

**Physical Custody Reconsidered:
Examining Measurement Equivalence Across Dimensions of Post-Divorce Co-Parenting**

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ABSTRACT. For parents of minor children, the co-parenting relationship is often a highly salient yet volatile aspect of post-divorce life. The nature of this relationship is also dependent upon the greater social context, particularly those aspects that facilitate or constrain interactions between parents. This study evaluates four dimensions of co-parenting behaviors among a sample of recently divorced and divorcing parents ($N = 396$) and tests for measurement equivalence across physical custody arrangements. Item functioning was determined to be empirically similar for nonresident parents and parents with shared physical custody, so post-hoc tests were conducted comparing a combined group of these parents with a group of resident parents. Results indicated that covert conflictual behaviors falling within the exclusive control of the individual functioned similar across physical custody arrangements. Co-parental support, overt forms of conflict, and covert conflict that fell outside the control of the individual differed at a mean-level. As such, there is discussion of co-parenting under particular contextual conditions and the potential impact of those conditions on child well-being.

Keywords: divorce, co-parenting, physical custody

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Effectively co-parenting after dissolution of a romantic relationship has implications for child development and for parental personal well-being (Amato, 2000, 2010; Barber & Demo, 2006; Braver, Shapiro, & Goodman, 2006). Accordingly, access to measures that capture nuanced relational functioning within the post-divorce co-parenting relationship is important for researchers and service providers for evaluating the climate of the co-parenting relationship. Measures should also be valid and reliable across diverse contexts, including child custody. The rights, responsibilities, and abilities that custody affords are instrumental to the post-divorce context and the relative parent-child and parent-parent relationships that continue to change during this time.

The current study sought to expand understanding of post-divorce co-parenting by conducting tests of measurement equivalence on a multidimensional co-parenting instrument across three common physical custody statuses. Accordingly, this introduction first provides an overview of measurement equivalence and its use in the broader literature. Next, there is discussion of the theoretical importance of measurement equivalence, description of custody as an important contextual factor to be considered when measuring post-divorce processes (specifically, co-parenting), and finally an overview of the importance of co-parenting processes and their influence on child outcomes following divorce.

Measurement Equivalence to Assess Variation Across Contexts

Technically, measurement equivalence (also referred to as measurement invariance) evaluates a series of models, with each new model imposing additional constraints on the previous model to determine level of congruence (or lack thereof) across a given factor of interest (Dyer, 2015). A common application of this methodological technique is to assess variation in psychosocial measures across multiple time points. Measurement equivalence has also been used across many fields such as medicine and psychology to test validity of existing and emerging scales across key characteristics including gender, culture, and language. For example, Lim and Townsend (2012) used measurement equivalence to determine if a measure of family coping was valid across multiple ethnicities and found that the Family Crisis Oriented Personal Evaluation Scale is not appropriate for Chinese Americans or for Korean Americans. Critical implications drawn from tests of measurement equivalence include awareness regarding whether measures and scales are appropriate to use across diverse groups and enhanced sensitivity to factors that may threaten a scale's validity.

Measurement equivalence is useful for scale development and to further assess well-established scales by explicating their utility within a broader context. For example, the Satisfaction with Life Scale (Diener, Emmons, Larsen, & Griffin, 1985) is a well-established assessment of life satisfaction but scholars have recently continued to explore its validity across ethnicities using tests of measurement equivalence (Tomas, Gutierrez, Sancho, & Romero,

2015). Evaluating the use of scale forms across contextual factors is another use for measurement equivalence. The Social Communications Questionnaire (SCQ), for example, has “lifetime” and “current” versions (Berument, Rutter, Lord, Pickles, & Bailey, 1999). Wei, Chesnut, Barnard-Brak, and Richman (2012) used measurement equivalence testing to answer questions about the scale’s validity, finding that one version of the scale demonstrated poor internal consistencies and weak factor loadings. This testing thus allowed for enhanced understanding of the functionality of the SCQ.

Specific to the study of co-parenting, measurement equivalence has also been used to assess validity of the Multidimensional Co-Parenting Scale for Dissolved Relationships (MCS-DR; Ferraro, Lucier-Greer, & Oehme, 2018) as a function of gender, such that some deviation existed at a mean-level of one of the subscales, a measure of covert conflict within one’s control. To the best of our knowledge there are no current assessments of measurement equivalence as a function of physical custody in the co-parenting literature, thus representing a gap addressed herein.

A Stress Process Approach to Co-Parenting

Evaluating measurement equivalence is one method for addressing the question of how context (in this case, physical custody status) matters for the co-parenting relationship, which then may affect child outcomes. This is considered a crucial step in theory building because researchers sometimes regard constructs with the “assumption that they exist in the same form across all groups and across time. However, because many, if not most, of the constructs used in family research are socially constructed, they do not have a single objective definition” (Dyer, 2015, p. 415). For the study of co-parenting, this assumption can be problematic. Theoretically, the stress process framework (Pearlin, Menaghan, Lieberman, & Mullan, 1981) suggests individuals are embedded within complex social contexts that influence their experience of stress. Under this assumption, individuals are situated within given social conditions and statuses that introduce potential advantages or inequalities depending upon their circumstances (Pearlin, 1989, 2010).

The nature of the co-parenting relationship, or the ways in which parents interact and relate to each other and to the needs of their children (Feinberg, 2003) following a divorce, is contingent on various elements that define the context of the divorce. Among the most salient of these conditions is the amount of time parents interact with their children and their former spouse, which is largely reflective of the physical custody arrangement in place. Accounting for these conditions is essential to understanding how the family operates and how members of the family, especially children, are able to adjust to the divorce process. This reflects the theoretical concept of socio-ecological stress, where an experience (e.g., shifts in living arrangements, refining of visitation schedules) causes upheaval within the family unit, allowing for potential adversity to those within the unit (Milkie, 2010; Wheaton, 1999). As such, physical custody status presents an important theoretical consideration in understanding divorce and co-parenting relationships in the period following a divorce. However, specific types of behaviors that define the co-parenting relationship also need consideration along with the context in which behaviors occur.

