A multidimensional measure of father involvement among low-income families:
Who is a reliable and valid reporter?

Daphne C. Hernandez & Rebekah Levine Coley

Applied Developmental and Educational Psychology
Lynch School of Education
Boston College
140 Commonwealth Ave.
Chestnut Hill, MA 02467
hernandf@bc.edu
p: 617-552-1981
f: 617-552-6018

A multidimensional measure of father involvement among low-income families:
Who is a reliable and valid reporter?

Abstract

This study assesses measurement issues in survey reports of father involvement. Analyses assessed the internal reliability and predictive validity of a multi-dimensional measure of father involvement, reported separately by fathers and mothers ($N = 227$). Reliable composites of father involvement were structurally similar across father versus mother reports and across resident versus nonresident and African American versus Latino fathers. Both father and mother reports, as well as a combined reporter composite, showed significant relations to children's cognitive achievement and, less consistently, to children's behavioral functioning. Multiple group structural equation models indicated invariance in the predictive validity of father versus mother reports. Results suggest that relatively simple survey questions can be used to create reliable and valid measures of father involvement.

KEYWORDS: father involvement, low-income families, measurement, multiple group structural equation modeling, multiple reporters

Introduction

Historically, research on fathers and their role in child development and family functioning has been minimal, with family process research attention focused primarily on mothers' well-being, parenting, and reports of child development. Over the past two decades, interest in delineating how fathers influence children's lives has grown dramatically. Greater attention is now being directed at improving theoretical, measurement, and methodological standards and sophistication in the arena of modeling fathers' roles in families (e.g., Day & Lamb, 2004; Federal Interagency Forum on Child and Family Statistics, 1998). Researchers now recognize that fathers play an important multi-dimensional role in their children's lives (Cabrera, Tamis-LeMonda, Bradley, Hofferth, & Lamb, 2000; Lamb, 2000), yet, researchers are struggling to capture the complex domain of father involvement with the currently available data and methodology (Coley, 2001). Previous research that has attempted to measure father involvement has been plagued by several methodological challenges, including the reliability and validity of mother reports; the recruitment, retention, and validity of fathers in research studies; and the predominant generalization of fathering based on middle-class, European-American, married or divorced families (Braver, Fitzpatrick, & Bay, 1991; Cabrera et al., 2004; Pasley & Braver, 2004). Below these limitations are discussed along with recent advances in attempts to overcome these challenges.

Mothers as Reporters of Father Involvement

Much of the extant research on parenting has been conducting using mother reports of parenting behavior due to the predominant inclusion of mothers (as primary caregivers) and exclusion of fathers in data collection efforts.   Somewhat paradoxically, this is even the case in much research focused specifically on issues of father involvement (e.g., Carlson & McLanahan,

2004; Furstenberg & Harris, 1993) . Even in recent federally funded large-scale data collection efforts, such as the National Longitudinal Study of Adolescent Health (AddHealth) and National Longitudinal Survey of Youth 1997 (NLSY97) as two examples, priority for choosing the responding parent begins with the mother or female guardian (University of North Carolina, Carolina Population Center, 2004). Yet, many have questioned whether mother reports on father involvement are biased and whether mothers might underestimate or misrepresent fathers' behaviors and parenting contributions, making the information less valid (Braver, Fitzpatrick, & Bay, 1991; Coley & Morris, 2002; Sonenstein & Calhoun, 1990). There has been a concern that relying solely on mothers for information on fathers' parenting behaviors leads to a *gender deficit* model, where a father's perspective and experiences are invalidated as a result of being excluded from the research study (Pasley & Braver, 2004). This gendered context can result in two forms of potential bias: a "self-serving" bias, where a socially desirable behavior is described (Miller & Ross, 1975; Sicoly & Ross, 1977), and an other-deprecating bias where less desirable behavior is depicted (termed an "ex-spouse bashing" bias by Braver, Fitzpatrick, & Bay, 1991)., In short, there are numerous validity and reliability concerns regarding the use of mother reports of fathering behaviors.

Fathers as Reporters of Father Involvement

In response to concerns over the reliability and validity of mother reports on father involvement, some point to the need to use fathers' reports of their own behaviors in research, assuming that self reports will better capture the reality of fathers' behaviors (Coley, 2001; Marsiglio, Amato, Day, & Lamb, 2000). However, the scarcity of available data from fathers, difficulties in recruiting and retaining fathers, and some concerns over the reliability and validity of father reports prohibit the implementation of this suggestion on a broad scale.

Among recent efforts to engage fathers in research, many studies have struggled with accessing fathers and achieving acceptable response rates. For instance, The National Survey of Families and Households (NSFH), a nationally representative data set that represents adult women, men, and their families, was able to identify 9.4 million mothers compared to 5.6 million fathers, suggesting the omission of approximately 4 million fathers (Garfinkel, Miller, McLananhan, & Hanson, 1998). Even the Fragile Families and Child Wellbeing Study, which has achieved an exceptional response rate of 88% for married and 75% for unmarried fathers at the time of the child's birth, finds a significant decrease in sample retention over time (lowering to 81% of the original married sample and 67% of the unmarried sample by the one year follow-up; Princeton University, Bendheim-Thoman Center for Research on Child Wellbeing, 2003). Low response rates lead not only to small samples, but also to heightened concerns over the influence of nonresponse bias, which inhibits the validity of the information. Nonresponse bias can arise when participants in a study differ from those who do not participate (Schaeffer, Seltzer, & Dykema, 1998). Fathers who participate in a study may be more involved and stable than nonparticipants, and hence the data may over-represent positive involvement (Seltzer, 1991).

Moreover, father reports of their own behaviors may be influenced by a self-serving bias (Miller & Ross, 1975; Sicoly & Ross, 1977). Just as mothers may be biased toward underreporting fathering behavior, father reports may be biased upward, influenced by new conceptions of engaged fathering. Hence, many researchers wishing to study father involvement face a tradeoff between (1) employing mother reports of father involvement using large, representative samples of families but relying on an outside reporter who may provide biased or uniformed information or (2) using presumably more reliable and valid reports from fathers

themselves, but having a smaller and less representative sample and still facing concerns over measurement reliability and validity.

Comparisons Between Reporters

A handful of studies have directly compared mother and father reports of fathering behaviors to assess biases and discrepancies. Such comparisons have shown father and mother reports to be correlated (e.g. Braver, Wolchik, Sandler, Fogas, & Zvetina, 1991; Braver, Wolchik, Sandler, Sheets, Fogas & Bay, 1993; Seltzer & Brandreth, 1994; Smock & Manning, 1997), with fathers typically reporting greater involvement than reported by mothers (Braver, Fitzpatrick, & Bay, 1991; Coley & Morris, 2002; Schaeffer, Seltzer, & Klawitter, 1991). However, such basic comparisons provide little information on which report might show bias or in what manner. Initial efforts to disentangle the reliability of mother and father reports of father involvement have taken numerous tactics. For example, Smock and Manning (1997) compared the reliability of father and mother reports of child support by constraining the predictors of child support payments across reporters. Results indicated that noncustodial (father) and custodial (mother) parents' reports of child support did not differ significantly. Furthermore, parent and household characteristics predicted the two reports similarly, suggesting similarity in the reliability of each reporter. Recent research by Coley and Morris (2002) attempted to address in greater detail discrepancies in father and mother reports of father involvement by using paired HLM models to assess discrepancies within families. Results indicated greater discrepancies were present in father and mother reports of father involvement when high levels of parental conflict were present, parents did not co-reside, and parents had greater human capital. However, lacking an objective outside measure of father involvement, the studies noted above were not able to assess which report was more "correct" or valid. One method of assessing

validity is to consider predictive validity, that is whether a measure relates in expected ways to other measures with known measurement characteristics. For example, based upon a host of research indicating that greater positive father involvement predicts heightened cognitive skills and socio-emotional functioning among young children (e.g., Black, Dubowitz, & Starr, 1999; Shannon, Tamis-LeMonda, London, & Cabrera, 2002), one could compare the predictive validity of father versus mother reports of father involvement to child functioning to assess which report shows greater validity.

