepancy unchanged group and the stagnant group versus the reference group was lower for mother–child dyads with a male child. In other words, generally speaking, having a male child was associated with a greater likelihood of increasing mother–child discrepancies. No gender difference was found between the discrepancy decreasing group versus the reference group.

Associations between Children's Problem Behaviors with Group Membership

Group membership was a significant predictor of children's behavior problems (Table 6). Children in the *discrepancy increasing* group showed the highest level of externalizing behaviors. That is, compared to children in the *discrepancy increasing* group, children in each of the other three groups, including the discrepancy decreasing ($B = -17.04$, $SE = 4.37$, $p < .001$), discrepancy unchanged ($B = -20.14$, $SE = 4.13$, $p < .001$), and stagnant ($B = -15.93$, $SE = 4.30$, $p < .001$) exhibited lower levels of externalizing behaviors. Additionally, children's externalizing behaviors were compared among stagnant, discrepancy unchanged, and discrepancy decreasing groups. Findings showed that children in the stagnant group exhibited higher levels of externalizing behaviors ($B = 4.21$, $SE = 1.39$, $p < .01$) compared to children in the discrepancy unchanged group. There was no significant difference between the stagnant and discrepancy decreasing groups in regard to externalizing behaviors. As for internalizing behaviors, children in the stagnant group showed the highest level of internalizing behaviors ($B = 12.23$, $SE = 1.35$, $p < .001$). Specifically, children in the stagnant group exhibited higher levels of internalizing behaviors compared to children in the discrepancy increasing ($B = 9.12$, $SE = 2.34$, $p < .001$) and discrepancy decreasing group ($B = 9.03$, $SE = 1.53$, $p < .001$). No significant differences in internalizing behaviors were found between the *discrepancy unchanged* group and the rest of the three groups. In summary,

being in the discrepancy increasing group appeared to be associated with higher levels of externalizing problem behaviors compared to the other three groups, and being in the stagnant group appeared to be associated with higher levels of internalizing problem behaviors compared to the discrepancy increasing or discrepancy decreasing groups.

Discussion

Autonomy and relatedness behaviors exhibited within parent–child dyads are associated with a wide range of child outcomes (Kuperminc and Allen 1996; Oudekerk et al. 2015; Samuolis et al. 2005), yet little is known about the longitudinal trajectory with regard to the interplay between parents' and children's autonomy and relatedness behaviors, and how this interplay influences child outcomes. The current study captured this interplay by exploring the change trajectory of parent–child discrepancies in autonomy and relatedness over time. Additionally, this was the first study to examine whether a family-based intervention can spur change in parent–child discrepancies and subsequently, influence child problem behaviors. As expected, this study identified subgroups that varied in parent–child discrepancy patterns. Also, the association between different parent–child discrepancy patterns and treatment condition varied. The findings provide evidence for the effectiveness of family systems therapy in addressing mother–child discrepancies in family interactions. Additionally, as expected, child behavior problems were associated with parent–child discrepancies across time.

Building on previous literature showing a dynamic reciprocal process of autonomy and relatedness behaviors between parents and children (Allen et al. 2002), four subgroups that varied in the co-occurrence of autonomy and relatedness behaviors over time were identified (see Fig. 1). The different patterns of mother–child change in autonomy and relatedness behaviors were associated with treatment condition and child behavior problems. In particular, two subgroups were more likely to be observed in the family systems therapy condition and to show lower levels of child behavior problems. Both subgroups showed increasing child autonomy and relatedness over time (\wedge) but one was paired with mothers' stable autonomy and relatedness over time (\rightarrow) (labeled the discrepancy decreasing group) and the other was paired with synchronous improvement in mothers' autonomy and relatedness (\wedge) over time (labeled the discrepancy unchanged group). This finding shows that family systems therapy resulted in improved family interaction dynamics over time. With the improved family interactions, it is possible that mothers adjust their autonomy granting to a level desired by children, or children adjust their autonomy seeking to a level that mothers are willing to grant. As a result, children and mothers are more likely to show synchronous improvement or decreased discrepancies in autonomy and relatedness behaviors. This is a desired outcome in family systems therapy as the intervention targets communication among family members, seeking to reduce conflict and increase connections to underlying care and concern. Family systems therapists assert that in order to improve individual outcomes, underlying complex interactions that likely lead to individual problem behaviors (e.g., autonomy and relatedness) should be addressed (Liddle et al. 2001; Santisteban et al. 2003; Slesnick and Prestopnik 2009). Therefore, this study's findings support the underlying theoretical basis of family systems therapy in which improved family interaction results in improved child behaviors. Few studies have shown this link, likely because most studies do