Within the post-divorce literature, co-parenting behaviors are typically assessed using a two-pronged approach that includes indicators of co-parenting support and conflict (e.g., Ahrons, 1981). Functionally, this conceptualization tends to rely heavily on measuring only overt forms of co-parenting conflict, which in turn neglects to account for covert forms of co-parenting conflict that may be differentially related to parents' and children's adjustment to the divorce. Overt conflict involves openly hostile, uncomfortable, or disruptive exchanges between ex-spouses, while covert conflict involves indirect exchanges through a third party or communications and behaviors that would not be considered openly aggressive or adversarial (Buehler et al., 1998). Covert behaviors often occur outside of the presence of one's co-parent and are frequently assessed via child-report measures (e.g., Buchanan, Maccoby, & Dornbusch, 1991; Rowen & Emery, 2014) and primarily assess triangulation. Compared to overt conflict, covert conflict has been found to be a stronger predictor of children's internalizing behaviors (Buehler et al., 1998), parental involvement (Henley & Pasley, 2005), parental stress (Petren, Ferraro, Davis, & Pasley, 2017), and parental life satisfaction (Pasley, Ferraro, Petren, & Davis, 2016).

Therefore, in this study we used the MCS-DR (Ferraro et al., 2018) to assess co-parenting behaviors, namely support, overt conflict, and two types of covert conflict. Other measures used for assessing co-parenting quality are rooted largely in the intact co-parenting literature, often targeting behaviors that may have limited utility to post-divorce interactions between parents (e.g., agreement on mealtime behaviors and chores; Coparenting Questionnaire; Margolin, Gordis, & John, 2001). Alternatively, measures designed exclusively for divorced family dynamics often omit assessment of covert co-parenting conflict (e.g., Quality of Coparental Communication Scale; Ahrons, 1981). The MCS-DR assesses self- and externally-controlled forms of covert co-parenting conflict, reflecting a theoretical distinction that the control an individual exerts over a given stressor is relevant to how that stress manifests (Pearlin & Pioli, 2003). Furthermore, this delineation of covert behaviors has support in previous co-parenting literature (Petren et al., 2017). Finally, the measure demonstrates strong internal reliability and criterion validity consistent with the extant literature (see Ferraro et al., 2018). Understanding of how physical custody status may impact co-parenting relationship dynamics, which may then impact child adjustment, represents an important advancement in evaluating applicability of the MCS-DR for parents with shared and sole (both resident and nonresident) physical custody arrangements. As such, this study presents an important step in the measure's development and the extant literature by considering co-parenting processes across physical custody contexts.

Custody Status

Specifically, this study considered physical custody status. However, custody arrangements of children often include two distinctive components: (1) physical custody and (2) legal custody. Physical custody reflects where the child resides and the time-sharing schedule. Legal custody reflects decision making authority. In cases of shared legal custody, the concept will, in part, reflect negotiation of "the three big topics of education, religious upbringing, and elective medical care" (Emery, Rowne, & Dinescu, 2014, p. 501). Physical and legal custody

statuses can vary, although determinations are often made within the scope of the same legal process. Aside from the distinction between physical and legal custody, designations of custody are further distinguished as sole or shared custody arrangements. Relative to physical custody, sole custody would involve a primary residential parent with whom the child lives exclusively or a majority of the time. Shared physical custody involves an arrangement where the child functionally has two residences in which he or she lives. Parents often (sometimes with assistance from a mediator) come to an agreement about the child's physical and legal custody arrangements. When this is not possible, the courts will intervene (Bajackson, 2013).

Courts make custody decisions based on statutory criteria for what is in the *best interest of the child*. It is generally considered in the child's best interests to maintain a close relationship with both parents (Bajackson, 2013). This may or may not result in shared physical custody. However, trends in child custody arrangements in the United States suggest that more parents are experiencing shared physical custody, coinciding with changes in legal preference and cultural norms (Cancian, Meyer, Brown, & Cook, 2014). A question that is consistently raised involves which type of custody arrangement meets the high standard of *best interests of the child*. In most situations, this determination requires case by case consideration of accompanying contextual factors. Judicial custody determinations include evaluation of structural characteristics, personal characteristics, and family-level factors. Structural characteristics can include stability of the home environment (Bajackson, 2013) or financial resources (e.g., greater financial resources increase likelihood of a parent having sole physical custody; Kelly, Redenbach, & Rinaman, 2005). Personal characteristics may include mental and physical health of a parent or parents (Bajackson, 2013). Various family-level factors are also considered and influence the likelihood of a given arrangement. Previous or ongoing parental issues (e.g., violence, criminal activity, drug or alcohol abuse) are one such factor, with the offending party less likely to be granted sole physical custody. Interpersonal dynamics are also considered. These include marital conflict, with higher levels of conflict reducing the likelihood of shared physical custody arrangements (Kelly et al., 2005).

Consideration of these interpersonal factors and circumstances can be particularly important in determining how members of a family, children and parents, will adjust to their new post-divorce context. Previous studies suggest that parents who share physical custody typically have better communication with their children (Bjarnason & Arnarsson, 2011), less interparental conflict (Bauserman, 2012), and children who adjust better to the divorce (Baude, Pearson, & Drapeau, 2016; Bauserman, 2002) compared to families with sole physical custody arrangements. Furthermore, parents who share physical custody (mothers and fathers) report having better co-parenting relationships than do resident mothers and nonresident fathers (Bauserman, 2012), the most common configuration of sole physical custody arrangements.

