



Role of Fathers in Birth Outcomes

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New Directions in Birth Outcomes Research

- Integrated Frameworks
- Life course
- Environmental pollutants
- Genetics
- Fathers???



Disparities and Role of Father

- Pervasive and persistent birth outcome disparities in the U.S.
 - Socioeconomic status
 - Current and childhood (intergenerational)
 - Race/ethnicity
 - Black, Native Americans, Asian subgroups
- Paternal risk factors more frequent in these families?
- Mothers more vulnerable to paternal risk factors in these families?



Socioeconomic/Cultural Landscape of Fatherhood

- Transformation of roles and duties assigned to fathers in U.S. society
 - Expansion of role beyond provider
 - Father now recognized as contributing to *economic, social, and emotional* development of family, especially children



Socioeconomic/Cultural Landscape of Fatherhood

- Collapsing industrial employment sector
 - Black and low SES fathers especially affected by these declines.
 - Male unemployment pivotal factor in marriage rates.



Paternal Factors and Birth Outcomes

- Multiple pathways
 - Direct
 - Mediation by maternal factors
 - Moderation by maternal factors

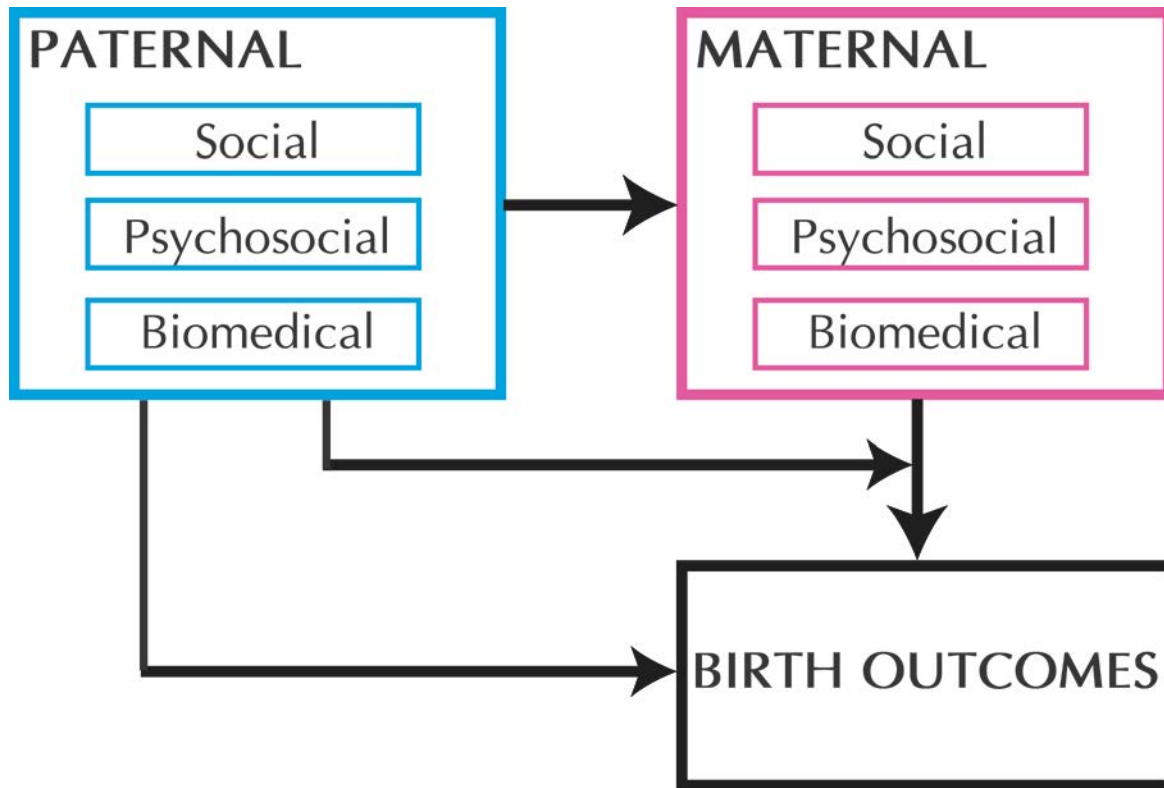


Figure 1. Conceptual framework.



