

Shared parental responsiveness among racially diverse fathers and mothers with low income and early child outcomes

Joyce Y. Lee, PhD, MSW, MS, LCSW

**Assistant Professor and Director of Child and Family Wellbeing Laboratory
The Ohio State University College of Social Work**

Crane Center for Early Childhood Research and Policy

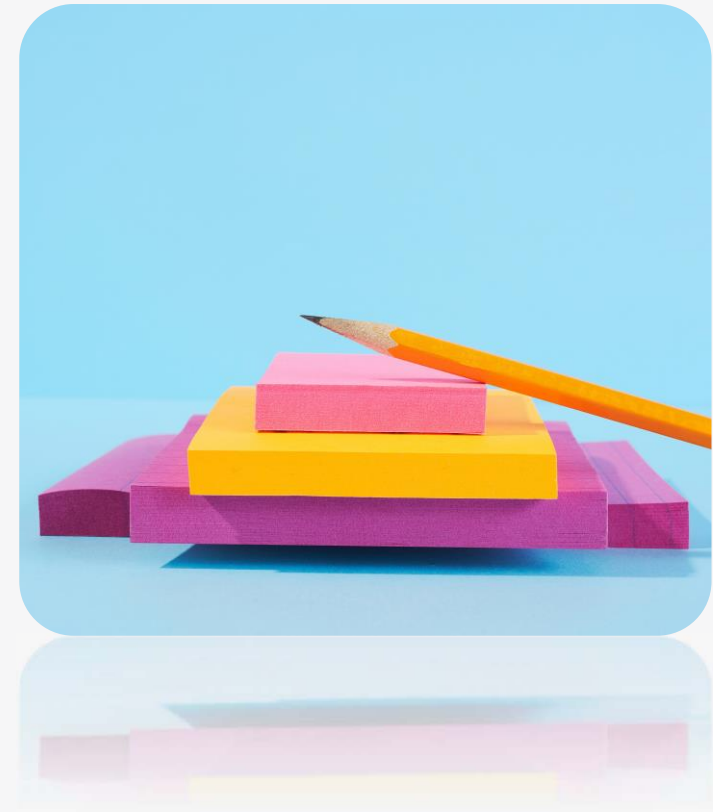
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Presentation Agenda

- Acknowledgement
- Introduction
- Current study
- Methods
- Results
- Discussion
- Q&A



Acknowledgements & Collaborators

Shawna J. Lee, PhD



Professor and Associate
Dean for Faculty Affairs
University of Michigan
School of Social Work

Kaitlin P. Ward, PhD



People Analytics
Researcher at Google

Garrett T. Pace, PhD



Assistant Professor
University of Nevada Las
Vegas School of Social Work

Olivia D. Chang, MSW



PhD Student
University of Michigan
School of Social Work

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**CHILD AND FAMILY
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INTRODUCTION



Introduction

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RESEARCH

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Shared parental responsiveness among fathers and mothers with low income and early child outcomes

Joyce Y. Lee¹ | Shawna J. Lee² | Kaitlin P. Ward³ |
Garrett T. Pace⁴ | Olivia D. Chang²

¹College of Social Work, The Ohio State University, Columbus, OH

²School of Social Work, University of Michigan, Ann Arbor, MI

³School of Social Welfare, University of California-Berkeley, Berkeley, CA

⁴School of Social Work, University of Nevada-Las Vegas, Las Vegas, NV

Correspondence

Joyce Y. Lee, The Ohio State University College of Social Work, 1947 North College Road, Columbus, OH 43210, USA.
Email: lee.10148@osu.edu

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Abstract

Objective: Informed by the family systems theory, the current study aimed to examine whether shared parental responsiveness between fathers and mothers with low income was associated with preschoolers' developmental outcomes.

Background: Both fathers' and mothers' parental responsiveness are key contributors to their young children's development. However, the ways in which fathers and mothers work as a system, as well as the role of shared parental responsiveness in child development, are not well understood, especially among families from low-income contexts.

Method: Participants were from the Building Strong Families project, a racially diverse group of families from socioeconomically disadvantaged backgrounds ($N = 1,173$). Fathers' and mothers' parental responsiveness were observed during father-child and mother-child interactions using the two-bags task. Preschoolers' child behavior problems, prosocial behaviors, and receptive language served as developmental outcomes of interest. A common fate approach to dyadic analysis was employed to create shared responsiveness and individual residual variance latent variables, which the child outcomes were regressed onto. Moderation analysis by fathers' resident status was conducted.



Lee, J. Y., Lee, S. J., Ward, K. P., Pace, G. T., & Chang, O. D. (2024). Shared parental responsiveness among fathers and mothers with low income and early child outcomes. *Family Relations*, 73(2), 683–702. <https://doi.org/10.1111/fare.12913>

Introduction

- Current study is part of a larger research program aimed at understanding **interparental dynamics within unmarried couple families from low-income backgrounds and associated child outcomes**



Introduction

- Efforts to push against the negative portrayals and narratives that such parents engage in poor parenting and other misperceptions (e.g., fathers with low income or fathers of color absent or uninvolved)



Introduction

- Changing family structure in US—increased rates of divorce, number of single parents, and nonmarital births—led USDHHS to launch the **Healthy Marriage and Responsible Fatherhood (HMRF)** initiative in 2006
- Goal was to provide relationship skills education to couples with low income to reduce family instability
- Funded by Temporary Assistance for Needy Families (TANF) legislation, which has provided nearly \$3 billion
- Reached over 2.5 million individuals with low income

(Hawkins et al., 2022)



Introduction

- With 2.5 million individuals with low income reached, are HMRF programs effective? Mixed findings with limited impact

Healthy Marriage Initiatives

On the Need for Empiricism in Policy Implementation

Matthew D. Johnson
Binghamton University

The association between marriage and well-being has led to policies that promote marital interventions and discourage divorce. These include federal initiatives specifically targeting poor couples and couples of color. While there are many prospective studies on marriage that have informed some couple interventions, the studies that are included in this literature sampled predominantly White and middle-class couples. By comparison, far less is known about the longitudinal predictors of relationship satisfaction and status for poor couples and couples of color. Therefore, it is unsurprising that preliminary data on applying current interventions to the couples targeted by these federal initiatives have been disappointing. In this article, I detail three concerns with these initiatives, propose a course of psychological research to address deficits in what is known about poor couples and couples of color, and make specific recommendations to enhance the effectiveness of these initiatives.