The primacy of residence hypothesis (e.g., King, 2006, 2007) argues that nonresident parents "are less likely to transmit crucial economic, parental, and community resources that are instrumental to children's healthy development" (King, 2006, p. 914), suggesting that the resident parent may be more influential in child adjustment after divorce. Potential for poor parenting behaviors preceding a sole physical custody determination in the first place is an important acknowledgement to this end and may be an instrumental factor in terms of the utility

or benefit of a nonresident parent's involvement. However, research also indicates the importance of maintaining bonds between children and nonresident parents following divorce. For example, children's perceptions of being important to their nonresident parent have been associated with lower levels of children's externalizing problems (Schenck et al., 2009). The importance of nonresident parents may extend beyond transmission of tangible resources to children. However, the ability of these nonresident parents to provide resources and interact with their children may be at the discretion of resident parents, in some cases for legitimate reasons (such as when an order of protection has been granted).

What is known in the limited research regarding nonresident mothers tends to align with research on nonresident fathers. Similar trends emerge with regard to impact of the nonresident parent-child relationship on child well-being. Nonresident mothers who have more frequent contact with their child or children have higher levels of parent-child closeness, which is associated with lower levels of internalizing problems for children post-divorce (King, 2007). The current study considers power dynamics within dissolved relationships, extending beyond gendered issues typically assessed in the gatekeeping literature (e.g., mother as a gatekeeper) to further explore how varying physical custody arrangements may result in vastly different experiences of post-divorce life, specifically post-divorce co-parenting dynamics.

Current Study

This study sought to extend utility of the MCS-DR by assessing for measurement equivalence based on physical custody status after the dissolution of a romantic relationship, specifically up to 18 months post-divorce. This period is generally seen as highly volatile, where power dynamics shift and new roles are established between co-parents and within the family system (see Hetherington & Kelly, 2002). The study sought to extend research on co-parenting by exploring measurement equivalence across three forms of physical custody: (1) sole physical custody, where the participant was the resident parent (herein referred to as *resident parents*); (2) sole physical custody, where the participant was the noncustodial, nonresident parent (herein referred to as *nonresident parents*); and (3) shared physical custody, where the participant shared physical custody of a child with his/her former spouse (herein referred to as *shared custody parents*). The research question guiding the study was: *Do the four subscales of the MCS-DR, which include support, overt conflict, self-controlled covert conflict, and externally-controlled covert conflict, function similarly across physical custody statuses, as demonstrated through tests of measurement equivalence?*

Methods

Procedure

Data were drawn from parents who voluntarily completed pre-test assessments associated with the Successful Co-Parenting After Divorce state-approved divorce education course. The course fulfilled requirements for court-mandated divorce education in the state of Florida.

However, not all participants were residents of the state of Florida and some were not required to complete the course for purposes of fulfilling a mandate. Rather, inclusion criteria for this study required only that participants be over the age of 18, had been married at least once, had divorced within the previous 18 months or were in the process of divorcing, and had at least one minor child from the discontinued relationship. Participants were also removed from the analytic sample if they had no physical custody arrangement in place ($n = 4$), if the child was in the care of the Department of Children and Families ($n = 2$), or if there was a protection from abuse order or other restraining order in place ($n = 3$).

Sample

Participants in the study ($N = 396$) were predominantly female (77.0%), identified as White or Caucasian (76.5%), and on average were 37.10 years of age ($SD = 8.29$). They were also primarily employed, either full-time (64.8%) or part-time (11.8%), and were highly educated (39.7% had achieved a bachelor's degree or higher). On average, participants had 2.19 children ($SD = 1.25$) but were asked to reference their youngest child from their most recent marriage (target child) when responding to the survey. The age of the target child was, on average, 7.20 years ($SD = 4.56$; range 0-17). Gender of the target child was evenly distributed between males (49.7%) and females (50.3%). Most participants identified as being *resident parents* with primary physical custody of the target child (60.4%); 27.0% identified as *shared custody parents* who shared physical custody with former spouses. The remaining 12.6% identified as *nonresident parents*, such that their former spouses had primary physical custody of the children.

Measures

Physical custody status. A single item indicator was used for determining physical custody status. Participants were asked to identify who held primary physical custody of the target child. More specifically, they were asked to note physical custody as indicated by where “the child live[s] most of the time.” This was intentional, so as to capture arrangements that exist regardless of explicit language detailed in the parenting plan. Responses to this question were used for determining group memberships for the analyses, including: resident parents ($n = 239$), nonresident parents ($n = 50$), and shared custody parents ($n = 107$). For each of the three sets of analyses, two forms of custody were compared. This strategy was used for assessing any differences that may exist among all specific sets of parents.

Co-parenting behaviors. Quality of parents' co-parenting behaviors was examined using all four subscales of the MCS-DR (Ferraro et al., 2018). For each subscale, responses ranged from (1) *never* to (6) *always*, with higher scores indicating greater frequency of each specified dimension of co-parenting quality. Figure 1 provides descriptive statistics including means, standard deviations, and internal reliability coefficients for each subscale. Figure 1 also lists all MCS-DR items and all named parameters for measurement equivalence testing.