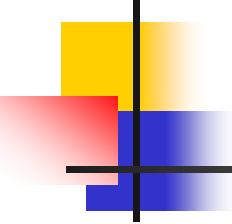
Paternal Factors and Birth Outcomes

- Multiple pathways
 - Direct
 - Carried by the sperm.
 - Effects produced by paternal genetic variation
 - Inherited
 - spontaneous (e.g. exposure to a toxicant)
 - Until recently was the primary area of research on paternal factors and birth outcomes
 - hazardous occupational exposures
 - correlations between paternal and offspring bw



Paternal Factors and Birth Outcomes

- Multiple pathways
 - Mediation and moderation by maternal factors
 - Emerging area of literature



Limitations of Past Research on Paternal Factors

- Focus on direct effects
- Often only consider age, occupation and SES as paternal factors for study.
- Often exclude the complex and often correlated maternal contribution.
- Data often collected by proxy (mother).



Paternal Factor Domains: Empirical and Theoretical

- Social
- Psychosocial
- Biomedical
- Overlap
 - Age is social and biomedical.



Paternal Social Factors and Birth Outcomes

- 1988 NMIHS
 - maternal & *paternal* SES factors separated
 - maternal & *paternal* education were independent and strong predictors of bw
- Studies of child (not birth) outcomes
 - Under-education and under-employment affects ability of fathers to contribute to their child.



Paternal Psychosocial Factors and Birth Outcomes

- Paternal involvement measures
 - Father identified on birth certificate
 - Relationship status and duration



Paternal Psychosocial Factors and Birth Outcomes

- Psychosocial factors from literature
 - Paternal involvement measures
 - Father identified on birth certificate
 - Child given fathers surname
 - Relationship
 - Relationship type: romantic; cohabiting
 - Financial and in-kind contribution
 - Duration
 - Attitude toward pregnancy/fatherhood



Paternal Psychosocial Factors and Birth Outcomes

- Father identified on birth certificate
 - Georgia (Guadino et al, 1999)
 - Infant mortality 2x higher if no father identified.
 - U.S. 1995-96 (Phipps et al, 2002)
 - Confirmed higher IMR if no father identified.



Paternal Psychosocial Factors and Birth Outcomes

- Relationship

- 1995 NSFG (Bird et al, 2000)

- No effect on LBW associated with type or duration of relationship with baby's father
 - Married women were more likely to initiate pnc than women in noncohabiting nonmarital relationships.



Paternal Psychosocial Factors and Birth Outcomes

- Relationship

- Baltimore PTB Study (Straughen, Misra, Caldwell, under review)
 - 8 item partner support scale ($\alpha=.95$)
 - No differences in pregnancy outcomes or health behaviors by relationship type or when partner support was examined.
 - Partner support was also not associated with health behaviors, including PNC.



Paternal Psychosocial Factors and Birth Outcomes

- Attitude toward pregnancy
 - PRAMS 2000-2003 Oklahoma data
 - When father ambivalent or did not intend pregnancy, maternal smoking much more frequent than when father intended pregnancy.
 - 1st trimester pnc much more likely when father intended pregnancy than when father ambivalent or did not intend pregnancy.



Paternal Psychosocial Factors and Birth Outcomes

- Attitude toward pregnancy
 - Low income prospective cohort (Keely et al 2004)
 - Asked pregnant woman to rate her and her partner's happiness about pregnancy.
 - Greater reported happiness by the partner in comparison with the mother's feelings was associated with lower birth weight.



Paternal Psychosocial Factors and Birth Outcomes

- Fragile Families Study
 - Multiple measures of paternal factors
 - Collected data directly from fathers
 - **But** low recruitment rate so analyses relied on paternal data reported by the mothers.
 - Early childhood focus of study but did collect birth outcomes data.