not include an observational measure of behavioral interaction over time. Self-report measures are usually relied upon due to greater ease of data reduction compared to the time intensive approach of observation methods that require coding and reliability estimates. However, parents and children may be unreliable in their self-estimates of complex interaction behaviors towards one another (Dishion and Granic 2004), highlighting the importance of observational research when seeking to understand complex systemic changes occurring in families over time.

Alternatively, the other two subgroups, including mothers who increased their expression of autonomy and relatedness, but whose child decreased their expression of autonomy and relatedness over time (increased discrepancy), and the subgroup in which mothers and children showed no change in the expression of autonomy and relatedness over time (stagnant), were more likely to be observed in the non-family therapy condition. It is likely that mothers and children in the non-family therapy condition maintain their dysfunctional interaction patterns, and as a consequence, mother-child discrepancies persist or escalate (Butner et al. 2009; Holmbeck and O'Donnell 1991). Of interest, too, is that these two patterns were associated with poorer child behavior outcomes. In particular, higher externalizing problem behaviors were observed in the discrepancy increasing group compared to the other groups, while children in the stagnant group were also more likely to report increased internalizing problem behaviors compared to the discrepancy increasing and decreasing groups. Possibly, this stagnant pattern of mothers and children is particularly toxic given that it may represent a shut-down in system dynamics in which both mother and child have ceased to flex with the other or attempt interactional change. Generally speaking, since the discrepancy increasing and stagnant groups were less likely to be observed in the family systems condition, it appears that therapy can ameliorate these interaction patterns and may be essential to improving child outcomes.

Surprisingly, the discrepancy decreasing, increasing, and unchanged groups were not significantly different in their associations with internalizing behaviors. Moreover, although children in the discrepancy increasing group exhibited higher levels of externalizing behaviors, this trend was not found with internalizing behaviors. These findings suggest that parent-child discrepancies do not influence internalizing and externalizing behaviors in the same way. For example, Reidler and Swenson (2012) also found that mother-child discrepancies in regard to parent-child relationships were associated with externalizing but not internalizing behaviors. In the present study, it is possible that family interactions that contribute to internalizing behaviors may not bear the same effects on externalizing behaviors and vice versa. Additionally, although it is expected that decreased discrepancies improve child behavioral outcomes, in this study, the discrepancy decreasing group did not appear to be the most well-functioning group in regard to internalizing and externalizing behaviors compared to other groups. It is possible that in this clinical sample, the negative influence of problematic parent-child interactions (i.e., increasing discrepancies or stagnant interaction behaviors) on child behavioral outcomes is more pronounced, which overshadows the positive effects of improved family interactions (i.e., decreased discrepancies). An examination of associations between different discrepancy patterns and child behavioral outcomes with a normative population may shed more light on these relationships.