Other Measurement Issues Concerning Father Involvement

Although past research helps to understand discrepancies in father and mother reports and begins to address issues of reliability, central questions remain concerning the generalizability, reliability, and validity of reports of father involvement. One overarching measurement concern relates to the construct validity and generalizability of survey reports of father involvement (Palkovitz, 2002). Few survey measures of parenting or involvement are available that have been developed and normed on populations of fathers, with an even more elevated dearth of information on minority fathers. This has led to what Parke and Buriel (1998) term a Euro-centric bias. Given the increasing racial and ethnic diversity in the U.S. and the potential influence of cultural norms and beliefs which may lead to different patterns of fathering between racial and ethnic subgroups (Hernandez, 1999; Hernandez & Charney, 1998), greater attention is needed to the reliability of measures across subgroups. In addition, father involvement has been conceptualized and measured very differently across research on resident versus nonresident fathers. Research on nonresident fathers is more likely to focus on the *quantity* of basic inputs, such as financial support and time (e.g., Rettig, Christensen, & Dahl, 1991), whereas research on resident fathers more often addresses the *quality* of parenting, such as warmth or particular

7

parenting activities (e.g., Doherty, Kouneski, Erikson, 1998; Lamb, Pleck, Charnov, & Levine, 1987; Lamb, 1997). Little research has addressed whether conceptions or measures of father involvement may be reliable and valid across resident and nonresident fathers. Given the fluidity and instability of family life in current American society, however, efforts toward longitudinal and comprehensive views of fathering require measures that can capture father involvement across these two family structures.

In order to work towards measures of father involvement that will show reliability and validity across subgroups of families, recent scholarship (Coley, 2001; Doherty et al.,1998) has called for the inclusion of more multidimensional conceptual models that are built upon theory and include central aspects of father involvement delineated in extant research with the populations under consideration. Recently there has been an emphasis on "responsible" fathering, especially when focusing on nonresidential fathers' involvement with their children (Doherty et al., 1998; see also Mincy & Puncy, 2002). The conceptual model that surrounds the responsible fathering framework focuses on paternity, presence, economic support, and involvement (Doherty et al., 1998). Qualitative research, particularly with disadvantaged and noncustodial fathers, has supported the centrality of these aspects of fathering (Nelson, Clampet-Lundquist, & Edin, 2002). Moreover, other prevalent conceptual models of fathering developed primarily with married samples parallel the responsible fathering framework. For example, Lamb's (1997) model delineates fathers' accessibility, which overlaps with presence; fathers' responsibility, which incorporates economic support as well as responsibility for child's care and support for the broader family system; and direct engagement or involvement. Much research on fathering has focused on only one of these domains, resulting in a lack of research and theory building that is comprehensive and that cuts across residential and nonresidential fathers and

different ethnic groups. Using the major domains of the responsible fathering framework to build a theoretically-based, multi-dimensional model of father involvement from simplistic survey measures should help to address construct validity and internal reliability concerns.

An additional technique for both increasing reliability and addressing response and nonresponse bias in reports of father involvement is to combine information from multiple sources. Such *triangulation* of information decreases concerns over reporter bias and shared method variance, and hence might lead to greater reliability in measurement (Pasley & Braver, 2004).

The Present Study

In order to build upon and extend methodological research on father involvement, this study seeks to assess the reliability and validity of multi-dimensional father report and mother report survey measures of father involvement in low-income and predominantly African American and Latino families with preschool-age children. Matched pairs of fathers and mothers (each sharing biological parentage to a particular focal child) reported on father involvement. Analyses address three goals: (1) To assess and compare the internal reliability of a theoretically-based, multi-dimensional model of father involvement from father and from mother survey reports. The reliability of the measure for subgroups, including resident and nonresident fathers, and African American and Hispanic fathers, will also be assessed to assure the comparability and cultural reliability of the measure; (2) To compare the predictive validity of father reports and of mother reports of father involvement to children's cognitive and socio-emotional well-being. (3) To assess whether the triangulation of information, that is combining father and mother reports, gives added value, improving the reliability and validity of the measurement.

Across these efforts, we will also attempt to partial out the possible influence of other aspects of fathers' inputs to children and of child characteristics in order to better isolate the direct link between father involvement and child well-being. Fathers' human capital characteristics, including employment and education, is one important arena. Fathers' human capital characteristics have been shown to influence father involvement, with fathers with greater education and employment stability being more involved in parenting (Carlson & McLanahan, 2004; Coley & Chase-Lansdale, 1999; Landale & Oropesa, 2001; Seltzer, 1991). Fathers' human capital has also been shown to influence child development directly (Amato, 1998). Similarly, research has indicated that child characteristics, particularly child age and gender, are related both to father involvement (Harris & Morgan, 1991; Marsiglio, 1991; Lerman, 1993) and to child well-being (Biller, 1993; Coley, 1998). Hence, it is important to model these characteristics of fathers and children when attempting to isolate the direct relationship between father involvement and child functioning.

Method

Sample

Data are drawn from *Welfare, Children, and Families: A Three-City Study*, a multicomponent study of the well-being of low-income children, families, and communities in the wake of welfare reform. The primary component of the Three-City Study is a stratified, random sample survey of over 2,400 low-income (family income of 200 percent or less of the poverty line) children and adolescents (ages 0-4 years and 10-14 years) and their primary female caregivers (termed mothers, as over 90% were biological mothers) in low-income neighborhoods in Boston, Chicago, and San Antonio. Survey families and one focal child per family were randomly selected from over 40,000 screened households with a screening response rate of 90

percent and an interview response rate of 82.5 percent. Mothers and older children were interviewed, and direct cognitive assessments were conducted with all children aged 2 and above.

A second component of the Three-City Study is the Embedded Developmental Study (EDS), developed to capture in much greater detail the primary environments and caregivers in young children's lives. All 2 to 4 year old focal children from the main survey sample (n = 737) were invited to participate in the EDS. In one component, mothers participated in additional interviews, with a response rate of 85 percent. Another component included in-person interviews with biological fathers of the focal children. To gain access to fathers, each EDS focal child's mother was asked for permission to contact the child's biological father and asked to provide contact information. The current study focuses on children who had contact with their biological father within the year preceding the study. Of this group ($n = 563$), 21 percent of mothers refused permission to contact the father and 10 percent could not provide identity or contact information. Eight percent of fathers refused to participate, and 14 percent either could not be located or were not accessible (e.g., incarcerated or living out of the country). In total, 47 percent of fathers participated (74 percent of residential fathers and 38 percent of in-contact nonresidential fathers). After accounting for missing data, the final sample included 227 preschool-aged children who had interview data from fathers and mothers and direct assessments of child well-being. Attrition analyses which compared families who were included in the analyses versus those who were excluded found no differences between the samples on child age or gender, mother education, or household income. However, mothers in included families reported greater hours of employment, and reported that fathers were more close to and more responsible for the care of the focal child (all $p < .001$) in comparison to excluded families.

Probability weights are available for the Three-City sample which adjust for the sampling strata as well as for nonresponse. The use of the weights makes the sample representative of children in low-income families in low-income neighborhoods in Boston, Chicago, and San Antonio.

Data Collection

For the current subsample of families, professional, experienced interviewers collected approximately four and one half hours of data on each family through surveys and assessments. All interviews and assessments were conducted individually in the respondent's home. Interviews were also translated (and verified with back-translations) into Spanish, and this version was used by approximately 12 percent of the families. All respondents were paid for their participation in the study, and assured confidentiality through consent forms and standardized human subjects approval.

Measures

Father involvement. To build a multidimensional measure of father involvement, fathers and mothers each reported on a set of six identical items regarding father involvement with the focal child. Items were drawn from the Baltimore Multigenerational Family Study (Coley & Chase-Lansdale, 1999) and the Early Head Start father study and were designed to be relevant for residential and nonresidential fathers. Good psychometric properties have been reported, including high levels of internal consistency, face validity, and divergent reliability (Coley & Chase-Lansdale, 1999).