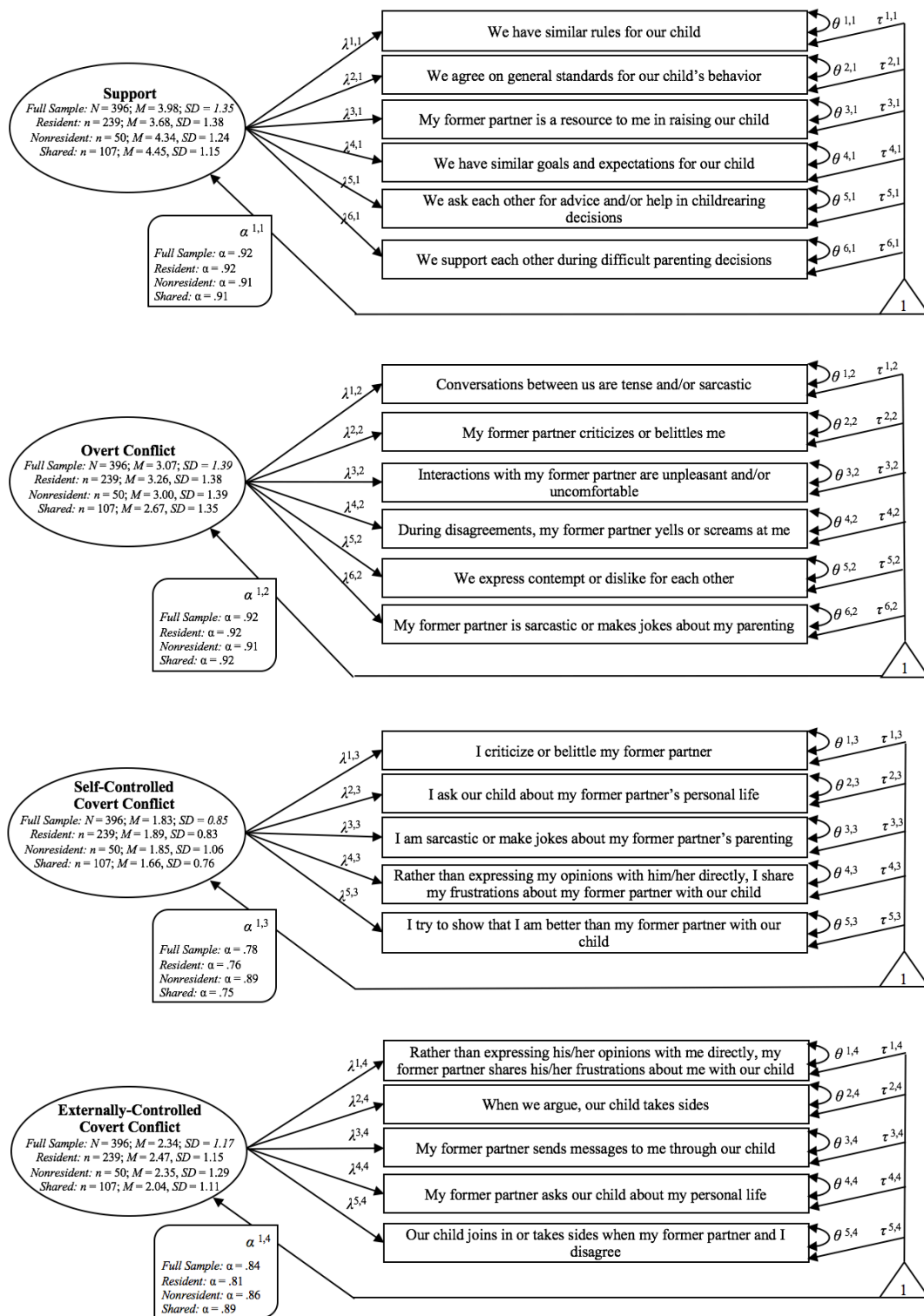


Figure 1. Descriptive Statistics and Model Parameters for Measurement Equivalence Testing

Note. λ = factor loading; θ = residual variance; τ = intercept.

Analysis

First, missing data analysis, tests for sampling adequacy, and tests for homoscedasticity were conducted. Next, Confirmatory Factor Analysis (CFA) was conducted in AMOS 21. This allows us to confirm the factor structure of the MCS-DR to see whether it fits similarly to previous studies with four distinct subscales: support, overt conflict, self-controlled covert conflict, and externally-controlled covert conflict. Four goodness-of-fit statistics were used to examine model fit: the Root Mean Square Error of Approximation (RMSEA), the chi-square/degrees of freedom ratio (χ^2/df ratio), the Comparative Fit Index (CFI), and the Tucker-Lewis Index (TLI). RMSEA values of .08 or less and a χ^2/df ratio between 3 and 1 indicate reasonable fit (Browne & Cudeck, 1993; Carmines & McIver, 1981), while a CFI and TLI in excess of .95 indicate good model fit (Bentler & Bonett, 1980; Hu & Bentler, 1999).

Next, tests for measurement equivalence across all four subscales of the MCS-DR as a function of physical custody status were examined using a fixed factor method. The level of congruence for each subscale of the MCS-DR was assessed across three different forms of physical custody status (resident, nonresident, shared). In other words, these tests determine whether the MCS-DR subscales are conceptually similar and ultimately useful for these three groups of parents. The following information details statistical recommendations and procedures of conducting tests of measurement equivalence.

First, using Meredith's (1993) recommendations, the *configural equivalence model* was tested, allowing the model to vary freely. Next, the *weak equivalence model* was tested, imposing constraints on the factor loadings. Finally, the *strong equivalence model* was tested, imposing constraints on the intercepts. Since there is some suggestion that imposing restrictions on error variances (*strict equivalence*) may be misleading and may not indicate superior fit when compared to models that demonstrate *strong equivalence* (Little, 2013), this study only considers three levels of measurement equivalence (*configural*, *weak*, and *strong*).

When comparing each model to the ascending model, two indicators of change in model fit for the omnibus test were used: change in CFI and the χ^2 difference test. A change in CFI greater than .01 indicates the new model fits significantly worse when additional constraints are imposed with the ascending model. By contrast, a change in CFI of less than .01 would suggest it is appropriate to accept the model with additional constraints and proceed with testing the ascending model (Cheung & Rensvold, 2002). Nonsignificant χ^2 difference tests would also suggest it is appropriate to accept the ascending model. The Bentler-Bonett Normed Fit Index (NFI) was also reported, serving as an indicator of overall model fit per suggestions from the literature (see Dyer, 2015).