Keywords: marriage, couples, relationship education, social policy, public health

Preliminary research shows that marriage education workshops can make a real difference in helping married couples stay together and in encouraging unmarried couples who are living together to form a more lasting bond. Expanding access to such services to low income couples . . . should be something everybody can agree on.

—Barack Obama, *The Audacity of Hope*

In the last decade, politicians and governmental officials from across the political spectrum took note of the fact that being poor or being a person of color was correlated with being unmarried or divorced, which is an association that is plainly evident in the data. The response of state and federal governments was to increase access to marital counseling and education. The attention and funding that resulted from these policies led to the realization of

search that addresses gaps in our knowledge about the couples targeted by these interventions; and I make recommendations for improving current policy.

Marital Status as a Correlate of Poverty and Ethnicity

The National Survey of Family Growth (<http://www.cdc.gov/nchs/nsfg.htm>) examined relationship status by race and ethnicity (see Table 1). These data demonstrate that non-Hispanic Black women are far more likely to be single and to be single parents than are women of other races. Although these data become more complicated when considered at the level of racial subgroups—for example, there is great variability among Latino subgroups—the relationship status statistics for Blacks are striking. Relationship status and parental status disparities are also evident when one examines the data by economic status. Of families at or near the poverty level, 51.8% of fathers were not married to the mother of their first child when she or he was born, and an additional 20.3% of fathers were neither living with nor married to the mother when the father's first child was born (as opposed to 33.8% and 15.6%, respectively, for the total population; Martinez, Chandra, Abma, Jones, & Mosher, 2006). Beyond relationship status, there is evidence of racial disparities in terms of relationship quality as well. For example, among married couples, Blacks report lower marital quality, more extramarital affairs, more partner violence, and less likelihood of feeling loved by their partners compared with White couples (Broman, 2005; Corra, Carter, Carter, & Knox, 2009). Therefore, being poor or one of several ethnicities increases one's chances of being unmarried (or unhappily married), having children outside of marriage, and dissolving cohabiting and marital relationships (see also Lichter, Qian, & Mellott, 2006).

ORIGINAL ARTICLE

FAMILY PROCESS

How effective are ACF-funded couple relationship education programs? A meta-analytic study

Alan J. Hawkins | Sarah Hokanson | Eden Loveridge | Emily Milius | Misha Duncan | McCall Booth | Brittany Pollard

School of Family Life, Brigham Young University, Provo, Utah, USA

Correspondence

Alan J. Hawkins, School of Family Life, Brigham Young University, Provo, UT, USA.
Email: hawkinsa@byu.edu

Abstract

Since 2006, the U.S. Administration for Children and Families (ACF) has allocated \$1.2 billion to a Healthy Marriage and Relationship Education (HMRE) policy initiative that provides grants to community organizations to support relationship education (RE) services for lower income couples and individuals. The policy aim was to help disadvantaged couples and individuals form and sustain healthy, stable relationships and marriages. A significant body of research on the effectiveness of these programs has now accumulated. This meta-analytic study reviews all evaluation research reports of adult couple relationship education (CRE) programs supported by the ACF policy initiative to examine their impact on an array of couple, family, and individual well-being outcomes. Overall, our review of 32 control-group studies found a range of small but significant effects for couple



ERIN KRAMER HOLMES | Brigham Young University
BRAQUEL R. EGGINTON | University of Missouri
ALAN J. HAWKINS | Brigham Young University
NATHAN L. ROBBINS | Cornell University
KEVIN SHAFER | Brigham Young University

Do Responsible Fatherhood Programs Work? A Comprehensive Meta-Analytic Study

FAMILY PROCESS

ORIGINAL ARTICLE

Introduction to special section: Federally funded, community-based healthy marriage and responsible fatherhood program impact studies

Galena K. Rhoades¹ | Brian D. Doss² | Ryan G. Carlson³

Introduction

- **Healthy Marriage Programs**: Small positive effects on couple relationship quality, communication skills, mental health, and coparenting; no effects on relationship stability (including marriage rates), IPV, parenting, child well-being
- **Responsible Fatherhood Programs**: Small positive effects on father involvement and coparenting; no effects on fathers' employment, economic well-being, child support payments
- BSF, SHM, and PACT with most rigorous study designs

(Hawkins et al., 2008; 2022; Hawkins & Erickson, 2015; Holmes et al., 2020; Johnson, 2014; Rhoades et al., 2022)

Introduction

- **7.4M** families live in poverty, with families with young children making up large group
 - ~16% of families with children <5 years live in poverty
- Poverty has adverse effects on child development

(Brooks-Gunn & Duncan, 1997; Cooke et al., 2022; Engle et al., 2008; Jensen et al., 2017; U.S. Census Bureau, 2023)



Introduction

- Emerging focus on resilience factors
- **Fathers' and mothers' parental responsiveness:** prompt and appropriate reactions, displays of love, acceptance
- Linked with better child outcomes

(Brown et al., 2021; DePasquale & Gunnar, 2020; Lee et al., 2021; Saitadze & Lalayants, 2021; Ward & Lee, 2020)



Theoretical Framework

- From a **family systems theory** perspective, shared parental quality is important since it captures interdependence between mothers and fathers given a shared variable influence

(Cox & Paley, 1997)