Several limitations should be considered when interpreting the findings. This was a randomized clinical trial comparing family systems therapy to a non-family therapy comparison condition for substance using mothers. Therefore, children of mothers assigned to the comparison condition did not receive therapy. Based on this design, we cannot know for certain whether family systems therapy leads to improved outcomes for children or if other modalities of therapy with children would lead to similar outcomes. Future research will need to include an attention control or comparison condition for the children. A sample of convenience was utilized, and the study findings might not generalize to women and children in other parts of the country with different demographic and economic characteristics. Moreover, all women sought treatment at a large substance abuse treatment facility, and the findings could differ among non-treatment seeking mothers and their children. Additionally, this study used a clinical sample characterized by highly disrupted parent-child relationships. It is possible that such stressful family contexts may accentuate the association between discrepancies and children behavior problems. Thus, these findings cannot be generalized to all children. Finally, as mother-child discrepancies were studied as the primary family interaction influencing child behavior problems, other relationships that may influence mother-child interactions, such as peer relationships or relationships with fathers and other family members were not accounted for in this study. Future studies including peer relationships and relationships with other family members may reveal a more comprehensive understanding of the dynamic process of parent-child discrepancies and their association with child outcomes.

Conclusion

Previous literature has focused on either cross-sectional associations or associations between autonomy and relatedness at one time point and child outcomes at a later time point, generally showing that higher levels of autonomy and relatedness are associated with fewer children's problem behaviors (Kuperminc and Allen 1996; Samuolis et al. 2005). The present study goes beyond previous studies by showing how a dynamic and interactive process of autonomy and relatedness across time influences children's problem behaviors. In this study, mothers across groups generally showed higher levels of autonomy and relatedness than children. But, improvement in autonomy and relatedness did not necessarily lead to decreased child problem behaviors if it resulted in enlarged mother-child discrepancies. That is, when mothers continued to show increases in autonomy and relatedness over time, while children remained unchanged or decreased in their autonomy and relatedness, enlarged discrepancies were observed. This discrepancy appeared to be a risk factor for later problem behaviors among children. Therefore, although increased autonomy and relatedness is considered positive, when examined in the context of interpersonal relationships, it is not always the case. The findings underscore the importance of not only focusing on the parent-child discrepancies, but also the individual responses that contribute to the discrepancies.

From a family systems perspective, mother-child interactions are an important target of intervention efforts. Findings here show that family therapy reduces the risk for negative child outcomes through improving mother-child expressions of autonomy and relatedness, and reducing discrepancies in expression. The findings are provocative in also suggesting

that *not* including children in the treatment of mothers who seek substance abuse treatment could result in negative mother–child interactions over time, and subsequently poor child behavioral outcomes, thus, creating harm.

Acknowledgments

This research was supported by NIDA Grant R01 DA023062 awarded to Natasha Slesnick. We are grateful to the families for their participation in our research and to our research team for their assistance with data collection.