The items mapped onto conceptions of responsible fathering and assessed fathers' presence/accessibility, economic support/responsibility, and involvement. Three of these items -- (1) "How much responsibility does [father] take for raising child?" (2) "How much does [father's] help with financial and material support of child help [mother]?" and (3) "How much

does [father's] involvement make things easier for [child's mother] or make [her] a better parent?" -- were measured on a 4-point Likert scale raning from 1 = *none* to 4 = *a lot*. The other three items -- (4) "How many hours per week does [father] take care of child?" (5) "How often does [father] see or visit with child?" and (6) "How often does child see or visit with [father's] family?" --were measured on different scales (number of hours, a 6-point scale, and a 5-point scale, respectively) and were collapsed into 4-point scales for consistency with other items.

Covariates. Central child and family demographic characteristics were used as covariates due to their association with father involvement and children's developmental outcomes. Mothers reported on child characteristics. Child gender was coded as a dichotomous variable with girls omitted, while child age is a continuous variable. Fathers reported on their own education and employment. Education is coded 1 = *8th grade or below* to 8 = *college degree or higher* scale. To capture fathers' history and stability of employment, five indicators of employment were measured: the number of years since the age of 16 that he had worked at least some time during the year, and the years in which he had worked consistently, each coded as a proportion score; the number of months he had worked a steady job and the number of months he had worked at all within the past two years, coded as the number of months (0 – 24); and the total number of hours currently worked per week. The five variables were standardized and averaged to create a composite of fathers' employment stability (see Coley & Hernandez, 2004 for reliability information). Because father's residential status is incorporated into the measure of father involvement, residential status is not used as a separate covariate.

Child Cognitive Development. Children's cognitive achievement was directly assessed using the Letter-Word Identification and Applied Problems subscales of the Woodcock-Johnson Psycho-Educational Battery Revised (WJ-R) to assess Reading Skills and Math Skills,

respectively. Standardized scores were calculated for both subscales using the methods and norms outlined by the authors (Woodcock & Mather, 1989; Woodcock & Mather, 1990; Woodcock & Munoz-Sandoval, 1996).

Child Positive Behaviors. Fathers and mothers reported on six items drawn from the New Chance Demonstration (Quint, Bos, & Polit, 1997) that reflect their child's positive behaviors. Items assessed the child's mood, positive regard by peers, concern for others, display of pride, ability to calm down when upset, and ability to cooperate, on a scale from 1 = *not at all like this child* to 5 = *completely like this child*. Factor analyses indicated that all items loaded on one factor, and composite scores were calculated by taking a mean of all six items for each reporter. Internal reliability of the measure was adequate, Cronbach alphas = .65 for fathers and .77 for mothers.

Child Problem Behaviors. Fathers and mothers completed the Child Behavior Checklist (CBCL) (Achenbach, 1991, 1992) to assess child emotional and behavioral functioning in internal and external realms. The CBCL/4-18 was used for the four-year-old children in the sample and the CBCL/2-3 for the younger children. Fathers and mothers were asked to rate on a scale from 0 = *not true* to 2 = *very true or often true* the extent to which their child exhibits 113 specific behaviors. Eight syndromes were assessed: withdrawn, somatic complaints, anxious/depressed, social problems, thought problems, attention problems, delinquent behavior, and aggressive behavior, which collapse into two primary subscales, internalizing and externalizing behavior problems (alphas = .87 and .89 for mothers' reports of internalizing and externalizing, and .85 and .89 for fathers' reports). Achenbach (1991) has provided evidence for the content, construct, and criterion validity for the measure.

The six measures of child behavior problems (mother and father reports of positive behaviors, internalizing, and externalizing) were combined into one latent measure of behavior problems, in order to ease concerns over shared error variance in the path models discussed below. Confirmatory factor analysis (CFA) confirmed a strong fit to this latent construct (χ^2 (7, $N = 227$) = 20.01, GFI = .97, CFI = .97, TLI = .93), with all indicators loading on the latent construct $p < .01$ (results not shown).

Sample Characteristics

Table 1 presents descriptives on all study variables for the sample as a whole and separately by fathers' residence status. Forty-two percent of children were boys and averaged approximately 3 1/2 years of age for the full sample, nonresidential father sample, and the residential father sample. Fathers averaged an education level of just less than a high school diploma, with residential fathers reporting just over a high school diploma on average. Residential fathers displayed greater employment stability compared to nonresidential fathers. To provide more description of the sample (data not shown), fathers averaged 30 years old, and 45 percent were African-American, 47 percent were Hispanic, and 7 percent were non-Hispanic white. Mothers' age averaged 27 years, mother reported just less than a high school diploma, and 45 percent of the mothers were employed. Forty-one percent of mothers were African American; 54 percent were Hispanic, and 5 percent White. Thirty three percent of the couples were married, and an additional 17 percent were cohabitating. Seventy-four percent of the families had incomes below the federal poverty standards, and 33 percent of the families were receiving cash welfare payments. Average time between the mother and father interviews was one month.

Statistical Methods

To address measurement reliability and validity concerns, structural equation modeling (SEM, using the program AMOS 4.0; Arbuckle, 1999) was used to construct multi-dimensional measurement models of father involvement from father reports, from mother reports, and from the combination of both. SEM models were also used to test causal paths between father involvement and child outcomes. Structural equation modeling has many advantages over traditional analytical techniques for assessing measurement issues. First, SEM allows researchers to used observed variables to construct unobserved (latent) constructs, which have the strength of correcting for measurement error and thus creating a "true score" of a construct. In regards to the father literature, this is a significant advantage as it allows researchers to move away from using traditional, narrow measures of father involvement (e.g. financial contributions or visitation) and build broader, more theoretically-based multi-dimensional constructs of father involvement. Second, using maximum likelihood (ML) estimation, SEM generates parameter estimates for multiple variables in a model which are calculated simultaneously, allowing testing of a causal model and of predictive validity from father involvement to child well-being. Finally, multiple group analysis in SEM allows one to test the equality of models across multiple population groups (e.g. fathers versus mothers) by testing for group invariance. In a multiple group analysis, a particular model is estimated simultaneously for two groups. By applying cross group equality constraints, chi-square estimates can be compared to see whether parameter estimates vary across groups (Bryne, 2001).

Analyses were conducted in six steps. First, the six father involvement items were subjected to a principal components factor analysis for each reporter. Second, confirmatory factor analysis (CFA) was conducted through SEM measurement models to confirm the factor

structure and further assess model fit for each reporter separately. Third, multiple group analysis was used to investigate whether the composite of father involvement varies across reporter by applying cross group equality constraints (Bryne, 2001). Multigroup modeling was also used to assess whether the measurement models were invariant across residence status and race/ethnicity. Fourth, path models were used to compare the predictive validity of the father involvement composites to child functioning, again using individual father and mother reports. Fifth, multiple group path analysis was again used to test whether parameter estimates between father involvement and child outcomes are invariant across father and mother reports. Finally, both the CFA and path models were run using a combination of father and mother reports of father involvement to assess whether the fit and predictive validity improved through the use of multiple reporters.

The fit of the SEM models was evaluated using the chi-square statistic, which is sensitive to sample size, as well as the goodness of fit index (GFI), the comparative fit index (CFI), and the Tucker-Lewis index (TLI). The GFI is considered an absolute fit index as it measures the proportion of model fit improvement in the hypothesized model compared to no model at all. The GFI is roughly similar to the square multiple correlation in SEM (or the R^2 in multiple regression) as it attempts to explain the proportion of observed correlations in the model. Values range from 0.00 to 1.00, with values closer to 1.00 considered a good fit (Hu & Bentler, 1999). On the otherhand, CFI and TLI are considered incremental fit indices, as they both compare the hypothesized model to a more restricted baseline model (Hu & Bentler, 1999). Values close to or greater than .95 demonstrate a superior fit (Hu & Benter, 1999).