Shared Parental Responsiveness

- **Shared parental responsiveness:** mothers' and fathers' similar or mutually agreed-on ways of being sensitive/warm
- Despite the potential to be a protective factor, not well understood especially among families from low-income contexts

(Galovan et al., 2017; Lee et al., 2020, 2021, 2022)



Paternal Responsiveness in Resident and Non-Resident Father Families

- Revised theoretical perspectives on including quality of father engagement (i.e., responsiveness or warmth) as a critical dimension of father involvement that benefits children
- Such perspectives inclusive of resident and non-resident fathers

(Pleck, 2010)



Paternal Responsiveness in Resident and Non-Resident Father Families

- Non-resident fathers are warm and responsive to their children
- Others have noted differences in shared parenting practices across father types; mixed findings warrant additional research

(Adamson & Johnson, 2013; Amato & Gilbreth, 1999; Jones & Mosher, 2013; Lee et al., 2018)



Aim of the Current Study:

Informed by family systems theory, to examine whether shared parental responsiveness between fathers & mothers with low income is linked with preschoolers' developmental outcomes



Study Hypothesis

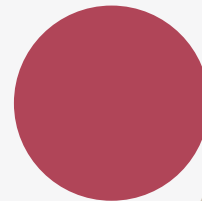
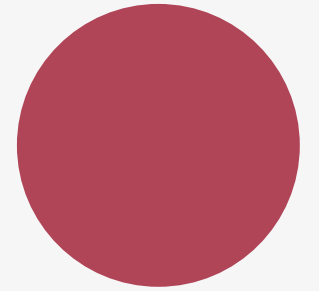
- Fathers' and mothers' shared parental responsiveness would be associated with more positive child outcomes (i.e., lower levels of child behavior problems, higher levels of prosocial behaviors, higher levels of receptive language)

(Cox & Paley, 1997; Lee et al., 2020, 2021)



Study Hypothesis

- Also, explored potential differences in these links for resident and non-resident father families
- No directional hypothesis given mixed findings



Study Contributions

1. Racially diverse mothers and fathers from low-income contexts are underrepresented in research and studied from a deficit lens (i.e., focus on poor parenting)
2. Critical need to adopt a strength-based perspective and examine the positive parenting of such parents, especially the ways in which mothers and fathers work together to benefit their children
3. Use of mother-child & father-child interaction observational data
4. Inform the development of antiracist and culturally responsive family-strengthening practices and policies

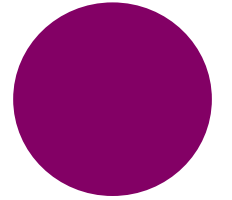


METHODS



Data Source

- **Building Strong Families (BSF)** project, evaluation of healthy marriage and relationship education programs for ~5000 families
- 8 U.S. locations
- 2005-2011



Data Source

- **Eligibility:** mother and father (a) had to provide informed consent, (b) needed to be at least 18 years old, (c) were either expecting a baby or had a baby under 3 months old, (d) were unmarried at the time of the focal child's conception, and (e) were romantically involved



BSF Intervention

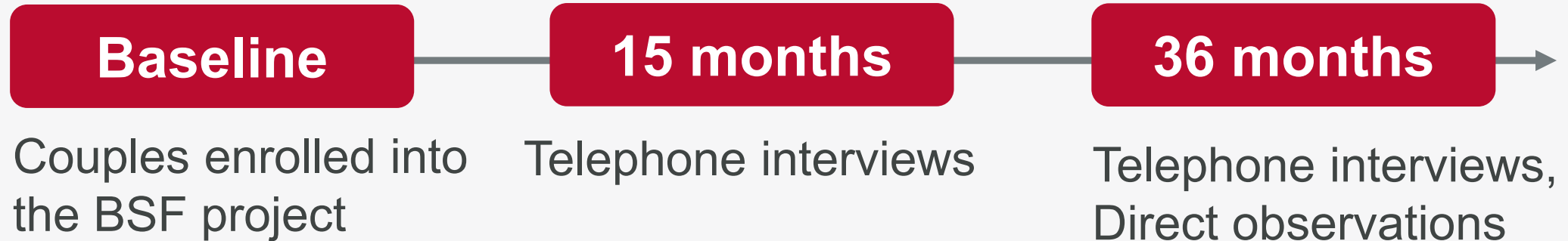
- Families were randomized into treatment vs. control groups
- 30-42 hours of group-based relationship skills education, family coordinators, referral services
- BSF had no impact on couples' relationship quality, marital status, coparenting, father engagement, and family stability
- Small negative effects on fathers' time spent with child and financial support, small positive effect on socioemotional development
- Using BSF data for secondary analysis, with BSF randomization status as a control variable

(Wood et al., 2012)



Data Collection

- Data collected at **three time points**:



Participants

- Families who took part in the direct assessment of parent-child interactions at the 36-month follow-up
- **$N = 1,173$ families with 3-year-old children**



Participants

- **Resident father families**: fathers and mothers reported living with each other all the time since focal child's birth across three time points ($n = 651$)
- **Non-resident father families**: fathers and mothers reported they did not live with each other since focal child's birth or had discrepant reports ($n = 521$)



Measures: Independent Variable

Variable	Measures	Example Item or Dimensions	Rating/Reliability
Parental responsiveness	Two-bags task (ACF, 2002), a 10-min semi-structured parent-child interaction that was recorded and coded using NICHD ECCRN (1999) ratings	Parenting five dimensions: (1) sensitivity; (2) positive regard; (3) detachment (reversed); (4) cognitive stimulation; (5) quality of parent-child relationship (e.g., closeness)	7-point Likert scale, ranging from 1 = <i>very low</i> to 7 = <i>very high</i> ; fathers $\alpha = .84$, mothers $\alpha = .85$