Paternal Psychosocial Factors and Birth Outcomes

- Fragile Families: Teitler, 2001
 - Seven dimensions paternal involvement.
 - Paternal involvement from all measures associated with improved early pnc.
 - Some paternal involvement measures associated with reductions in maternal smoking and drug use.
 - No effect of paternal involvement on LBW.
 - Did not examine birth weight as continuous.



Paternal Psychosocial Factors and Birth Outcomes

- Fragile Families: Padilla & Reichman, 2001
 - Limited analysis to unmarried sample.
 - LBW risk higher for mothers romantically involved but not cohabiting compared to those cohabiting.
 - Mothers w/little or no romantic relationship with the father **and** not cohabiting were not at increased LBW risk.
 - Financial/in-kind contributions associated with decreased LBW risk.



Paternal Psychosocial Factors and Birth Outcomes

- Intervention: Prenatal services to adolescent fathers (Barth et al, 1988)
 - Fathers' participation in prenatal services associated with:
 - higher birth weight
 - narrowing of racial differences
 - decreased LBW risk



Paternal Psychosocial Factors and Birth Outcomes

- Qualitative study of prenatal care (Milligan et al, 2002)
 - “When my girlfriend was pregnant, (she) had to take care of this, take care of that, and she was **smoking and drinking**, and I was going behind saying that’s the wrong thing to be doing. (In) certain ways I **stood behind her** (to) make sure she was **doing the right things**. (She) started **going to programs** and liking them. (You) must make sure that they make appointments on time and just spend the time... ”



Paternal Psychosocial Factors and Birth Outcomes

- Qualitative study of prenatal care (Milligan et al, 2002)

Quote from male participant:

“...and the Black male, what we can do, is **be the support unit** for them, we could be a shoulder for them in a way where we could take them to their appointments if we have the time, or we could be a sounding board for them if they have problems....”



Paternal Psychosocial Factors and Birth Outcomes

- Qualitative study of prenatal care (Milligan et al, 2002)

The father was also sometimes identified as a barrier, with this quote from a mother, “I didn’t go for my prenatal care or nothing. I stayed home, I was lazy, wouldn’t do nothing. My **baby’s father sent me through so much stuff**, I was like forget it.”



Paternal Biomedical Factors and Birth Outcomes

- Paternal age (independent of mom age)
 - Older paternal age sometimes associated with:
 - Reductions in bw and gestational age.
 - Increased LBW risk.
 - Increased preterm birth risk.
 - Younger age (usually considered social risk factor) associated with higher risk but usually not independent of mom (usually also adolescent).



Paternal Biomedical Factors and Birth Outcomes

- Paternal health status rarely examined.
 - Paternal insulin resistance and diabetes in late adulthood inversely associated with offspring bw. (Wannamethee et al, 2004)
 - Offspring of diabetic fathers have significantly lower bw. (Lindsay et al, 2000; Krishnaveni et al, 2005)



Paternal Biomedical Factors and Birth Outcomes

- Paternal birth weight
 - Most studies have reported associations between paternal and offspring bw.
 - Generally the correlations are weaker than between the mother's own bw and that of the offspring.



Paternal Biomedical Factors and Birth Outcomes

- Paternal smoking
 - Many ETS studies report associations with bw.
 - Paternal smoking is associated with bw.
 - Paternal behaviors might influence outcomes directly or through maternal behaviors.
 - Studies suggest women are indeed more likely to smoke, drink alcohol, and use drugs if their male partner is engaged in these activities



Paternal Biomedical Factors and Birth Outcomes

- Other Paternal Health Behaviors
 - Little literature on others such as drugs, alcohol, physical activity.



Implications for Interventions to Improve Birth Outcomes

- Expand services beyond mom.
- Partner with dad when delivering interventions.
 - Family as focus of intervention?

Fathers Matter Pilot Study

Caldwell, Misra & Young

- Funding: UM Interdisciplinary Center on Social Inequalities, Mind and Body, NIH





Fathers Matter Study

Caldwell, Misra & Young

■ Specific Aims

- 1) to describe the general functioning and psychological well-being of fathers.
- 2) to examine the influences of chronic stress, including economic and racial discrimination, on the quality of relationship between fathers and their pregnant wives/partners.