References

- Abar C, Jackson K, Colby S, Barnett N. Parent-child discrepancies in reports of parental monitoring and their relationship to adolescent alcohol-related behaviors. *Journal of Youth and Adolescence*. 2015; 44:1688–1701. DOI: 10.1007/s10964-014-0143-6 [PubMed: 24964878]
- Achenbach, TM. Integrative guide for the 1991 CBCL/4-18, YSR, and TRF profiles. Burlington, VT: University of Vermont Department of Psychiatry; 1991.
- Achenbach, TM., Edelbrock, CS. Manual for the child behavior checklist and child behavior profile. Burlington, VT: Child Psychiatry, University of Vermont; 1982.
- Allen, JP., Hauser, ST., Bell, KL., McElhaney, KB., Tate, DC., Insabella, GM., Schlatter, AKW. Autonomy and relatedness coding system manual, version 2.14. University of Virginia, Charlottesville; 2003. Unpublished manuscript
- Allen JP, Hauser ST, Bell KL, O'Connor TG. Longitudinal assessment of autonomy and relatedness in adolescent-family interactions as predictors of adolescent ego development and self-esteem. *Child Development*. 1994; 65:179–194. DOI: 10.1111/1467-8624.ep9406130688 [PubMed: 8131646]
- Allen JP, Marsh P, McFarland C, McElhaney KB, Land DJ, Jodl KM, et al. Attachment and autonomy as predictors of the development of social skills and delinquency during midadolescence. *Journal of Consulting and Clinical Psychology*. 2002; 70:56–66. DOI: 10.1037/0022-006x.70.1.56 [PubMed: 11860056]
- Allen JP, Porter M, McFarland C, McElhaney KB, Marsh P. The relation of attachment security to adolescents' paternal and peer relationships, depression, and externalizing behavior. *Child Development*. 2007; 78:1222–1239. DOI: 10.1111/j.1467-8624.2007.01062.x [PubMed: 17650135]
- Asparouhov T, Muthén B. Auxiliary variables in mixture modeling: Three-Step approaches using Mplus. *Structural Equation Modeling*. 2014; 21:329–341. DOI: 10.1080/10705511.2014.915181
- Butner J, Berg CA, Osborn P, Butler JM, Godri C, Fortenberry KT, et al. Parent-adolescent discrepancies in adolescents' competence and the balance of adolescent autonomy and adolescent and parent well-being in the context of Type 1 diabetes. *Developmental Psychology*. 2009; 45:835–849. DOI: 10.1037/a0015363 [PubMed: 19413435]
- Conners-Burrow N, McKelvey L, Pemberton J, Lagory J, Mesman G, Whiteside-Mansell L. Moderators of the relationship between maternal substance abuse symptoms and preschool children's behavioral outcomes. *Journal of Child and Family Studies*. 2013; 22:1120–1129. DOI: 10.1007/s10826-012-9674-1
- Cox MJ, Paley B. Families as systems. *Annual Review of Psychology*. 1997; 48:243–267. DOI: 10.1146/annurev.psych.48.1.243
- Crawford DM, Trotter EC, Hartshorn KS, Whitbeck LB. Pregnancy and mental health of young homeless women. *American Journal of Orthopsychiatry*. 2011; 81:173–183. DOI: 10.1111/j.1939-0025.2011.01086.x [PubMed: 21486259]
- Dishion, TJ., Granic, I. Naturalistic observation of relationship processes. In: Haynes, SN., Heiby, EM., editors. *Comprehensive handbook of psychological assessment (Vol. 3): Behavioral assessment*. New York: Wiley; 2004. p. 143-161.
- Fals-Stewart W, Kelley ML, Fincham FD, Golden J, Logsdon T. Emotional and behavioral problems of children living with drug-abusing fathers: Comparisons with children living with alcohol-abusing and non-substance-abusing fathers. *Journal of Family Psychology*. 2004; 18:319–330. DOI: 10.1037/0893-3200.18.2.319 [PubMed: 15222839]