Measures: Dependent Variables

Variable	Measures	Example Item or Dimensions	Rating/Reliability
Child prosocial behaviors	Social Interaction Scale of the Preschool and Kindergarten Behavior Scales-Second Edition (PKBS-2; Merrell, 2002)	Mothers asked to report on 9 items related to frequency of child behaviors (e.g., child show affection for other children, child comfort other children who are upset) in the past month	4-point Likert scale, ranging from 0 = <i>never</i> to 3 = <i>often</i> ; mothers $\alpha = .75$
Child behavior problems	Behavioral Problem Index (BPI; Peterson & Zill, 1986)	Mothers asked to report on 26 items about child's behaviors (e.g., child demands a lot of attention, child has very strong temper and loses it easily)	3-point Likert scale, ranging from 0 = <i>never</i> to 2 = <i>often true</i> ; mothers $\alpha = .86$
Child receptive language	Peabody Picture Vocabulary Test-Fourth Edition (PPVT-4; Dunn & Dunn, 2007), a 20 min test in which children instructed to point to drawings that matches target words	Items represent 20 content areas (e.g., actions, vegetables, tools) and parts of speech (e.g., nouns, verbs, attributes) across all levels of difficulty	Not applicable

Measures: Control Variables

- A robust set of sociodemographic and other **control variables**:
 - Mother's and father's ages
 - Couple's race and ethnicity: Black, Latine/Hispanic, White, Other
 - Couple's education: neither HS degree, 1 person HS degree, both HS degree
 - Couple's marital status (yes)
 - Child's sex (boy)
 - Number of biological children
 - Mother's and fathers' depressive symptoms
 - Fathers' resident status
 - BSF site locations: Atlanta, Houston, Indiana, Oklahoma City
 - BSF randomization status (treatment)



Analysis Plan

- Dyadic analysis using an adaptation of common fate modeling (CFM) within a structural equation modeling framework
- CFM allows for modeling shared variance between mothers and fathers on a given variable as a latent dyadic variable

(Galovan et al., 2017; Gonzalez & Griffin, 2012; Ledermann & Kenny, 2012)



Analysis Plan

- **Latent variable #1 (shared parental responsiveness):** observed indicators of fathers' & mothers' responsiveness, factor loadings set to 1
- **Latent variable #2 (individual residual variance):** fathers' and mothers' leftover variance, constrained to be equal at 1 to use as a predictor

(Galovan et al., 2017; Gonzalez & Griffin, 2012; Ledermann & Kenny, 2012)



Analysis Plan

- Child outcomes regressed on both latent constructs: (1) shared parental responsiveness; (2) individual residual variance
- Model fit assessed using CFI, RMSEA, and SRMR
- Moderation by fathers' resident status



RESULTS

Preliminary Results

Table 1: Descriptive statistics and bivariate analysis results of study variables by fathers' resident status

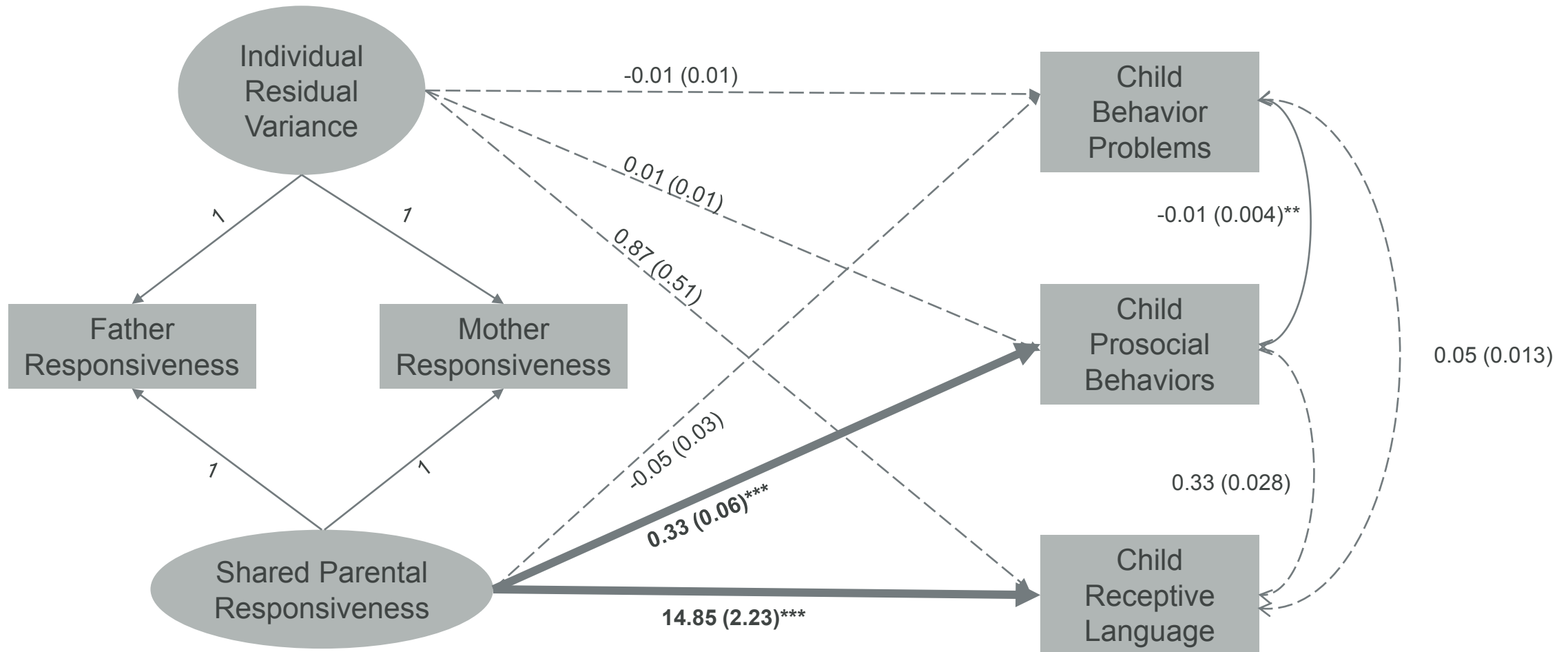
Variable	Total sample (<i>N</i> = 1,173)	Resident father (<i>N</i> = 651)	Non-resident father (<i>N</i> = 521)	<i>t</i> / χ^2	<i>df</i>	<i>p</i>
	<i>M</i> (<i>SD</i>)/ <i>n</i> (%)	<i>M</i> (<i>SD</i>)/ <i>n</i> (%)	<i>M</i> (<i>SD</i>)/ <i>n</i> (%)			
Mother responsiveness	4.64 (.85)	4.65 (.85)	4.63 (.86)	-0.35	1170	.724
Father responsiveness	4.58 (.86)	4.57 (.86)	4.60 (.86)	0.45	1170	.652
Child prosocial behavior	2.39 (.49)	2.36 (.50)	2.44 (.47)	2.98	1167	<.01
Child behavior problems	0.39 (.26)	0.37 (.24)	0.42 (.28)	2.96	1167	<.01
Child receptive language	90.24 (15.33)	90.33 (16.35)	90.14 (14.27)	-0.17	809	.863
Mother age	23.20 (4.75)	23.70 (4.93)	22.59 (4.47)	-3.99	1170	<.001
Father age	25.52 (6.17)	26.19 (6.13)	24.69 (6.13)	-4.14	1170	<.001
Mother depressive symptoms	4.51 (5.67)	3.87 (0.21)	5.30 (0.26)	4.28	1161	<.001
Father depressive symptoms	3.86 (5.42)	3.05 (4.54)	4.87 (0.27)	5.75	1157	<.001
Number of biological children	1.35 (.72)	1.39 (.75)	1.30 (.67)	-2.27	1170	.023
Couple married, baseline	94 (8.01)	70 (10.75)	24 (4.61)	14.82	1	<.001
Couple married, 36 months	358 (30.52)	300 (46.08)	58 (11.13)	166.63	1	<.001