Fathers Matter Study

Caldwell, Misra & Young

- Specific Aims

- 3) to assess the direct and indirect links between paternal stress, relationship quality and social support on proximal pregnancy outcomes (e.g., maternal stress).
- 4) to determine the prenatal service needs of fathers to help them in fulfilling their fathering role responsibilities.



Fathers Matter Study

- Recruit African-American mother-father dyads prior to 26 weeks gestation
 - Included all relationship types
 - Married
 - Cohabiting
 - Romantically involved but not cohabiting
 - Not involved
- Structured interview (both)
- Focus groups (fathers only)



Fathers Matter Study

- Areas of Research
 - Family structure and economics
 - Work status
 - Occupational history
 - Job demand/control scale
 - Social relationships
 - Relationships
 - Social support



Fathers Matter Study

- Areas of Research
 - Relationship with MOB and her mother/
relationship with FOB and his mother
 - Contact
 - How pregnancy affected relationships
 - MOB/FOB relationships scales



Fathers Matter Study

- Areas of Research
 - Relationship with baby (father)
 - Locus of control specific
 - Expected contact
 - Involvement with pregnancy, including barriers
 - Role of father scale (Palkovitz)



Fathers Matter Study

- Areas of Research
 - Relationship with respondent's mother
 - Relationship with respondent's father

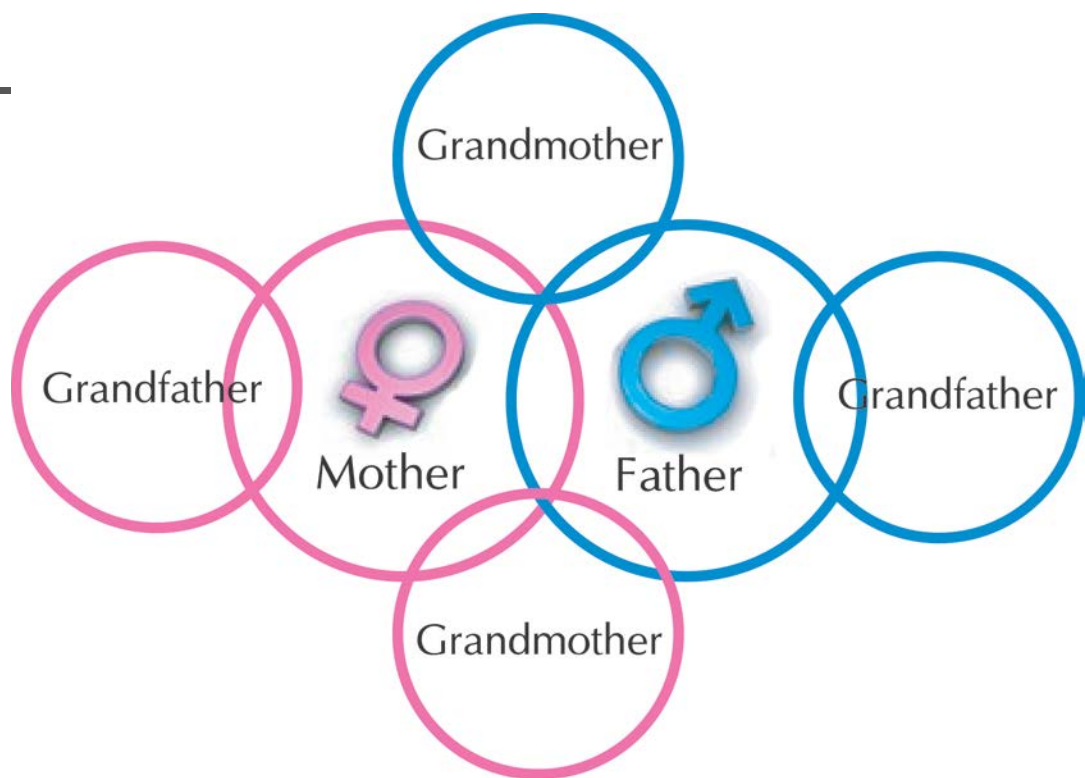
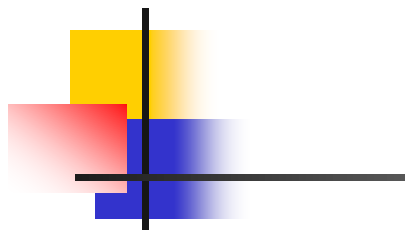


Figure 2. Family relationships.