In situations where omnibus tests did not suggest equivalence or where indicators suggested mixed results regarding change in fit, tests of partial equivalence were conducted. To test for partial equivalence, an unconstrained model is fit to provide a baseline indicator of fit, constraining only the latent mean and variance (unless testing for strong equivalence, in which case all factor loadings are also constrained). Next, a single parameter is constrained and a χ^2 difference test is used for examining if fit is significantly worse with each individual item

constrained. Identifying how many parameters actually demonstrate a level of invariance (i.e., lacking equivalence) is an important consideration as partial equivalence can still suggest an underlying construct that can be assessed across groups so long as “at least a majority of the indicators are still invariant” (Little, 2013, p. 159). In situations where the omnibus test revealed significant levels of variation, tests of partial equivalence were conducted.

Results

Missing data were minimal across all MCS-DR items (less than 2.50% on each item) and a nonsignificant Little’s MCAR statistic ($\chi^2 = 423.11$, $df = 437$, $p = .68$) indicated data were missing completely at random. Missing data were accounted for in all subsequent analyses using a full information maximum likelihood estimation approach. Testing of sampling adequacy and homoscedasticity were examined with the Kaiser-Meyer-Olkin statistic (KMO) and Bartlett’s test for sphericity. KMO was .92 and Bartlett’s test for sphericity was significant ($\chi^2 = 423.11$, $p < .001$); these are two indications that the data were appropriate for factor analysis (Dziuban & Shirkey, 1974). CFA was then conducted to test each of the four previously validated subscales. The support subscale had a CFI of .99, a TLI of .98, an RMSEA of .06 ($p = .30$), a χ^2/df ratio of 2.42, and factor loadings ranging from .64 to .92. The overt conflict subscale had a CFI of .99, a TLI of .97, an RMSEA of .07 ($p = .16$), a χ^2/df ratio of 2.97, and factor loadings ranging from .79 to .85. The self-controlled covert conflict subscale had a CFI of .99, a TLI of .95, an RMSEA of .07 ($p = .24$), a χ^2/df ratio of 2.70, and factor loadings ranging from .57 to .71. Finally, the externally-controlled covert conflict subscale had a CFI of .99, a TLI of .99, an RMSEA of .03 ($p = .53$), a χ^2/df ratio of 2.88 and factor loadings ranging from .56 to .89. These results confirm that the previously validated factor structure is appropriate in this sample.

Next, tests of measurement equivalence were conducted to evaluate the degree of invariance for each subscale with regard to physical custody arrangements: resident, nonresident, and shared custody parents. Initial testing revealed that the nonresident and shared custody parents demonstrated strong equivalence across all four subscales (see Table 1). In the interest of making meaningful comparisons across groups, nonresident and shared custody groups were combined so that further testing could consider similarities and differences between resident parents and all others.

Table 1. Tests for Measurement Equivalence for Nonresident Parents v. Shared Custody Parents

Model	χ^2	<i>df</i>	$\Delta\chi^2$	CFI	Δ CFI	NFI	Omnibus ΔFit
Support							
Configural	13.53	10	-	.994	-	.980	-
Weak	23.68	15	10.15	.986	.008	.965	Equivalent
Strong	28.82	21	5.14	.988	.002	.957	Equivalent
Overt Conflict							
Configural	25.90	12	-	.979	-	.962	-
Weak	35.89	17	9.99	.971	.008	.948	Equivalent
Strong	41.41	23	5.52	.972	.001	.940	Equivalent
Self-Controlled Covert Conflict							
Configural	23.83	8	-	.940	-	.919	-
Weak	30.45	12	7.07	.930	.010	.896	Equivalent
Strong	34.63	17	4.18	.933	.003	.882	Equivalent
Externally-Controlled Covert Conflict							
Configural	15.88	4	-	.976	-	.970	-
Weak	23.84	8	7.96	.969	.007	.955	Equivalent
Strong	28.60	13	4.76	.969	.000	.946	Equivalent

Note. Δ = change; χ^2 = chi square; *df* = degrees of freedom; CFI = Comparative Fit Index; NFI = Bentler-Bonett Normed Fit Index.

Table 2 presents tests of measurement equivalence for resident parents compared to the combined group of nonresident parents and parents with shared custody. On the support subscale, configural equivalence was found with a CFI of .994 and NFI of .988. The weak equivalence model was then tested by constraining factor loadings and comparing model fit. There was mixed indication as to the magnitude of the change ($\Delta\chi^2 = 11.15$; Δ CFI = .004). However, since the change in CFI is the preferred method for assessment of model change (Little, 2013) and the other indicator of model fit was still within acceptable range (NFI = .982), the strong equivalence model was considered. Compared to the weak equivalence model, the strong equivalence model fit significantly worse ($\Delta\chi^2 = 45.18$; Δ CFI = .023). Thus, weak equivalence was the initial determination but tests of partial equivalence on the factor loadings and intercepts were warranted to confirm this level of equivalence.

Table 2. Tests for Measurement Equivalence for Resident Parents v. All Others

Model	χ^2	<i>df</i>	$\Delta\chi^2$	CFI	Δ CFI	NFI	Omnibus Δ Fit
Support							
Configural	19.88	10	-	.994	-	.988	-
Weak	31.03	15	11.15*	.990	.004	.982	Mixed [†]
Strong	76.21	21	45.18***	.967	.023	.955	Inequivalent [†]
Overt Conflict							
Configural	22.36	12	-	.993	-	.986	-
Weak	30.47	17	8.11	.991	.002	.981	Equivalent
Strong	44.88	23	14.41*	.986	.005	.972	Mixed [†]
Self-Controlled Covert Conflict							
Configural	19.88	8	-	.977	-	.963	-
Weak	23.45	12	3.57	.978	.001	.957	Equivalent
Strong	34.62	17	11.17*	.966	.012	.936	Inequivalent [†]
Externally-Controlled Covert Conflict							
Configural	6.20	4	-	.998	-	.994	-
Weak	16.74	8	7.96*	.991	.007	.983	Mixed [†]
Strong	36.04	13	19.30**	.975	.016	.963	Inequivalent [†]

Note. * $p < .05$. ** $p < .01$. *** $p < .001$. Δ = change; [†] = tests of partial equivalence warranted based upon omnibus tests; χ^2 = chi square; *df* = degrees of freedom; CFI = Comparative Fit Index; NFI = Bentler-Bonett Normed Fit Index.