In all SEM analyses, correlations among predictor variables were allowed when indicated by the bivariate correlations and model statistics. The whole sample analyses were run both

weighted and unweighted. However, due to analytic constraints, multi-group models could not be run with weighted data. The weighted models for the whole sample produced similar findings to the unweighted models, with essentially identical patterns of significant structural regression paths indicating the same substantive relationships among variables. Note that all results described below report unweighted analyses, to provide consistency across the whole group and multi-group models.

<div align="center">Results</div>

Descriptives of Father Involvement

Table 1 displays descriptives on the father involvement measures from father and mother reports. T-tests revealed that father reports were significantly higher than mother reports for each father involvement variable ($p < .05$ or better) except level of contact. Comparisons by residence status found higher involvement for resident than nonresident fathers on all six variables both within father reports (all $p < .001$) as well as within mother reports (all $p < .001$).

Measurement Reliability of Father and Mother Reports of Father Involvement

Principal components factor analyses were run with father reports and then with mother reports of father involvement. Results indicated that all six items from each reporter loaded onto one factor, with good internal reliability ($\alpha = .82$ for father reports and .87 for mother reports). Next, Confirmatory Factor Analysis (CFA) measurement models were run to confirm the factor structure, with results presented in Table 2. The top left panel presents unstandardized and standardized path coefficients from the model assessing father reports of father involvement, with the panel below presenting the same data from the model assessing mother reports of father involvement. For both models, all six father involvement items loaded significantly onto the latent construct ($p < .001$), and fit statistics indicated an overall good fit with the data despite a

<div align="center">18</div>

significant chi-square value, χ^2 (8, $N = 227$) = 22.46, GFI = .97, CFI = .97, TLI = .95 for fathers

and χ^2 (9, $N = 227$) = 19.98, GFI = .97, CFI = .99, TLI = .98 for mothers.

To test for group invariance, factor loadings and variance were constrained across father

and mother models using multiple group modeling. Fit statistics were compared between the

unconstrained and constrained models (Bryne, 2001). Results indicated that father and mother

reports of father involvement were invariant ($\Delta\chi^2$ = .97, Δdf = 5, *ns*), implying that the parameter

estimates across groups were equal and that father and mother reports were assessing father

involvement similarly.

Testing for Invariance across Residence Status and Ethnicity

Invariance across residence status. CFA models were then run separately by fathers'

residence status. Results indicate that all six items loaded significantly onto the latent construct

of father involvement and fit statistics were good based on father [χ^2 (8, $N = 227$) = 16.92, GFI

= .95, CFI = .97, TLI = .94] and mother [χ^2 (9, $N = 227$) = 9.05, GFI = .97, CFI = 1.00, TLI =

1.00] reports of nonresidential fathers' involvement. For residential father models, the *contact*

variable was taken out of the measurement model since fathers' residential status is incorporated

into this variable. The remaining five items significantly loaded on the construct of father

involvement and strong fit statistics were present for father [χ^2 (5, $N = 227$) = 4.63, GFI = .98,

CFI = 1.00, TLI = 1.00] and mother [χ^2 (5, $N = 227$) = 7.49, GFI = .97, CFI = .98, TLI = .96]

reports of residential fathers' involvement.

Multiple group assessment was then used to test whether the father involvement construct

significantly varied within reporter across residence status (e.g., nonresidential fathers vs.

residential fathers), as well as across reporters within residence status (e.g., nonresidential fathers

vs. nonresidential mothers). For the models within reporter the *contact* variable was set to 0 in the residential model. Results indicated invariance in models comparing father and mother reports of nonresident fathers ($\Delta\chi^2 = 4.67$, $\Delta df = 5$, *ns*), father and mother reports of resident fathers ($\Delta\chi^2 = 5.58$, $\Delta df = 4$, *ns*), and mother reports of nonresident versus resident fathers ($\Delta\chi^2 = .81$, $\Delta df = 4$, *ns*). Comparisons of nonresident versus resident father reports showed significant variance ($\Delta\chi^2 = 11.23$, $\Delta df = 4$, *p* < .05). One factor loading at a time was constrained to isolate this finding, with results indicating that the *hours* variable differed between the nonresident father and resident father models ($\Delta\chi^2 = 9.71$, $\Delta df = 1$, *p* < .01), with a higher loading for nonresident than resident fathers, although both were statistically significant (*p* < .05). Due to consistency (e.g., invariance) across 3 of the 4 model specifications, further analyses included all six indicators of father involvement, and combined resident and nonresident fathers.

Invariance across ethnicity. Confirmatory factor analysis and multi-group analysis were also used to test for cross-ethnic equivalence using the same methods described above. African American and Latino fathers were compared (the sample size prohibited a separate assessment of the white fathers). Results indicated invariance across ethnic groups in the measurement of father involvement [($\Delta\chi^2 = 7.34$, $\Delta df = 5$, ns) comparing Hispanic fathers with African American fathers, ($\Delta\chi^2 = 6.66$, $\Delta df = 5$, ns) comparing mother reports of Hispanic fathers versus African American fathers, [($\Delta\chi^2 = 0.00$, $\Delta df = 5$, ns) comparing Hispanic father and mother reports, and [($\Delta\chi^2 = 0.00$, $\Delta df = 5$, ns) comparing African American father and mother reports],, supporting the cultural equivalence of the measure and its use in these populations.

Predictive Validity of Father and Mother Reports of Father Involvement

The next set of analyses assessed the predictive validity of the father reports and mother reports of father involvement through path models using the latent measure of father involvement to predict children's reading skills, math skills, and behavioral functioning. Separate models were run for father reports and for mother reports, across each of the three child outcomes. In each model, the covariates-- child gender, child age, father education, and father employment-- were entered with paths directly to father involvement and to child outcomes. Figure 1 shows an exemplar of the model that was tested. Nonsignificant (p > .05) paths from covariates were trimmed, with covariates with no significant paths dropped from the final model. Table 3 presents unstandardized and standardized path coefficients for each of the final models.

Results from the models predicting children's reading skills are presented in the first panel of Table 3. Fit indices suggested a good fit for the model employing father reports[χ^2 (33, N = 227) = 64.93, GFI = .95, CFI = .95, TLI = .93] and for the model employing mother reports [χ^2 (33, N = 227) = 41.76, GFI = .97, CFI = .99, TLI = .99], although only father reports of father involvement showed a significant positive relation to children's reading skills. The next panel in Table 3 shows results from models predicting children's math skills. Both models produced strong fit indices [χ^2 (25, N = 227) = 49.48, GFI = .95, CFI = .96, TLI = .94 for fathers and χ^2 (25, N = 227) = 34.08, GFI = .97, CFI = .99, TLI = .98 for mothers], and both father reports and mother reports of father involvement were significantly positively related to children's math skills. The final panel in Table 3 presents results from models using the latent construct of children's behavior problems. Both father report and mother report models showed a good fit with the data [χ^2 (59, N = 227) = 94.04, GFI = .94, CFI = .97, TLI = .95 for fathers;

χ^2 (62, N = 227) = 92.45, GFI = .94, CFI = .97, TLI = .97 for mothers], but only father reports

of father involvement were significantly negatively related to children's behavior problems.

Invariance in Predictive Validity

After testing the predictive validity of the father reports and mother reports of father

involvement separately, multiple group modeling was used to assess whether the paths from

father involvement to children's outcomes were invariant between the father and mother report

models. Recall that both reports were significantly related to children's math skills, whereas

only father reports were significantly predictive of children's reading skills and behavior

problems. However, multiple group modeling indicated that for all three child outcomes, the

paths were invariant [($\Delta\chi^2 = 0$, $\Delta df = 4$, *ns*) for reading skills; ($\Delta\chi^2 = 0$, $\Delta df = 3$, *ns*) for math

skills; ($\Delta\chi^2 = .15$, $\Delta df = 3$, *ns*) for behavior problems], indicating that father and mother reports

of father involvement show similar predictive validity. Multi-group analyses were also

conducted across residential status and ethnicity, with results again indicating invariance across

groups (results not shown).