- Grills AE, Ollendick TH. Issues in parent–child agreement: The case of structured diagnostic interviews. *Clinical Child and Family Psychology Review*. 2002; 5:57–83. [PubMed: 11993545]
- Guion K, Mrug S, Windle M. Predictive value of informant discrepancies in reports of parenting: Relations to early adolescents' adjustment. *Journal of Abnormal Child Psychology*. 2009; 37:17–30. [PubMed: 18584134]
- Guo X, Slesnick N. Family versus individual therapy: Impact on discrepancies between parents' and adolescents' perceptions over time. *Journal of Marital & Family Therapy*. 2013; 39:182–194. DOI: 10.1111/j.1752-0606.2012.00301.x
- Hodges EV, Finnegan RA, Perry DG. Skewed autonomy-relatedness in preadolescents' conceptions of their relationships with mother, father, and best friends. *Developmental Psychology*. 1999; 35:737–748. DOI: 10.1037/0012-1649.35.3.737 [PubMed: 10380864]
- Holmbeck GN, Hill JP. Conflictive engagement, positive affect, and menarche in families with seventh-grade girls. *Child Development*. 1991; 62:1030–1048. DOI: 10.2307/1131150 [PubMed: 1756654]
- Holmbeck GN, O'Donnell K. Discrepancies between perceptions of decision making and behavioral autonomy. *New Directions for Child Development*. 1991; 51:51–69. DOI: 10.1002/cd.23219915105
- Jung T, Wickrama K. An introduction to latent class growth analysis and growth mixture modeling. *Social and Personality Psychology Compass*. 2008; 2:302–317. DOI: 10.1111/j.1751-9004.2007.00054.x
- Kuperminc GP, Allen JP. Autonomy, relatedness, and male adolescent delinquency: Toward a multidimensional view of social competence. *Journal of Adolescent Research*. 1996; 11(4):397–420. DOI: 10.1177/0743554896114002
- Lang AR, Pelham WE, Atkeson BM, Murphy DA. Effects of alcohol intoxication on parenting behavior and interactions with child confederates exhibiting normal or deviant behaviors. *Journal of Abnormal Child Psychology*. 1999; 27:177–189. DOI: 10.1023/a:1021996122095 [PubMed: 10438184]
- Liddle HA, Dakof GA, Parker K, Diamond GS, Barrett K, Tejada M. Multidimensional family therapy for adolescent drug abuse: Results of a randomized clinical trial. *American Journal of Drug Alcohol Abuse*. 2001; 27:651–688. DOI: 10.1081/ada-100107661 [PubMed: 11727882]
- Lutz W, Martinovich Z, Howard KI. Patient profiling: An application of random coefficient regression models to depicting the response of a patient to outpatient psychotherapy. *Journal of Consulting and Clinical Psychology*. 1999; 67:571–577. DOI: 10.1037/0022-006X.67.4.571 [PubMed: 10450628]
- MacPhee D, Lunkenheimer E, Riggs N. Resilience as regulation of developmental and family processes. *Family Relations*. 2015; 64:153–175. DOI: 10.1111/fare.12100 [PubMed: 26568647]
- Margolin G, Talovic S, Weinstein CD. Areas of change questionnaire: A practical approach to marital assessment. *Journal of Consulting and Clinical Psychology*. 1983; 51(6):920–931. DOI: 10.1037/0022-006X.51.6.920
- Miller, WR. Project MATCH Monograph Series. U.S. Dept. of Health; Bethesda, MD: 1996. Form 90 a structured assessment interview for drinking and related problem behaviors; p. 5
- Miller, S., Pagan, D., Tross, S. Women's health education: Peer activism for female partners of injection drug users. Columbia University; 1998. Unpublished treatment manual
- Miller BA, Smyth NJ, Mudar PJ. Mothers' alcohol and other drug problems and their punitiveness toward their children. *Journal of Studies on Alcohol and Drugs*. 1999; 60:632–642. DOI: 10.15288/jsa.1999.60.632
- Muthén, BO., Muthén, LK. Mplus user's guide. 7. Los Angeles, CA: Muthén & Muthén; 1998–2012.
- Nagin, DS. Group-based modelling of development. Cambridge: Harvard Press; 2005.
- Nair P, Schuler ME, Black MM, Kettinger L, Harrington D. Cumulative environmental risk in substance abusing women: early intervention, parenting stress, child abuse potential and child development. *Child Abuse and Neglect*. 2003; 27:997–1017. DOI: 10.1016/S0145-2134(03)00169-8 [PubMed: 14550328]