On the overt conflict subscale, initial indication supported the notion of strong equivalence although further evaluation was needed. In comparing the configural model to the weak equivalence model minimal change was found ($\Delta\chi^2 = 8.11$; $\Delta\text{CFI} = .002$), but in comparing the weak equivalence model to the strong equivalence model there was a mixed indication as to magnitude of the change ($\Delta\chi^2 = 14.41$; $\Delta\text{CFI} = .005$). Again, NFI was considered and demonstrated acceptable fit for the strong equivalence model ($\text{NFI} = .972$). Thus, strong equivalence was the initial determination but tests of partial equivalence on the intercepts were warranted to confirm this level of equivalence.

The self-controlled covert conflict subscale initially indicated weak equivalence although further evaluation was needed. In comparing the configural equivalence model to the weak equivalence model there was minimal change ($\Delta\chi^2 = 3.57$; $\Delta\text{CFI} = .001$), but when comparing the weak equivalence model to the strong equivalence model fit was significantly worse ($\Delta\chi^2 = 11.17$; $\Delta\text{CFI} = .012$). Thus, weak equivalence was the initial determination; tests of partial equivalence on the intercepts were warranted to confirm this level of equivalence.

Finally, the externally-controlled covert conflict subscale initially indicated weak equivalence although further evaluation was needed. In comparing the configural equivalence model to the weak equivalence, model mixed indications as to the magnitude of the change were found ($\Delta\chi^2 = 7.96$; $\Delta\text{CFI} = .007$). The NFI demonstrated acceptable fit for the weak equivalence model ($\text{NFI} = .983$). This allowed for examination of the strong equivalence model, which demonstrated significantly worse fit compared to the weak equivalence model ($\Delta\chi^2 = 19.30$; $\Delta\text{CFI} = .016$). Thus, weak equivalence was the initial determination but tests of partial equivalence on factor loadings and intercepts were needed to confirm this level of equivalence.

As each of the subscales of the MCS-DR demonstrated at least some indication of inequivalence, tests for partial equivalence were conducted (see Table 3). For the support subscale, there were conflicting indications as to weak equivalence ($\Delta\chi^2 = 11.15$; $\Delta\text{CFI} = .004$). As such, both factor loadings and intercepts were examined. The majority of factor loadings ($\lambda^{2,1}$; $\lambda^{3,1}$; $\lambda^{5,1}$; $\lambda^{6,1}$) demonstrated equivalence. Only two factor loadings ($\lambda^{1,1}$; $\lambda^{4,1}$) were found to be inequivalent and thus partial equivalence was demonstrated and weak equivalence was assumed. Next, intercepts were constrained, with all six intercepts demonstrating inequivalence ($\tau^{1,1}$; $\tau^{2,1}$; $\tau^{3,1}$; $\tau^{4,1}$; $\tau^{5,1}$; $\tau^{6,1}$). Thus, the hypothesis of strong equivalence across groups for the support subscale was rejected and the weak equivalence model was accepted.

Table 3. Tests for Partial Equivalence

Parameters by Associated Subscale		Unconstrained Model		Constrained Model		$\Delta\chi^2$
		χ^2	df	χ^2	df	
Support	$\lambda^{1,1}$	19.88	10	28.35	11	8.47**
	$\lambda^{2,1}$	19.88	10	23.07	11	3.19
	$\lambda^{3,1}$	19.88	10	20.25	11	0.37
	$\lambda^{4,1}$	19.88	10	35.54	11	15.66***
	$\lambda^{5,1}$	19.88	10	19.90	11	0.02
	$\lambda^{6,1}$	19.88	10	20.62	11	0.74
Externally-Controlled Covert Conflict	$\lambda^{1,4}$	6.20	4	6.21	5	0.01
	$\lambda^{2,4}$	6.20	4	10.75	5	4.55*
	$\lambda^{3,4}$	6.20	4	9.17	5	2.97
	$\lambda^{4,4}$	6.20	4	6.63	5	0.43
	$\lambda^{5,4}$	6.20	4	9.08	5	2.88
Support	$\tau^{1,1}$	41.84	16	58.33	17	16.49***
	$\tau^{2,1}$	41.84	16	47.75	17	5.91*
	$\tau^{3,1}$	41.84	16	79.07	17	37.23***
	$\tau^{4,1}$	41.84	16	59.35	17	17.51***
	$\tau^{5,1}$	41.84	16	57.11	17	15.27***
	$\tau^{6,1}$	41.84	16	66.07	17	24.23***
Overt Conflict	$\tau^{1,2}$	30.58	18	33.90	19	3.32
	$\tau^{2,2}$	30.58	18	38.49	19	7.91**
	$\tau^{3,2}$	30.58	18	36.93	19	6.35*
	$\tau^{4,2}$	30.58	18	42.77	19	12.19***
	$\tau^{5,2}$	30.58	18	34.06	19	3.48
	$\tau^{6,2}$	30.58	18	37.10	19	6.52*
Self-Controlled Covert Conflict	$\tau^{1,3}$	19.88	8	27.54	9	7.66**
	$\tau^{2,3}$	19.88	8	19.96	9	0.08
	$\tau^{3,3}$	19.88	8	21.83	9	1.95
	$\tau^{4,3}$	19.88	8	19.95	9	0.07
	$\tau^{5,3}$	19.88	8	22.89	9	3.01
Externally-Controlled Covert Conflict	$\tau^{1,4}$	16.84	9	24.07	10	7.23**
	$\tau^{2,4}$	16.84	9	18.23	10	1.39
	$\tau^{3,4}$	16.84	9	25.13	10	8.29**
	$\tau^{4,4}$	16.84	9	32.25	10	15.41***
	$\tau^{5,4}$	16.84	9	17.12	10	0.28

Note. * $p < .05$. ** $p < .01$. *** $p < .001$. λ = factor loading; τ = intercept.