Combined Reporter Models

Combined reporter measurement models. The final set of analyses investigated whether

triangulation of reporter information adds value, and thus increases the reliability or predictive

validity of the constructed model of father involvement. In these analyses, both father and

mother reports on each of the six indicators were combined into one latent construct of father

involvement (12 indicators total), shown in Figure 2. Results from the CFA are presented in the

final panel of Table 2, showing significant paths (all *p* < .001) from all the indicators to the latent

construct of father involvement. The combined model showed an adequate fit with the data,

albeit lower than the fit of the separate father report and mother report models [χ^2 (42, *N* = 227)

= 138.74, GFI = .92, CFI = .94, TLI = .90], indicating that together fathers' and mothers' reports create a reliable holistic view of father involvement.

Combined reporter predictive models. Path models using the combined reporter composite of father involvement were run in the same manner noted above, to assess the relationship of the combined reporter latent construct to children's reading skills, math skills, and behavior problems. Path coefficients are presented in the final column of Table 3. For reading skills, the model fit was adequate [χ^2 (93, $N = 227$) = 241.70, GFI = .89, CFI = .89, TLI = .91], with a significant predictive path to children's reading skills that was the same as the path in the father report model, and greater than that in the mother report model. For math skills, model fit again was adequate [χ^2 (80, $N = 227$) = 223.18, GFI = .89, CFI = .91, TLI = .89], and the predictive path to children's math skills was significant and greater than the paths from the separate father and mother models. Finally, model fit was adequate [χ^2 (158, $N = 227$) = 342.56, GFI = .88, CFI = .91, TLI = .89] and the predictive path was significant at trend level for behavior problems, between the strength of the path from father reports and mother reports separately.

Discussion

The present study sought to inform the methodological and theoretical debates concerning the measurement and modeling of fathers' involvement in parenting and family functioning. More specifically, this research sought to address three primary weaknesses or concerns raised by previous scholarship: the lack of theoretically-based, multi-component measures of father involvement; concerns surrounding the reliability of both father and mother reports of father involvement; and a dearth of information on the validity of measures of father involvement. In short, all of these concerns surrounding the measurement of father involvement

have inhibited the growth of research and understanding on the aspects of fathering that are most centrally important in supporting children's healthy development and family well-being. Indeed, the National Institutes of Health has identified efforts to better measure and model father involvement, marital patterns, and the role of men in family life as a central area of research concern in the current decade. Moreover, given the national policy focus on marriage and men's family roles, progress and consensus in measurement in this area are paramount.

A Theoretically-Based, Multi-component Conception of Fathering

The first goals of this research were to build and assess the reliability of a multi-dimensional composite measure of father involvement that mapped onto current theoretical conceptualizations of fathering, and to assess the reliability of this measure across father reports and mother reports and across diverse families. This composite drew off the responsible fathering framework and other models of fathering, incorporating indices of fathers' contact and accessibility, responsibility and economic support, and direct engagement (Doherty et al., 1998; Lamb, 1997). Results from this research supported the feasibility of mapping such conceptualizations onto simple survey questions. Within each reporter, the items created an internally consistent, or reliable, multi-component composite of father involvement. The reliability, as well as the specific contributions of different components of father involvement to the holistic composite, appeared similar across father report and mother report models, as well as across residential status (resident versus nonresident fathers) and across ethnic group (African American versus Latino fathers). In short, the results suggest that the simple survey measures of father involvement show strong and similar reliability across reporter and across different subgroups of families within this low-income sample. Although mothers reported lower levels of father involvement than did fathers, and although residential fathers reporter higher

24

involvement than did nonresidential fathers, all of these groups appear to be conceptualizing father involvement similarly.

Nonetheless, it is important to note that such measures still may be omitting or misrepresenting central individual or cultural beliefs and norms concerning fathering. For example, extended family bonds, referred to as *familism* in Latino communities, and the core values related to familism might influence father involvement differently in Latino families compared to other groups (Parke et al., 2004). Marsiglio (2004) has further suggested increasing measurement in the areas of self-as-father, father-child interactions, and co-parenting to better capture the complexity of fatherhood for modern men. Greater use of in-depth qualitative research methods (e.g., Edin, 2000; Jarrett, Roy, & Burton, 2002), including focus groups (e.g., Parke et al., 2004) and narrative analysis (e.g., Pleck & Stueve, 2004) would be particularly helpful in exploring in greater depth the practices central to father involvement in low-income families. Other methodologies, such as time-use diaries, videotaped observations, and child reports, may provide additional insights. In turn, such insights should be incorporated into in-depth survey measures that might capture greater variability and nuance in fathering.

Predictive Validity of Father and Mother Reports of Father Involvement

The second goal of the current research was to assess the validity of father and mother reports of father involvement through exploration of links with a second construct, child well-being. Previous research (e.g. Smock and Manning, 1997; Coley & Morris, 2002) has attempted to consider reporter reliability and validity and the conditions under which father and mother reports are similar or discordant, but lacked a third measure with which to directly assess measure validity. The current study addressed this issue through the incorporation of measures of child well-being, hence testing the predictive validity of each reporter's conceptualization of

father involvement. Importantly, the use of multiple assessments and reports of children's cognitive and behavioral functioning helped to minimize concerns over shared method variance that may inflate the relationship between father involvement and child well-being.

Two central findings emerged from the path models relating father involvement to child well-being. The first is that father involvement was related to young children's functioning in the expected manner, showing positive relations to children's math and reading skills and negative links to children's behavior problems. It is important to note that these relationships were tested at one point in time, and causal relationships could not be established. At the same time, significant relations appeared between father involvement and child functioning even when the influence of children's gender and age and fathers' education and employment history were considered, suggesting a direct relationship between fathers' active involvement in parenting and family functioning and young children's healthy development.

Second, father and mother reports of father involvement showed similar predictive validity. That is, although the relationships between father involvement and children's cognitive and behavioral functioning were more consistently statistically significant in the models using father reports, these relations were invariant across mother versus father report models. Once again, this finding suggests that either father or mother reports of father involvement using simple survey items produce methodologically strong composite measures of father involvement. Importantly, the predictive validity was also similar across residence status and ethnic groups.

Added Value from Multiple Reporters

The third goal of this research was to assess whether a combination of information from multiple reporters gave added value to measurement of father involvement. Results in this area were inconclusive. A model of father involvement incorporating both father and mother reports

showed a moderate fit and good reliability. The combined reporter composite also appeared

similar to the individual models in predictive validity, although statistical constraints did not

allow us to specifically test invariance using multiple group methods. In short, combining

information from both reporters in one model did not appear to significantly increase the

reliability or validity of the measurement. Yet, such multiple reporter composites do decrease

shared measurement error between reporters, and thus present a promising strategy for further

study.

Limitations

Although this research addressed some of the constraints in previous research comparing

mother and father reports of father involvement, it is nonetheless important to note the

weaknesses and limitations. Because the sample consists of low-income families of primarily

African American or Hispanic ancestry, living in urban communities, and having a preschool-age

child, and only includes families in which the father has seen the child within the past year, our

results cannot necessarily be generalized to other demographic groups. As noted above, the

measure of father involvement incorporated in this research omits many potentially important

aspects of fathers' contributions to child well-being. Similarly, the path analyses leave open the

possibility of unmeasured variables playing an important role in the predictive relationships

between father involvement and child well-being. Finally, like much research using father

reports, our response rate was low, leading to concerns over nonresponse bias. For example,

fathers who participated showed higher father involvement and were linked with mothers with

higher economic resources than fathers who did not participate, and may have differed in other

unmeasured ways as well. Less engaged fathers may have different conceptualizations of

involved parenting that were not explicated in the current research. The use of probability

weights which adjusted for nonresponse in some analyses suggested that adjustment for nonresponse bias did not change the results considerably concerning measurement reliability or predictive validity. The difficulty of accessing fathers and achieving a high response rate, particularly with nonresident fathers, is an issue of serious concern. Future research and outreach efforts should explore new techniques, such as direct recruitment of fathers, for engaging fathers in research and for assessing how measurement reliability and validity are influenced by nonresponse bias.