- Nylund KL, Asparouhov T, Muthén BO. Deciding on the number of classes in latent class analysis and growth mixture modeling: A monte carlo simulation study. *Structural Equation Modeling*. 2007; 14:535–569. DOI: 10.1080/10705510701575396
- Oudekerk BA, Allen JP, Hessel ET, Molloy LE. The cascading development of autonomy and relatedness from adolescence to adulthood. *Child Development*. 2015; 86:472–485. DOI: 10.1111/cdev.12313 [PubMed: 25345623]
- Reidler E, Swenson L. Discrepancies between youth and mothers' perceptions of their mother-child relationship quality and self-disclosure: Implications for youth- and mother-reported youth adjustment. *Journal of Youth and Adolescence*. 2012; 41:1151–1167. DOI: 10.1007/s10964-012-9773-8 [PubMed: 22573279]
- Samuolis J, Hogue A, Dauber S, Liddle HA. Autonomy and relatedness in inner-city families of substance abusing adolescents. *Journal of Child & Adolescent Substance Abuse*. 2005; 15(2):53–86. DOI: 10.1300/J029v15n02_04
- Santisteban DA, Perez-Vidal A, Coatsworth JD, Kurtines WM. Efficacy of brief strategic family therapy in modifying hispanic adolescent behavior problems and substance use. *Journal of Family Psychology*. 2003; 17:121–133. DOI: 10.1037/0893-3200.17.1.121 [PubMed: 12666468]
- Seltmann L, Wright M. Perceived parenting competencies following childhood sexual abuse: A moderated mediation analysis. *Journal of Family Violence*. 2013; 28:611–621. DOI: 10.1007/s10896-013-9522-0
- Silverberg S, Steinberg L. Adolescent autonomy, parent-adolescent conflict, and parental well-being. *Journal of Youth and Adolescence*. 1987; 16:293–312. DOI: 10.1007/bf02139096 [PubMed: 24277374]
- Slesnick N, Erdem G, Bartle-Haring S, Brigham G. Intervention with substance abusing runaway adolescents and their families: Results of a randomized clinical trial. *Journal of Consulting and Clinical Psychology*. 2013; 81:600–614. DOI: 10.1037/a0033463 [PubMed: 23895088]
- Slesnick N, Prestopnik J. Ecologically-based family therapy outcome with substance abusing runaway adolescents. *The Journal of Adolescence*. 2005; 28:277–298. DOI: 10.1016/j.adolescence.2005.02.008 [PubMed: 15878048]
- Slesnick N, Prestopnik J. Comparison of family therapy outcome with alcohol abusing, runaway adolescents. *Journal of Marital and Family Therapy*. 2009; 35:255–277. DOI: 10.1111/j.1752-0606.2009.00121.x [PubMed: 19522781]
- Smetana JG, Gettman DC. Autonomy and relatedness with parents and romantic development in African American adolescents. *Developmental Psychology*. 2006; 42:1347–1351. DOI: 10.1037/0012-649.42.6.1347 [PubMed: 17087567]
- Spilt J, Lier P, Branje S, Meeus W, Koot H. Discrepancies in perceptions of close relationships of young adolescents: A risk for psychopathology? *Journal of Youth and Adolescence*. 2015; 44:910–921. DOI: 10.1007/s10964-014-0234-4 [PubMed: 25451864]
- Wang Y, Benner AD. Parent-child discrepancies in educational expectations: Differential effects of actual versus perceived discrepancies. *Child Development*. 2014; 85:891–900. DOI: 10.1111/cdev.12171 [PubMed: 24116710]

Biographies

Jing Zhang is a postdoctoral researcher in the Department of Human Sciences at The Ohio State University. She received her doctorate in Human Development and Family Studies from Virginia Tech. Her research focuses on mechanisms linking contextual risk factors and behavioral and health outcomes of marginalized adolescents and families, and related prevention interventions.

Natasha Slesnick is a professor of Human Development and Family Science at The Ohio State University. She received her doctorate in Clinical Psychology from University of New

Mexico. Her research interests include intervention and service development and evaluation with marginalized groups, especially substance abusing youth experiencing homelessness.