Intercepts of the overt conflict subscale were then examined. The majority of intercepts ($\tau^{2,2}$; $\tau^{3,2}$; $\tau^{4,2}$; $\tau^{6,2}$) were found to be inequivalent. Thus, the hypothesis of strong equivalence across groups for the overt conflict subscale was rejected and the weak equivalence model was accepted. Intercepts of the self-controlled covert conflict subscale were examined next. The majority of intercepts ($\tau^{2,3}$; $\tau^{3,3}$; $\tau^{4,3}$; $\tau^{5,3}$; $\tau^{6,3}$) demonstrated equivalence. Only one intercept ($\tau^{1,3}$) was found to be inequivalent; therefore, partial equivalence was demonstrated and strong equivalence was assumed. Finally, the externally-controlled covert conflict subscale was examined. Most factor loadings ($\lambda^{1,4}$; $\lambda^{3,4}$; $\lambda^{4,4}$; $\lambda^{5,4}$) demonstrated equivalence. Only one factor loading ($\lambda^{2,4}$) was found to be inequivalent; partial equivalence was demonstrated and weak equivalence was assumed. However, the majority of intercepts ($\tau^{1,4}$; $\tau^{3,4}$; $\tau^{4,4}$) were found to be inequivalent. Thus, the hypothesis of strong equivalence across groups for the externally-controlled covert conflict subscale was rejected and the weak equivalence model was accepted.

Discussion

The primary purpose of this study was to examine whether co-parenting behaviors, as measured by the Multidimensional Co-Parenting Scale for Dissolved Relationships (MCS-DR; Ferraro et al., 2018), differed based on physical custody arrangements post-divorce. Initial analyses compared parents with three types of physical custody: resident parents, nonresident parents, and those with shared custody. Results indicated strong measurement equivalence between nonresident and shared custody parents on all four subscales of the MCS-DR. This finding suggests greater similarity in item functioning between these two groups than among resident parents. In other words, the factor loadings were comparable and similar across these two groups. This may be beneficial to future research designs because a dichotomous indicator of physical custody status may be better suited to have resident parents as the referent group than nonresident or shared custody parents.

Given similarities in measurement between these groups, post-hoc analyses tested for measurement equivalence between resident parents and a combined group of nonresident and shared custody parents. Findings indicated a difference in perceptions of co-parental conflict (with the exception of self-controlled covert conflict) and support, with residential parents reporting higher conflict and lower support than did parents who either share parenting or are nonresidential. Among the four subscales, only self-controlled covert conflict demonstrated strong equivalence, meaning the construct exists upon the same scale (weak) and demonstrates consistent participant scoring (strong) across groups. It may be that because this construct is the only one that exclusively involves behaviors that exist fully within the control of the participant, parents' experiences with these behaviors are not contextually-dependent in the way that the other behaviors seem to be. Each of the other three subscales are conceptualized to involve behaviors where the locus of control rests either exclusively outside the control of the participant (externally-controlled covert conflict) or involves exchanges in which both parents are active participants (support and overt conflict). Each of these subscales demonstrated weak equivalence. Therefore, future researchers can have confidence in their ability to measure each dimension of co-parenting across parents with varying physical custody arrangements. Despite this weak equivalence, intercept-level differences were present for each of these three subscales.

The support subscale demonstrated inequivalent intercepts across groups. Specifically, resident parents had significantly lower scores on all six items; resident parents also had significantly higher scores on the overt conflict subscale. When considering tests of partial equivalence for overt conflict, only collective behaviors (i.e., “conversations between us are tense and/or sarcastic” and “we express contempt or dislike for each other”) were equivalent. Again, this may involve control. As parents engage in behaviors where they perceive to have at least some agency, significant differences are not found across groups. Theoretically, the influence of structural characteristics (such as custody status) may help explain this phenomenon (Pearlin, 1999). Specifically, the impact of control on an individual’s experience of stress may be exacerbated in contexts involving substantial variation in one’s social capital or power differentials among individuals (Avison & Cairney, 2003), both of which would characterize the experience of post-divorce life as a resident parent versus a nonresident or shared custody parent.

When examining partial equivalence for the externally-controlled covert conflict scale, the two items involving child behavior (i.e., “when we argue, our child takes sides” and “our child joins in or takes sides when my former partner and I disagree”) were the only two items found to have invariant intercepts. Although these items may not directly imply agency, parents may see these behaviors as existing outside the control of either parent or, by contrast, involving collective control similar to the overt conflict items that demonstrated invariance. However, collective behavior can only explain part of the phenomenon. Supportive behaviors unanimously had varying intercepts across groups even though the items were indicative of collective behavior (e.g., “we support each other during difficult parenting decisions”). It may be that the nature of behaviors we typically associate as supportive fundamentally involve differences based around structural considerations. A nonresident parent or parent who shares custody is more dependent upon their former spouse to be actively involved in childrearing than is a resident parent. It could also be that nonresident and/or shared custody parents who experience unsupportive co-parenting are less likely to be substantively involved in childrearing, and in turn are less likely to participate in research altogether. As such, parents who participate in research could disproportionately reflect a subset of resident parents who act as traditional gate blockers (a form of gate closing) or those with greater power and resources within the relationship who actively stymie involvement of their nonresident counterparts (see Puhlman & Pasley, 2013). This may or may not be a direct result of existing dynamics put in place by the courts due to problems regarding the nonresident parent that the courts identify.