Conclusions

Beyond these limitations, however, this research adds significantly to the methodological and conceptual debates concerning the measurement and reporting of father involvement. Centrally, our results suggest that the use of mother reports of father involvement produce composites that show reliability and validity strengths statistically indistinguishable from composites created with fathers' reports of their own involvement. Hence, these findings suggest that concerns over the use of mother report data on basic aspects father involvement may be overstated. The use of maternal survey reports of father involvement appears to be a defensible practice. We would note in closing, however, that this in no way precludes the importance of increasing efforts to engage fathers in research on family processes, and to continue to broaden our understanding of the myriad ways in which men contribute to families and to children.

References

Achenbach, T. M. (1991). *Manual for the Child Behavior Checklist/ 4-18 and 1991 Profile.* Burlington, VT: University of Vermont Department of Psychiatry.

Achenbach, T. M. (1992). *Manual for the Child Behavior Checklist/2-3 and 1992 Profile.* Burlington, VT: University of Vermont Department of Psychiatry.

Amato, P. R. (1998). More than money? Men's contributions to their children's lives. In A. Booth & A. C. Crouter (Eds.), *Men in families: When do they get involved? What difference does it make?* (pp. 241-278). Mahwah, NJ: Lawrence Erlbaum Associates.

Arbuckle, J. L. (1999). AMOS 4.0 [Computer software]. Chicago: Smallwaters.

Biller, H. B. (1993). *Father and families: Paternal factors in child development*. Westport, CT: Auburn House/Greenwood.

Black, M., Dubowitz, H., & Starr, R. H. J. (1999). African American fathers in low income, urban families: Development, behavior, and home environment of their three-year-old children. *Child Development, 70* (4), 967-978.

Braver, S. L., Fitzpatrick, P. J., & Bay, R. C. (1991). Noncustodial parent's report of child support payments. *Family Relations, 40,* 180-185.

Braver, S. H., Wolchik, S. A., Sandler, I. N., Fogas, B. S., & Zvetina, D. (1991). Frequency of visitation by divorced fathers: Differences in reports by fathers and mothers. *American Journal of Orthopsychiatry, 61(3)*, 448-454.

Braver, S. L., Wolchik, S. A., Sandler, I. S., Sheets, V. L., Fogas, B., & Bay, R. C. (1993). A longitudinal study of noncustodial parents: Parents without children. *Journal of Family Psychology*, 7(1), 9-23.

Byrne, B. M. (2001). *Structural equation modeling with AMOS: Basic concepts, applications, and programming*. Mahwah, NJ: Lawrence Erlbaum Associates.

Cabrera, N., Moore, K., Bronte-Tinkew, J., Halle, T., West, J., Brooks-Gunn, J., Reichman, N., Teitler, J., Ellingsen, K., Nord, C. W., & Boller, K. (2004). The DADS initiative: measuring father involvement in large-scale surveys. In R. D. Day & M. E. Lamb (Eds.), *Conceptualizing and Measuring Father Involvement*. Mahwah, NJ: Lawrence Erlbaum Associates.

Cabrera, N., Tamis-LeMonda, C., Bradley, R., Hofferth, S., & Lamb, M. (2000). Fatherhood in the 21st century. *Child Development, 71*, 127-136.

Carlson, M. J., & McLanahan, S. S. (2004). Early father involvement in fragile families. In R. D. Day & M. E. Lamb (Eds.), *Conceptualizing and Measuring Father Involvement*. Mahwah, NJ: Lawrence Erlbaum Associates.

Coley, R. L. (1998). Children's socialization experiences and functioning in single-mother households: The importance of fathers and other men. *Child Development, 69*, 291-230.

Coley, R. L. (2001). (In)visible men: Emerging research on low-income, unmarried, and minority fathers. *American Psychologist, 56*, 743-753.

Coley, R. L. & Chase-Lansdale, P. L. (1999). Stability and change in paternal involvement among urban African American fathers. *Journal of Family Psychology, 13*, 1-20.

Coley, R. L. & Hernandez, D. C. (2004). *Predictors of paternal involvement for residential and nonresidential low-income fathers*. Manuscript submitted for publication.

Coley, R. L. & Morris, J. E. (2002). Comparing father and mother reports of father involvement among low-income minority families. *Journal of Marriage and Family, 64,* (4) 982-997.

Day, R. D., & Lamb, M. E. (2004). *Conceptualizing and Measuring Father Involvement*. Mahwah, NJ: Lawrence Erlbaum Associates.

Doherty, W. J., Kouneski, E. F., & Erickson, M. F. (1998). Responsible fathering: An overview and conceptual framework. *Journal of Marriage and the Family, 60,* 277-292.

Edin, K. (2000). What do low-income single mothers say about marriage? *Social Problems, 47,* 112-133.

Federal Interagency Forum on Child and Family Statistics (1998). *Nurturing fatherhood: Improving data and research on male fertility, family formation, and fatherhood.* Washington DC.

Furstenberg, F. F. Jr. & Harris, K. M. (1993). When and why fathers matter: Impacts of father involvement on the children of adolescent mothers. In R. I. Lerman & T. J. Ooms (Eds.). *Young unwed fathers: Changing roles and emerging policies .* Philadelphia: Temple University Press.

Garfinkel, I., Miller, C., McLanahan, S., & Hanson, T. (1998). A patchwork portrait of nonresidential fathers. In I. Garfinkel, S. McLanahan, D. Meyer, & J. Seltzer (Eds.), *Fathers under fire*. New York, NY: Russell Sage Foundation.

Harris, K. H., & Morgan, S. P. (1991). Fathers, sons, and daughters: Differential paternal involvement in parenting. *Journal of Marriage and the Family, 53,* 531-544.

Hernandez, D. J. (Ed.). (1999). *Children of immigrants: Health, adjustment, and public assistance*. Washington, DC: National Academy Press.

Hernandez, D. J., & Charney, E. (Eds.). (1998). *From generation to generation: The health and well-being of children in immigrant families*. Washington, DC: National Academy Press.

Hu, L.T., & Benter, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional Criteria Versus New Alternatives. *Structural Equation Modeling, 6,*(1) 1-55.

Jarrett, R. L., Roy, K. M., & Burton L. M. (2002). Fathers in the "hood": Insights from qualitative research on low-income African-American men. In C. Tamis-LeMonda & N. Cabrera (Eds.) Handbook of father involvement: Multidisciplinary perspectives (pp. 221-248). New York: Lawrence Erlbaum.

Lamb, M. E. (1997). The role of the father in child development. New York: John Wiley & Sons, Inc.

Lamb, M. E. (2000). The history of research on father involvement: An overview. *Marriage and Family Review, 29,* (2/3) 23-42.

Lamb, M. E., Pleck, J. H., Charnov, E. L., & Levine, J. A. (1987). A biosocial perspective on paternal behavior and involvement. In J. B. Lancaster, J. Altman, A. S. Rossi, & L. R. Sherrod (Eds.), *Parenting across the lifespan: Biosocial dimensions* (pp. 111-142). Hawthorne, NY: Aldine Publishing Co.

Landale, N., & Oropresa, R. S. (2001). Father involvement in the lives of mainland Puerto Rico children: Contributions of nonresident, cohabiting, and married fathers. *Social Forces, 79* (3), 945-968.

Lerman, R. I. (1993). A national profile of young unwed fathers. In R. I. Lerman & T. J. Ooms (Eds.), *Young unwed fathers: Changing roles and emerging policies* (pp. 27-51). Philadelphia: Temple University Press.