Preliminary Results (cont.)

Table 1: Descriptive statistics and bivariate analyses of study variables by fathers' resident status

Variable	Total sample (<i>N</i> = 1,173)	Resident father (<i>N</i> = 651)	Non-resident father (<i>N</i> = 521)			
	<i>M (SD)/n (%)</i>	<i>M (SD)/n (%)</i>	<i>M (SD)/n (%)</i>	<i>χ²</i>	<i>df</i>	<i>p</i>
Parent race/ethnicity, <i>n (%)</i>				117.92	3	<.001
Latine/Hispanic	209 (17.91)	179 (27.67)	30 (5.78)			
White	231 (19.79)	144 (22.26)	87 (16.76)			
Black	610 (52.27)	265 (40.96)	344 (66.28)			
Other	117 (10.03)	59 (9.12)	58 (11.18)			
Parent education, <i>n (%)</i>				0.99	2	.609
Neither parent high school	180 (15.38)	104 (16.02)	76 (14.62)			
One parent high school	426 (36.41)	229 (35.29)	197 (37.88)			
Two parents high school	564 (48.21)	316 (48.69)	247 (47.50)			
Treatment group, <i>n (%)</i>				13.44	1	<.001
Control	571 (48.68)	286 (43.93)	285 (54.70)			
Treatment	602 (51.32)	365 (56.07)	236 (45.30)			

Common Fate Modeling Results



CFI = 1.00, RMSEA = .00, SRMR = .01

Moderation Analysis Results

- Fathers' resident status did not moderate any of the relationships tested
- The chi-square difference test showed no statistical difference between the moderation and non-moderation models, $\chi^2(6, 1087) = 11.82, p = 0.66$, suggesting that the two models fit the data equally well and thus the non-moderation model should be retained
- Tested process likely similar for resident and non-resident father families



DISCUSSION



Summary of Key Findings

1. Both mothers and fathers from low-income contexts displayed moderate levels of parental responsiveness

2. Mothers' and fathers' shared parental responsiveness was linked with **higher levels of their preschoolers' prosocial behaviors**

3. Mothers' and fathers' shared parental responsiveness was linked with **higher levels of their preschoolers' receptive language**

4. Fathers' resident status did not moderate any of the examined relationships

Interpretation of Key Findings

- Racially diverse parents from low-income contexts engage in positive parenting that benefit their young children's development
- When such mothers and fathers exhibit shared parental responsiveness, it may provide young children with a sense of stability and predictability linked with their prosocial and language development

(Meteyer & Perry-Jenkins, 2009; Rinaldi & Howe, 2012; Tavassolie et al., 2016)



Interpretation of Key Findings

- Supports findings from prior studies on mothers' and fathers' parental responsiveness and their links to preschoolers' cognitive abilities and the broader literature on parental sensitivity and child language development

(Lee et al., 2021; Madigan et al., 2019; Meteyer & Perry-Jenkins, 2009; Ward & Lee, 2020)



Interpretation of Key Findings

- Notable that there was a null relationship between shared parental responsiveness and child behavior problems
- This is both consistent and inconsistent with prior research, especially that using BSF data
- Methodological differences and child effects as possible explanations

(Barnett et al., 2021; Cooke et al., 2022; Lee et al., 2018; Pleck, 2010; Ward & Lee, 2020)

Interpretation of Key Findings

- Other reasons for differences:
 - Child effects, behavior problems' stronger effect on shared responsiveness than other way around
 - BSF families volunteered so low levels of behavior problems, lack of variance
 - Combined internalizing and externalizing items