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

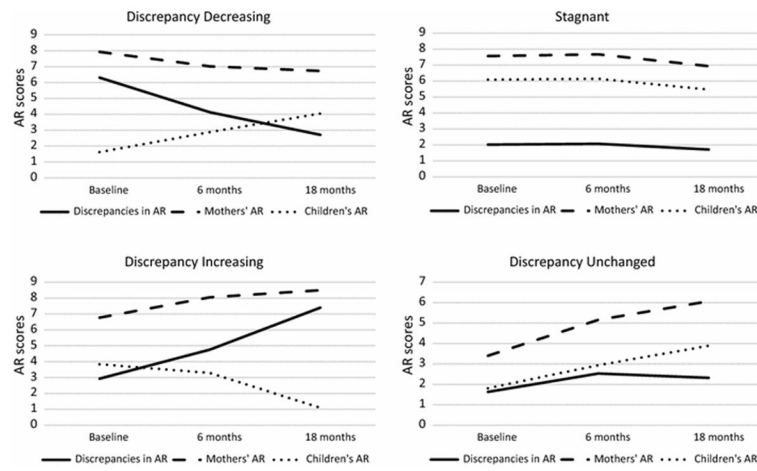


Fig. 1. Sub-groups of mothers-child discrepancies, and mothers' and children's individual responses in autonomy and relatedness promoting behaviors. *AR* autonomy and relatedness promoting behaviors

Table 1

Demographic characteristics of the current sample

Variable	<i>n</i> (%)	<i>M</i> (<i>SD</i>)
Mothers		
Race/ethnicity		
White, not of hispanic origin	98 (53.6)	
African American	78 (42.6)	
Other	7 (3.8)	
Marital status		
Single, never married	60 (32.8)	
In a romantic relationship	64 (34.9)	
Legally married	20 (10.9)	
Separated but still married	15 (8.2)	
Divorced	21 (11.5)	
Widowed	3 (1.6)	
Annual family income		
0–\$5,000	49 (26.8)	
\$5001–\$15,000	61 (33.3)	
\$15,001–\$30,000	39 (21.3)	
\$30,001–\$45,000	16 (8.7)	
\$45,001–\$60,000	7 (3.8)	
\$60,001–\$75,000	6 (3.3)	
\$75,000 or above	4 (2.2)	
Employment status		
Work 40+ hours a week	22 (12.0)	
Work fewer than 40 h a week	22 (12.0)	
Homemaker	10 (5.5)	
Unemployed	105 (57.4)	
Student	19 (10.4)	
Other	3 (1.6)	
Children		
Gender		
Male	95 (51.9)	
Currently enrolled in school	179 (97.8)	
GPA		2.87 (0.70)
Children have ever been		
Placed in a foster home	20 (10.9)	
Placed in a group home	7 (3.8)	
Kept in juvenile detention	13 (7.1)	
Kept in jail overnight	7 (3.8)	
A ward of the state	8 (4.4)	

Table 2

Fit indices for parallel-process latent class models

Model	BIC	ABIC	Entropy	BLRT
2-class	5638.14	5568.46	.79	-2828.63 ***
3-class	5565.17	5473.32	.85	-2761.76 ***
4-class	5525.74	5411.72	.80	-2707.05 ***
5-class	5522.86	5386.67	.70	-2669.10 ***
6-class	5524.94	5366.58	.78	-2649.42 ***

BIC bayesian information criterion, *BLRT* bootstrap likelihood ratio test***
 $p < .001$

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

Table 3

Results for joint trajectory latent class models

Variables	Discrepancy decreasing		Discrepancy increasing		Stagnant		Discrepancy unchanged	
	B (SE)	t	B (SE)	t	B (SE)	t	B (SE)	t
Discrepancy score in AR								
Intercept growth factor								
Intercept	6.19 (.40)	15.50***	2.71 (.64)	4.25***	2.11 (.28)	7.61***	1.73 (.38)	4.58***
Slope growth factor								
Intercept	-1.76 (.30)	-5.80***	2.29 (.36)	6.37***	-1.14 (.20)	-0.68	.29 (.31)	.93
Mothers' AR								
Intercept growth factor								
Intercept	7.87 (.34)	23.43***	6.71 (.40)	16.67***	7.71 (.27)	28.96***	3.58 (.59)	6.08***
Slope growth factor								
Intercept	-0.61 (.39)	-1.54	.96 (.29)	3.27**	-0.28 (.21)	-1.33	1.26 (.42)	3.04**
Children's AR								
Intercept growth factor								
Intercept	1.67 (.33)	5.05***	4.02 (.83)	4.83***	6.17 (.28)	21.95***	1.97 (.33)	6.07***
Slope growth factor								
Intercept	1.20 (.31)	3.85***	-1.32 (.41)	-3.20**	-0.29 (.29)	-0.99	.98 (.34)	2.92**