Marsiglio, W., (1991). Paternal engagement activities with minor children. *Journal of Marriage and the Family, 53,* 973-986.

Marsiglio, W. (2004). Studying fathering trajectories: In-depth interviewing and sensitizing

concepts. In R. D. Day & M. E. Lamb (Eds.), *Conceptualizing and Measuring Father Involvement*. Mahwah, NJ: Lawrence Erlbaum Associates.

Marsiglio, W., Amato, P., Day, R. D., & Lamb, M. E. (2000). Scholarship on fatherhood in the 1990s and beyond. *Journal of Marriage and the Family, 62*, 1173-1191.

Miller, D. T., & Ross, M. (1975). Self-serving biases in th eattribution of causality: Fact or fiction? *Psychological Bulletin, 82,* 213-225.

Mincy, R. B., & Pouncy, H. W. (2002). The responsible fatherhood field: Evolution and goals. In C. S. Tamis-LeMonda & N. Cabrera (Eds.) *Handbook of father involvement.* Mahway, NJ: Lawrence Erlbaum Associates.

Nelson, T. J., Clampet-Lundquist, S., & Edin, K. (2002). Sustaining fragile fatherhood: Father involvement among low-income, noncustodial African-American fathers in Philadelphia. In C. S. Tamis-LeMonda & N. Cabrera (Eds.) *Handbook of father involvement.* Mahway, NJ: Lawrence Erlbaum Associates.

Palkovitz, R. (2002). Involved fathering and child development: Advancing our understanding of good fathering. In C. S. Tamis-LeMonda & N. Cabrera (Eds.) *Handbook of father involvement.* Mahway, NJ: Lawrence Erlbaum Associates.

Parke, R, D., & Buriel, R. (1998). Socialization in the family: Ecological and ethnic perspectives. In W. Damon (Editor-in-chief) & N. Eisenberg (Vol. Ed.), *Handbook of child psychology*, (Vol. 4, 5th ed., pp. 463-552). New York: Wiley.

Parke, R. D., Coltrane, S., Borthwick-Duffy, S., Powers, J., Adams, M., Fabricius, W., Braver, S., & Saenz, D. (2004). Assessing father involvement in Mexican-American families. In R. D. Day & M. E. Lamb (Eds.), *Conceptualizing and Measuring Father Involvement*. Mahwah, NJ: Lawrence Erlbaum Associates.

Pasley, K., & Braver, S. L. (2004). Measuring father involvement in divorced, nonresidential fathers. In R. D. Day & M. E. Lamb (Eds.), *Conceptualizing and Measuring Father Involvement*. Mahwah, NJ: Lawrence Erlbaum Associates.

Pleck, J. H., & Stueve, J. L. (2004). A narrative approach to paternal identity: The importance of parental identity: "Conjointness". In R. D. Day & M. E. Lamb (Eds.), *Conceptualizing and Measuring Father Involvement*. Mahwah, NJ: Lawrence Erlbaum Associates.

Princeton University, Bendheim-Thoman Center for Research on Child Wellbeing. (2003, June). Introduction to the Fragile Families public use baseline data. Retrieved March 3, 2004, from The Fragile Families and Child Well-being Study Web site: http://crcw.princeton.edu/fragilefamilies/faq.asp#d4

Quint, J., Bos, J., & Polit, D. (1997). *New Chance: Final report on a comprehensive program for young mothers in poverty and their children.* New York, NY: Manpower Demonstration Research Corporation.

Rettig, K. D., Christensen, D. H., & Dahl, C. M. (1991). Impact of child support guidelines on the economic well-being of children. *Family Relations, 40,* 167-175.

Schaeffer, N. C., Seltzer, J. A., & Dykema, J. (1998). *Methodological and theoretical issues in studying nonresident fathers: A selective review.* Philadelphia, PA: National Center on Fathers and Families.

Schaeffer, N. C., Seltzer, J. A., & Klawitter, M. (1991). Estimating nonresponse and response bias: Resident and nonresident parents' reports about child support. *Sociological Methods and Research, 29,* 30-59.

Seltzer, J. A. (1991). Relationships between fathers and children who live apart: The father's role after separation. *Journal of Marriage and the Family, 53*, 79-101.

Seltzer, J. A. & Brandreth, Y. (1994). What fathers say about involvement with children after separation. *Journal of Family Issues, 15 (1),* 49-77.

Shannon, J. D., Tamis-LeMonda, C. S., London, K., & Cabrera, N. (2002). Beyond rough and tumble: Low-income fathers' interactions and children's cognitive development at 24 months. *Parenting: Science and Practice*, *2*, 77-104.

Sicoly, F., & Ross, M. (1977). Facilitation of ego-biased attributions by means of self-serving observer feedback. *Journal of Personality and Social Psychology, 35,* 734-744.

Smock, P. J., & Manning, W. D. (1997). Nonresident parents' characteristics and child support. *Journal of Marriage and the Family, 59,* 798-808.

Sonenstein, F. L., & Calhoun, C. A. (1990). Determinants of child support: A pilot survey of absent parents. *Contemporary Policy Issues, 8,* 75-134.

University of North Carolina, Carolina Population Center (2004, June). Questions about field work. Retrieved November 15, 2004, from The National Longitudinal Study of Adolescent Health Web site: http://www.cpc.unc.edu/projects/addhealth/faqs/aboutfieldwork

Woodcock, R.W. & Mather, N. (1989, 1990). WJ-R Tests of Achievement: Examiner's Manual. In Woodcock, R.W. & Johnson, M.B. *Woodcock-Johnson Psycho-Educational Battery-Revised.* Itasca, IL: Riverside Publishing.

Woodcock, R. W. & Munoz-Sandoval, A. F. (1996). Bateria Woodcock-Munoz: Pruebas de aprovechamiento-revisada, supplemental manual. In Woodcock, R.W. & Munoz-Sandoval, A.F. *Bateria Woodcock-Munoz: Pruebas de aprovechamiento-Revisada.* Itasca, IL: Riverside Publishing.

Table 1

Means (Standard Deviations) or Percentages of Study Variables for All Fathers (n=227),

NonresidentialFathers (n = 110), and Residential Fathers (n = 117)

Variables	All Fathers		Nonresidential Fathers		Residential Fathers	
	M or %	*SD*	M or %	SD	M or %	SD
Controls						
Child Gender (Male)	42 %		42 %		42 %	
Child Age (Months)	42.47	10.45	43.21	11.38	41.77	9.49
Father Education[a]	3.89	1.94	3.74	1.91	4.03	1.97
Father Employment[b]	13.10	6.65	11.76	6.95	14.38	6.11
Father Involvement: Father Report						
Helpfulness to Mother	3.37	.98	3.04	1.12	3.68	.71
Hours of Care	3.20	1.11	2.75	1.26	3.63	.71
Contact	3.57	.74	3.11	.86	4.00	0.00
Family Involvement	2.73	.92	2.51	.81	2.94	.97
Responsibility	3.49	.87	3.11	1.02	3.85	.48
Financial Support	3.47	.94	3.16	1.12	3.75	.60
Father Involvement: Mother Report						
Helpfulness to Mother	2.89	1.24	2.33	1.23	3.42	.98
Hours of Care	2.98	1.23	2.38	1.28	3.54	.84
Contact	3.50	.83	3.04	.96	3.94	.27
Family Involvement	2.56	.97	2.32	.89	2.79	1.00

Responsibility	3.23	1.06	2.72	1.16	3.72	.67
Financial Support	3.11	1.14	2.63	1.17	3.56	.90
Child Cognitive Achievement						
WJ Math Skills	93.58	16.48	90.68	15.61	96.31	16.87
WJ Reading Skills	99.04	12.46	98.05	13.01	99.96	11.91
Child Behavior Problems Father Report						
Positive Behaviors	0.00	1.00	-.05	1.04	.05	.96
CBCL Internalizing	0.00	1.00	.01	.98	-.01	1.02
CBCL Externalizing	0.00	1.00	.00	1.01	-.01	.99
Child Behavior Problems Mother Report						
Positive Behaviors	0.00	1.00	.00	1.05	-.00	.96
CBCL Internalizing	-0.01	.93	.05	.99	-.07	.88
CBCL Externalizing	0.01	.95	.13	.98	-.09	.91

[a]Father Education: 1 = *less than high school*, 8 = *college degree or higher*. [b]Composite of employment stability.