Interpretation of Key Findings

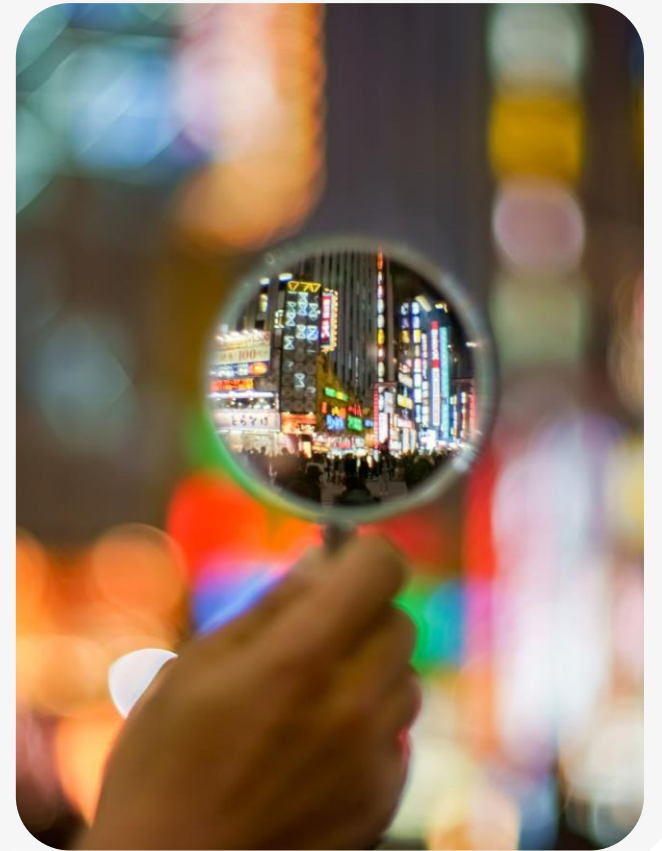
- No moderation by fathers' resident status suggests that shared responsiveness may be a dimension that is important for children irrespective of fathers' resident status

(Barnett et al., 2021; Cooke et al., 2022; Lee et al., 2018; Pleck, 2010; Ward & Lee, 2020)



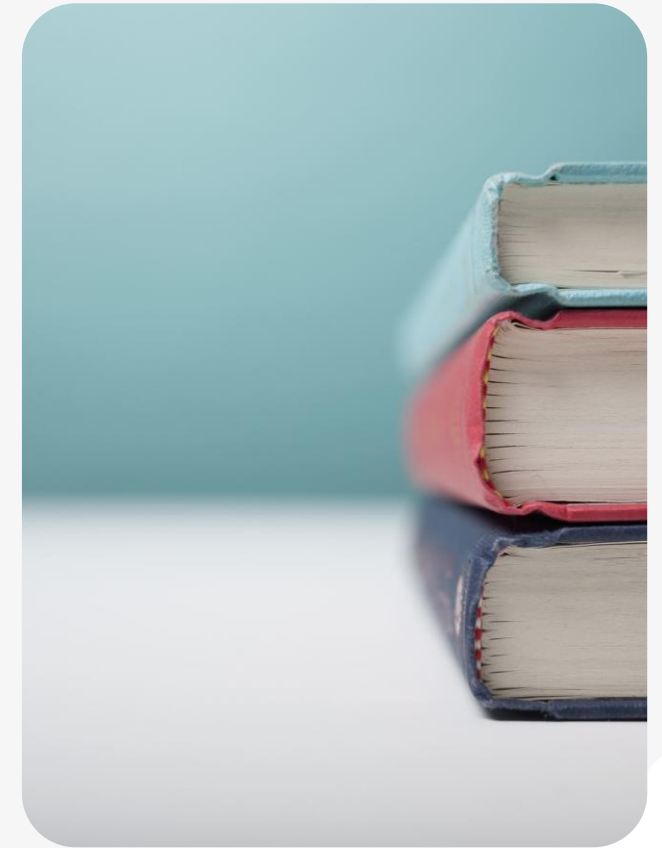
Limitations and Future Directions

- Additional work on: what vs. how?
- Cross-sectional study design
- Parents who volunteered so findings not generalizable
- Mothers' reports of child behavior problems and prosocial behaviors



Limitations and Future Directions

- Strengths include application of family systems theory to a large and racially diverse sample of families from low-income contexts, dyadic analysis, use of observational parental responsiveness, moderation by fathers' resident status



Implications for Family Practice & Policy

- In early parent education programs, practitioners can encourage fathers and mothers to be aware of how they display responsiveness toward their children
 - Support couples working toward **aligning responsive behaviors** and, more broadly, coordinating their parenting styles to work as a joint team and thus promote their children's healthy development



Implications for Family Practice & Policy

- Shared parental responsiveness is beneficial for children even after their mothers and fathers are no longer in romantic relationships
 - Promote shared parental responsiveness in **mothers' and non-resident fathers' coparenting relationships**



Implications for Family Practice & Policy

- Family-strengthening policies to focus on **promoting shared parental responsiveness** (instead of marriage per se)
 - Leveraging values present in families of color is more aligned with antiracist and culturally responsive approaches to serving diverse families and children



Implications for Family Practice & Policy

- A more strength-based approach to HMRF
- Soliciting community input, including preferences of parents reflected
- Leverage online delivery of programs (e.g., more timely delivery of sessions, overcoming of multiple barriers)
- Putting unmarried and married couples together
- Most effective fatherhood interventions occur in the community with fathers convened in groups
- Broader set of supportive resources and structures for parents with low income to address economic and material needs

(Hawkins et al., 2021; Henry et al., 2020; Whicher et al., 2022)





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lee.10148@osu.edu
www.cfwlaboratory.com