Fathers Matter Study

- Areas of Research
 - Personal characteristics
 - Depressive symptoms scale (CES-D revised)
 - Mastery scale
 - Coping scale
 - Masculinity scale (both men and women)



Fathers Matter Study

- Areas of Research
 - Health
 - Health
 - Health care access
 - Health Behaviors



Fathers Matter Study

- Areas of Research
 - Religion
 - Racial identity and discrimination
 - Multidimensional inventory of black identity
 - Major experiences of discrimination



Fathers Matter Study

- Areas of Research
 - Service utilization
 - Schooling



Fathers Matter Pilot Study 1

- Ypsilanti Family Medicine prenatal clinic
- Mothers asked to bring the father into the study.
 - 75 mothers interested, 55 eligible
 - 25 father-mother dyads enrolled over 2 y
- Eligible: Black, pregnant, ≥ 18 yrs old



Fathers Matter Pilot Study 2

- Providence Hospital prenatal clinic
 - Subgroup within the LIFE preterm study
 - Allows for non responders to fathers study.
- Mothers asked to bring the father into the study.
 - 38 eligible pregnant women approached
 - 18 father-mother dyads enrolled over 2 mo
 - 12 refused; 8 no shows
- Eligible: Black, pregnant, ≥ 18 yrs old

Fathers Matter:

Pilot 1 & 2 Results (n=50)

- Race: Black, per criteria
- Age
 - Mean paternal age 27.8 years
 - Mean maternal age 26.2 years
- Education
 - 67% fathers HS educ, 16% fathers GED
 - 70% mothers HS educ, 11% mothers GED
- Relationship
 - 18% mothers currently married
 - 20% fathers currently married
 - 30% mothers never married
 - 44% fathers never married

Fathers Matter:

Pilot 1 & 2 Results (n=50)

- CES-D (0 – 60)

Mothers

- 54% scored >16
 - Frequent cutoff
- 24% scored >23
 - Clinical depression?
- Mean, 17.5 (sd 10.8)

- CES-D (0 – 60)

Fathers

- 38% scored >16
 - Frequent cutoff
- 16% scored >23
 - Clinical depression?
- Mean, 14.6 (sd 9.8)



Fathers Matter: Pilot 1 & 2 Conclusions

- Mothers' depressive symptoms did not predict fathers' depressive symptoms,
- These symptoms were not significantly correlated or greater for one partner within the relationship.
- Higher conflict between partners and lower social support was associated with more depressive symptoms for both fathers and mothers.



Fathers Matter

- Suggests that Black fathers may experience high rates of depressive symptoms.
- Unexplored avenue that may be linked to birth outcomes for Black families.

Wayne State University

L.I.F.E. Study

Life 
Influences on
Fetal
Environments
Study



Study Team:

- PI: D Misra (WSU)
- Co-I: C Caldwell (U Mich)
- Co-I: T Osypuk (U Minn)
- Co-I: R Platt (McGill U)
- Data Analyst: L Helmkamp
- Project Manager:
R Dailey
- Postdoctoral fellows:
J Straughen
J Slaughter
S Sealy-Jefferson

NICHD grant 5R01HD58510



Fathers Matter

- Paternal data
 - Proxy reporting by mother (n=1411)
 - Reporting by both mother & father (n=25)
- Next steps
 - Analyze associations with birth outcomes
 - Complete analyses of agreement and associations with birth outcomes.
 - Obtain funding for large scale study!

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