Table 2

Unstandardized (Standard Errors) and Standardized Values for Individual and Combined

Reporter Measurement Models of Father Involvement (n= 227)

Parameter Estimate	Unstandardized Parameter Estimate	Standardized Parameter Estimate
Father Report		
Helpfulness to Mother	.98 (.08)	.77***
Hours of Care	.87 (.09)	.60***
Contact	.63 (.06)	.65***
Family Involvement	.30 (.08)	.25***
Responsibility[a]	1.00	.88
Financial Support	.96 (.07)	.79***
Mother Report		
Helpfulness to Mother	.98 (.06)	.79***
Hours of Care	.87 (.07)	.71***
Contact	.67 (.04)	.80***
Family Involvement	.29 (.07)	.30***
Responsibility[a]	1.00	.94
Financial Support	.93 (.05)	.82***
Combined Reporters		
Father Report		
Helpfulness to Mother	.85 (.08)	.55***

Multidimensional measure of father involvement

Hours of Care	1.01 (.11)	.58***
Contact	.88 (.08)	.75***
Family Involvement	.39 (.10)	.27***
Responsibility[a]	1.00	.73
Financial Support	1.28 (.13)	.53***
Mother Report		
Helpfulness to Mother	1.33 (.13)	.68***
Hours of Care	1.48 (.14)	.77***
Contact	1.17 (.09)	.89***
Family Involvement	.50 (.11)	.33***
Responsibility	1.39 (.12)	.83***
Financial Support	1.28 (.13)	.71***

[a]Path was set to 1.

***$p < .001$

Multidimensional measure of father involvement

Table 3

Unstandardized (Standard Errors) and Standardized Parameter Estimates for Structural Individual Reporter Models and Combined

Reporter Models of Father Involvement to Children's Reading Skills, Math Skills, and Behavior Problems (n = 227)

	Father Report		Mother Report		Combined Reporter	
	Unstand.	Stand.	Unstand.	Stand.	Unstand.	Stand.
Reading Skills						
Child Gender → Reading Skills	3.92 (1.54)	.16*	3.86 (1.56)	.15*	3.76 (1.55)	.15*
Child Age → Reading Skills	-.39 (.07)	-.33***	-.39 (.07)	-.33***	-.38 (.07)	-.32***
Father Employment → Father Involvement	.04 (.01)	.37***	.03 (.01)	.22**	.03 (.01)	.27***
Father Involvement → Reading Skills	2.54 (1.03)	.16*	1.27 (.79)	.10	2.96 (1.33)	.15*
Math Skills						
Child Gender → Math Skills	5.07 (2.17)	.15*	4.88 (2.16)	.15*	4.82 (2.14)	.15*
Father Employment → Father Involvement	.04 (.01)	.37***	.03 (.01)	.22**	.03 (.01)	.28***
Father Involvement → Math Skills	3.02 (1.46)	.14*	2.56 (1.10)	.16*	5.33 (1.77)	.21**
Behavior Problems						
Child Age → Reading Skills		--a		--a		-.19*

40

Multidimensional measure of father involvement

Father Employment → Father Involvement	.05 (.01)	.43***	.03 (.01)	.22**	-.01 (.01)	.30***
Father Involvement → Behavior Problems	-.35 (.07)	-.22*	-.06 (.05)	-.12	-.13 (.08)	-.16†

[a]To create the most parsimonious models, only variables that had significant paths were retained in the final models.

*p < .05. ** p < .01. ***p < .001

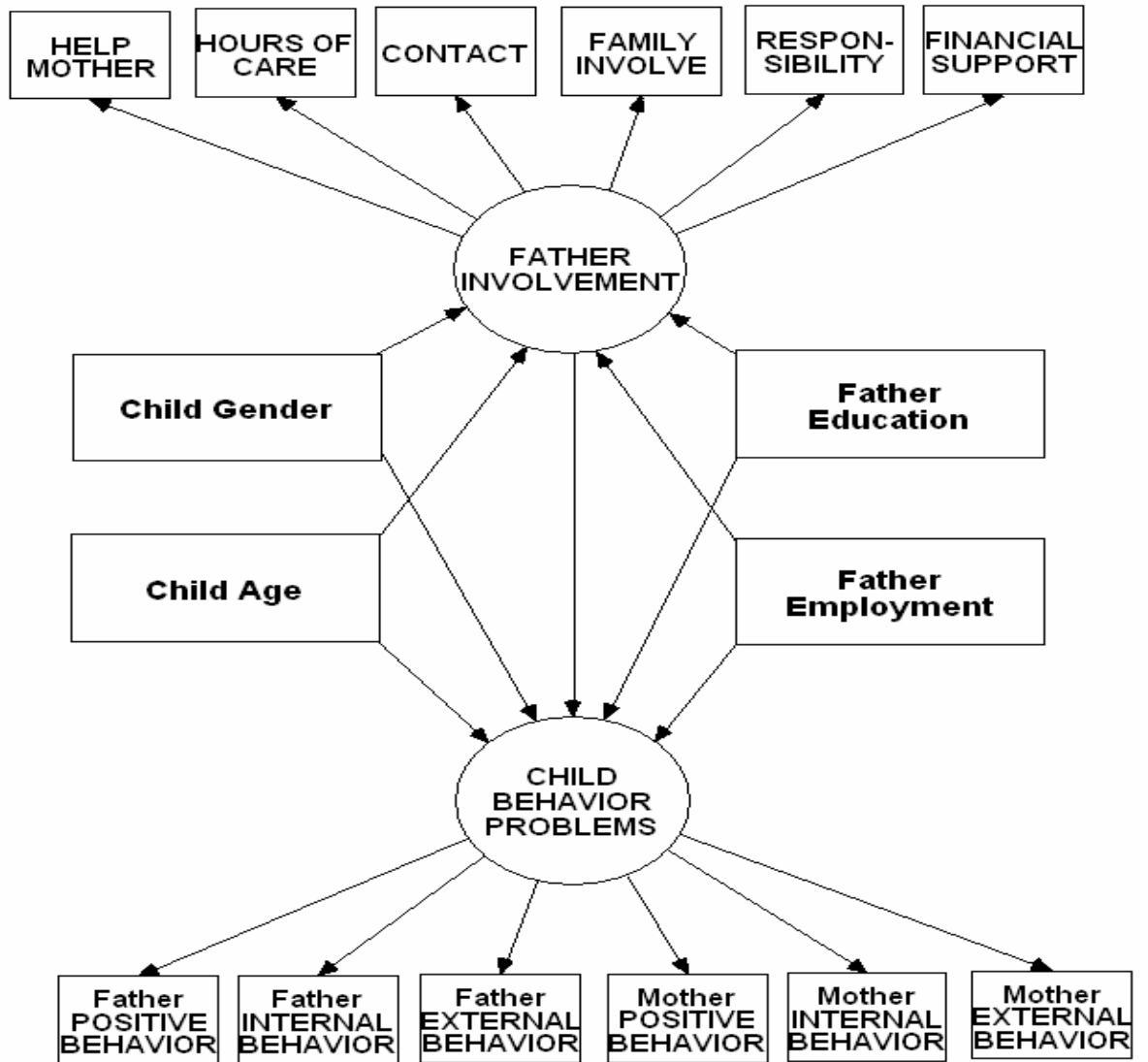Figure 1 Exemplar Path Model of Father Involvement Predicting Child Well-being

Figure 2. Combined Reporter Model of Father Involvement