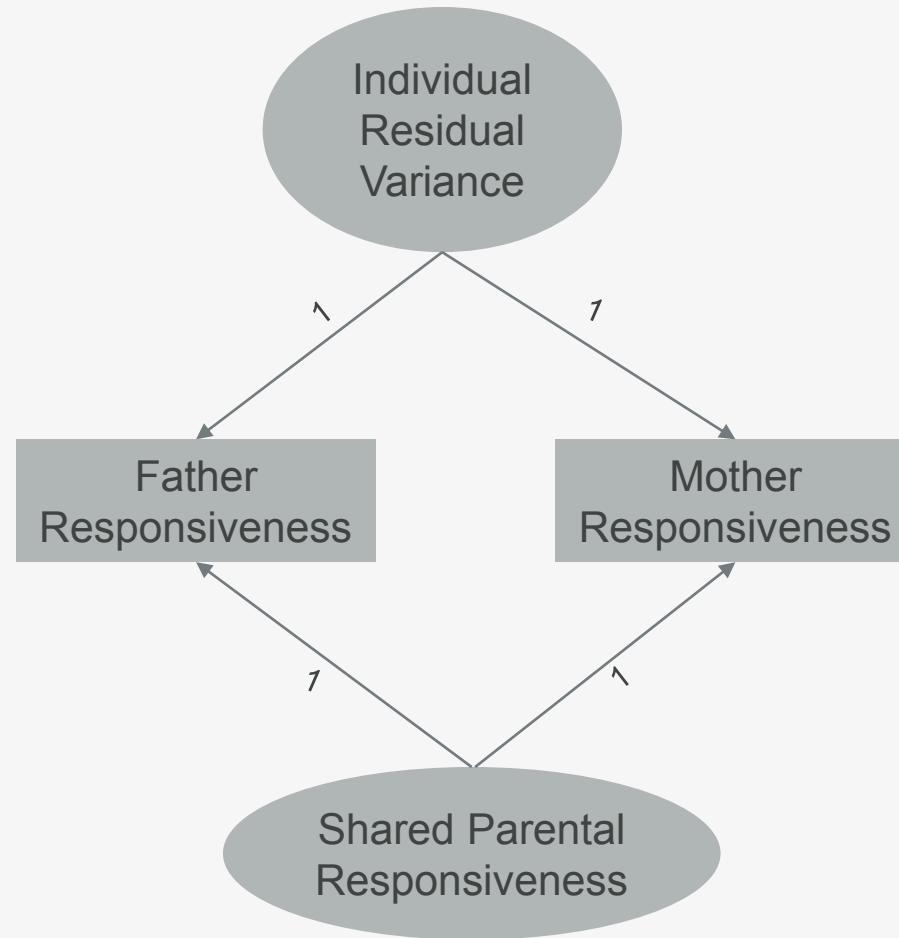
Introduction

Joyce Y. Lee, PhD, MS, MSW, LCSW

- Assistant Professor of Social Work
- Director of the [Child and Family Wellbeing Laboratory](#)
- Child welfare & family strengthening scholar
- Foster child welfare and family strengthening through (1) preventing child maltreatment, (2) supporting positive parenting (especially fathering), and (3) promoting the health and development of children affected by the child welfare system
- BASW Rutgers, MSW Columbia, Joint PhD University of Michigan; clinical experience