AR autonomy and relatedness promoting behaviors

**
p < .01;

p < .001

Means and standard deviations for mother-child discrepancy scores, and mothers' and children's autonomy and relatedness (AR) promoting behaviors

Table 4

Variable	Discrepancy decreasing		Discrepancy increasing		Stagnant		Discrepancy unchanged	
	N	M (SD)	N	M (SD)	N	M (SD)	N	M (SD)
Discrepancy scores in AR								
Baseline	43	6.31 (1.59)	28	2.93 (1.85)	84	2.02 (1.48)	26	1.63 (1.23)
6 months	26	4.13 (2.39)	21	4.76 (2.68)	55	2.07 (1.44)	16	2.53 (1.78)
18 months	28	2.71 (1.75)	20	7.40 (1.21)	49	1.71 (1.24)	14	2.32 (1.58)
Mothers' AR								
Baseline	43	7.93 (1.58)	28	6.77 (1.50)	84	7.57 (1.68)	26	3.40 (1.57)
6 months	26	7.02 (1.80)	21	8.05 (2.73)	55	7.68 (2.28)	16	5.16 (2.34)
18 months	28	6.73 (2.69)	20	8.50 (1.44)	49	6.94 (1.95)	14	6.07 (2.35)
Children's AR								
Baseline	43	1.62 (1.34)	28	3.84 (2.14)	84	6.09 (1.70)	26	1.81 (.95)
6 months	26	2.88 (2.45)	21	3.29 (2.47)	55	6.15 (2.31)	16	2.94 (1.95)
18 months	28	4.05 (2.12)	20	1.10 (1.10)	49	5.47 (2.19)	14	3.89 (2.26)

Table 5

Association between trajectory group membership and treatment conditions and baseline covariates

Variable	<i>B</i>	<i>SE</i>	<i>t</i>
Discrepancy decreasing versus discrepancy increasing			
Treatment condition	1.57	.70	2.24 *
Child age	.49	.68	.72
Child gender	-1.11	1.07	-1.03
Mothers' sexual abuse	.71	.73	.98
Mothers' physical abuse	.96	.77	1.26
Mothers' drug use	.01	.01	.59
Mothers' homelessness			
Stagnant versus discrepancy increasing			
Treatment condition	1.13	.83	1.36
Child age	.73	.70	1.04
Child gender	-2.14	1.08	-1.98 *
Mothers' sexual abuse	.89	.88	1.01
Mothers' physical abuse	.56	.80	.71
Mothers' drug use	-.00	.01	-.37
Mothers' homelessness	.55	.87	.64
Discrepancy unchanged versus discrepancy increasing			
Treatment condition	1.91	.96	1.99 *
Child age	.34	.76	.45
Child gender	-2.33	1.10	-2.13 *
Mothers' sexual abuse	.70	.79	.89
Mothers' physical abuse	-.83	.81	-1.02
Mothers' drug use	.00	.01	.10
Mothers' homelessness	.84	.87	.97

Discrepancy increasing group is used as the reference group

* $p < .05$

Trajectory group comparison for children’s internalizing and externalizing behaviors at 18 months post-baseline

Table 6

Variable	Discrepancy decreasing		Discrepancy increasing		Stagnant		Discrepancy unchanged	
	M	SE	M	SE	M	SE	M	SE
Internalizing behaviors	3.20 _a	.74	3.11 _a	1.81	12.23 _b	1.35	6.53 _{ab}	3.37
Externalizing behaviors	6.58 _{ac}	1.52	23.62 _b	4.06	7.70 _a	1.15	3.49 _c	.78

Different subscripts within the same row indicate significantly different means