By contrast, the nonresident or shared custody parents who do participate in this research may be more likely to have counterpart resident parents that facilitate their continued interaction (i.e., gate openers; Van Egeren & Hawkins, 2004). This dynamic is consistent with some research suggesting that the nature of resident parents’ gatekeeping behaviors (including a range of behaviors from gate opening to gate closing) is linked to their self-perceptions of control or power in their relationships with former spouses (Seery & Crowley, 2000). Nonresident parents consistently cite gate closing behaviors as impediments to their continued involvement (Puhlman & Pasley, 2013; Trinder, 2008). As such, the group of nonresident and shared custody parents who stay involved in the lives of their children and elect to participate in research may represent only a subsample of parents with these physical custody arrangements.

Limitations

There are limitations regarding interpretation of the current findings, including the phenomenon of response bias. Since divorce is an adversarial process, with continued custody disputes a possibility, parents may be concerned about admitting their conflictual behaviors. Future research may be aided by further educating parents as to safeguards of the data collection process, reassuring them of the anonymity of their responses, and continued advocacy for change in legal policies related to disclosure. Furthermore, as previously stated, there is the distinct possibility that nonresident and shared custody respondents represent only a subsample of parents. It may be worthwhile for future research to explore how gatekeeping may impact co-parenting behaviors among parents from varying physical custody arrangements, with an effort made towards targeting nonresident or shared custody parents reporting high levels of overt conflict, high levels of externally-controlled covert conflict, and/or low levels of support. This study also did not consider reasons for the custody determinations the courts granted. Although parents with existing orders of protection were excluded from analyses there still may be a subset of resident parents whose perceptions of conflict are based on factors that remain outside their control.

Another noteworthy limitation is the size of the nonresident and shared custody groups. Although each group separately met minimum thresholds for both gross and sample-to-item ratio sample size recommendations (see Kline, 1979; Sapnas & Zeller, 2002), the existing sample would not meet more stringent sample size guidelines. However, the post-hoc analyses that presented a combined group of nonresident and shared custody parents did meet more stringent standards (see Costello & Osborne, 2005; Gorsuch, 1983), thus giving greater confidence to results of these analyses. However, generalizability of these findings should be noted, considering that the sample members in this study were primarily White, employed, and highly educated. Future research may consider larger, more diverse samples of participants and/or the utilization of a community-based sampling strategy.

Implications

Despite these limitations, the current study provides important insight into the post-divorce process and co-parenting dynamics among parents during this highly volatile time. Most states currently recognize the importance of maintaining involvement of both parents in the lives of their children following divorce (DiFonzo, 2014). However, research also indicates that the intrinsic power tied to being a resident parent post-divorce can often lead to the nonresident parent's dependence upon the resident parent's discretion and influence (Allen & Hawkins, 1999), especially when making childrearing decisions (King, 2006). The basis for this influence is also important to recognize. Courts prefer that parents create parenting agreements on their own. In cases where court intervention is necessary and determination of sole physical custody for one parent is deemed in the child's best interest, there are often issues that would make restriction of access understandable and reasonable (e.g., substance abuse, domestic violence, or mental illness). As such, a better understanding of issues preceding the divorce and an understanding of whether or not the divorce was contested are worthwhile considerations for future research.

This study suggests there may be substantive differences in the experience of co-parenting behaviors that fall outside the control of oneself. Hence, divorce education programs may concentrate on programming relative to contextual factors of those parents and potential influences on child adjustment. For resident parents, determining and seeking to resolve foundations of the conflict and then focusing on how parents can develop an open, accessible environment allowing for greater supportive behaviors for children from both parents may minimize more overtly conflictual interactions (if safe and appropriate). For nonresident parents and parents who share custody, it may be useful to have programming designed to specifically target behaviors that are exclusively within their own control.

Theoretically, conditions that accompany being a nonresidential parent or sharing physical custody can reflect structural constraints or “reduced opportunities, choices, or alternative results from severe or non-self-limiting social disadvantage” (Wheaton, 1999, p. 281). This social disadvantage can alter the ways one experiences a highly turbulent period of divorce, with an imposed and unwanted lack of control serving as a form of socio-ecological stress (see Milkie, 2010). Physical custody status is an important contextual factor to account for because the experience of co-parenting may be tied, in part, to parents’ control and power associated with that arrangement. Whether this control manifests in gate-closing behaviors by the resident parent and regardless of whether these gate-closing behaviors may be warranted based upon the conduct or situation of the resident parent, divorce educators and courts should recognize that parents may perceive fundamental differences in the experience of co-parenting and that the context of these interactions matters. Implications of this difference include an inherent limit in the utility of a “cookie-cutter” approach to divorce education. Another implication is support – in terms of referrals for other interventions – for efforts to ensure divorce educators tailor their training to individuals and specific problems in the family whenever possible.

Divorce educators should also understand that custody decisions may already have been put in place by the courts before the parents engage in their programs. Thus, the parent may already have well-justified perceptions of the new parenting dynamic before the first class, limiting the utility of any type of standardized approach. Although educators may already have intuited that parents have differences, our data provide some evidence of these differences. Recognizing and addressing these challenges in an effort to enhance existing dynamics represents a critical point for intervention, with research consistently noting the link between co-parenting conflict and the behavioral and emotional well-being of children post-divorce (Barber & Demo, 2006; Stallman & Ohan, 2016). Furthermore, overt and covert conflict are both negatively linked with continued involvement of parents in childrearing (Bruce & Fox, 1999; Henley & Pasley, 2005; Petren et al., 2017), with a lack of consistent involvement post-divorce among the most prevalent contributors to children’s long-term maladjustment (Ahrons, 2007). By targeting specific aspects of the co-parenting relationship post-divorce and understanding contextual constraints that dictate that relationship, we may be able to make decisions that have long-term impact on children’s adjustment to divorce.

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