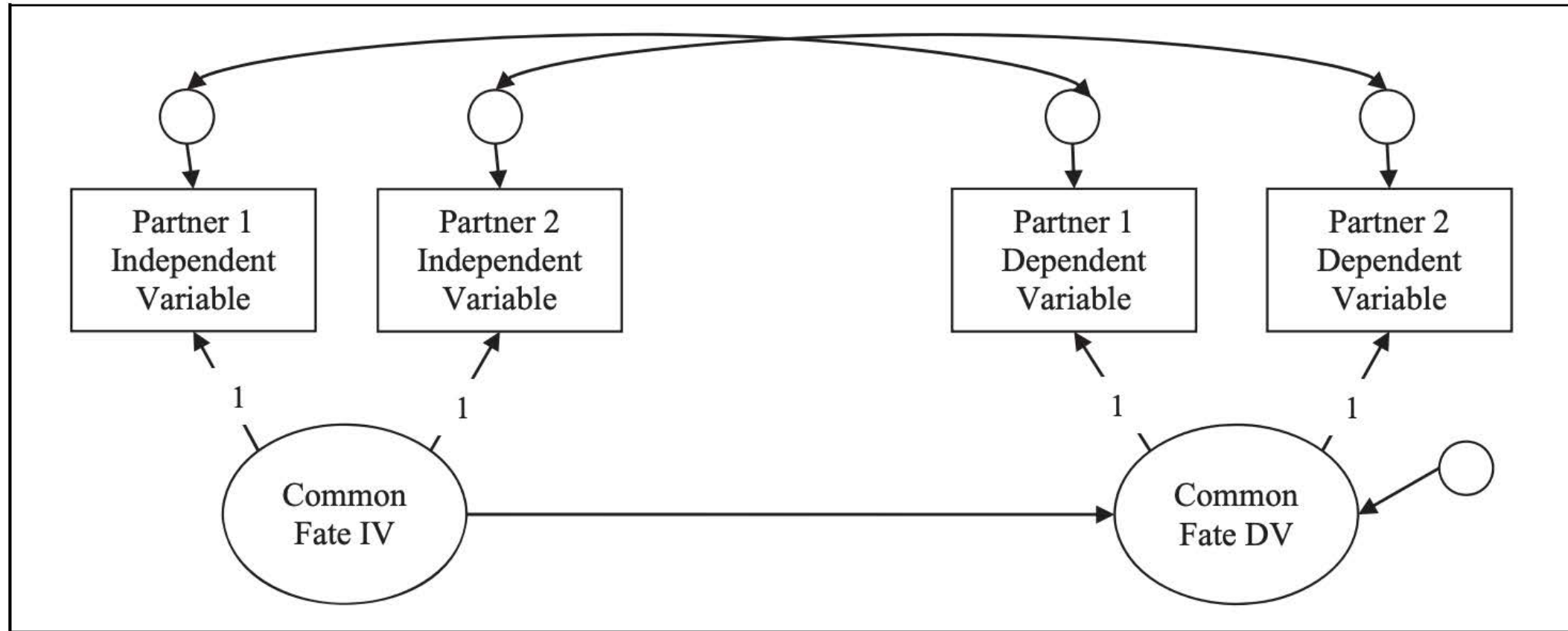
Measurement Model Results



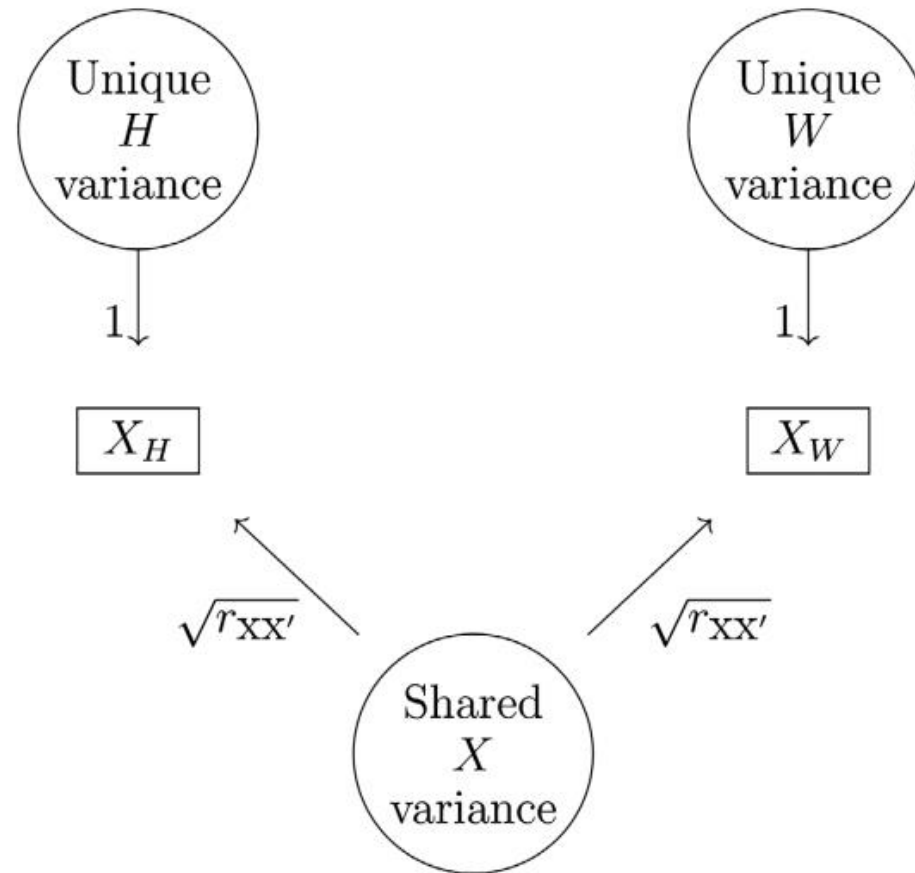
CFI = 0.98, RMSEA = .03, SRMR = .04



More on Common Fate Modeling



More on Common Fate Modeling



Common Fate Modeling Code

```
MODEL:
!Observed mothers' resp and fathers' resp used to created shared resp LV, factor loadings constrained to be equal at 1
Shared BY m3resp@1 f3resp@1;
[m3resp f3resp](1);

!Define mothers' and fathers' residuals as factors
Mres BY;
Fres BY;

!Fix loading of mothers' and fathers' residuals to be 1
m3resp ON Mres@1;
f3resp ON Fres@1;

!Equality of variance on phantom variables; constraining mothers' and fathers' residual variances to be equal
Mres Fres (error);

!Fixing the variances of the observed mothers' and fathers' responsiveness variables to zero
m3resp@0;
f3resp@0;

!Uncorrelate mothers' and fathers' residuals with factor and each other
Mres WITH Shared@0;
Fres WITH Shared@0;
Mres WITH Fres@0;

!Int1 | Shared XWITH Residential;
!Int2 | Mres XWITH Residential;

!Structural
k3bpi_m ON Shared (a1);
k3bpi_m ON Mres (b1);
k3bpi_m ON Fres (b2);
!k3bpi_m ON Int1;
!k3bpi_m ON Int2;

!Covariates
k3bpi_m ON Residential hisp white other hs1 hs2 m1age f1age boy
c1mar m3cesd f3cesd m1biokidsf tx c3mar_agree;

Shared ON Residential hisp white other hs1 hs2 m1age f1age boy
c1mar m3cesd f3cesd m1biokidsf tx c3mar_agree;

!defining it as the opposite (complement); b2 is the part that is separate from b1 through
MODEL CONSTRAINT:
b2 = -1*b1;
```

Relevant References

- Galovan, A. M., Holmes, E. K., & Proulx, C. M. (2017). Theoretical and methodological issues in relationship research: Considering the common fate model. *Journal of Social and Personal Relationships*, 34(1), 44–68. <https://doi.org/10.1177/0265407515621179>
- Gonzalez, R., & Griffin, D. (2003). A statistical framework for modeling homogeneity and interdependence in groups. In G. J. O. Fletcher & M. S. Clark (Eds.), *Blackwell handbook of social psychology: Interpersonal processes* (pp. 505–534). Blackwell Publishers.
- Gonzalez, R., & Griffin, D. (2012). Dyadic data analysis. In H. Cooper, P. M. Camic, D. L. Long, A. T. Panter, D. Rindskopf, & K. J. Sher (Eds.), *APA handbook of research methods in psychology, Vol 3: Data analysis and research publication* (pp. 439–450). American Psychological Association. <https://doi.org/10.1037/13621-022>
- Ledermann, T., & Kenny, D. A. (2012). The common fate model for dyadic data: Variations of a theoretically important but underutilized model. *Journal of Family Psychology*, 26(1), 140–148. <https://doi.org/10.1037/a0026624>

