

Child Care and Education and Child Development

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Child Care and Child Development

- Several ways to consider
 - Dimensions of child care
 - Quality
 - Quantity
 - Type
 - Sources of evidence
 - Experimental
 - Natural history

Child Care Research

- Importance of topic -> extensive funding of research
- Initial work – 1970’s and 1980’s
 - Early intervention studies – low income children
 - “Day Care Wars”
- Large studies – 1990’s
- Targeted studies – 2000’s

Early Child Care Research

- Early intervention studies – low income children. 10+ studies funded by NICHD
 - Abecedarian Project
 - Experimental study
 - Full time child care (4months to kindergarten entry)
 - Long-term effects: higher IQ, more likely to have a nonmenial job or attend college
 - More behavior problems at entry to school, but not more as young adults
 - Cost benefit analysis: \$2.50 / \$1

Early Child Care Research

- Perry Preschool
 - Experimental Study
 - Fulltime care beginning at 3 years of age with parenting component
 - Long-term: fewer adults in judicial system
 - Cost-benefit analysis \$12.50 / \$1
- Lazar & Darlington – follow-up of 8 older experimental studies
 - More likely to finish high school
 - Less likely to receive special education
 - Less likely to be retained
- *These findings from experimental studies used to justify Head Start in US as an enrichment program for low-income children*

Early Child Care Research

- “Day Care Wars” - 1980’s
 - Insecure attachment related to child care in infancy (Belsky and others)
 - Cognitive and social skills related to child care quality (Clarke-Stewart, Howes, McCartney, Phillips, Scarr)
 - *Few, if any, controls for family characteristics .*

Two Perspectives

- Early child care promotes cognitive and social competencies
- Early child care results in problem behaviors

Understanding the conditions under which early child care is linked to children’s functioning has been a primary aim of the NICHD Study of Early Child Care since its inception in the early 1990s.

Large Child Care Studies – 1990’s

- Concern led to funding large projects
 - NICHD Study of Early Child Care and Youth Development
 - Cost, Quality, and Child Outcomes Study
 - Head Start
 - Family and Child Evaluation Study
 - Early Head Start
 - Head Start Impact Study
- Many smaller studies also funded

NICHD Study of Early Child Care and Youth Development

- 1989 NICHD funded 10 sites to conduct a large scale study
 - Initial goal: Study nonmaternal care and attachment
 - Other goals: Relate child care experiences to
 - Parenting
 - Cognitive and language development
 - Social and emotional development

NICHD Study of Early Child Care and Youth Development-

Sample

- 1,364 eligible births occurring during 1991
- Sampling designed to assure adequate representation of major socio-demographic niches
- Ten data collection sites
- 24 hospitals

Location of participating families



Sample Demographic Characteristics At Recruitment

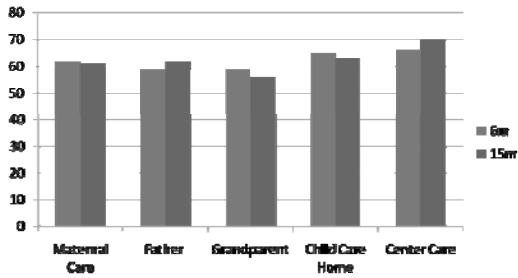
Income-to-Needs	
0-1 (poverty)	5.9%
>1-1.8 (near poverty)	11.9%
>1.8 (nonpoor)	82.2%
Maternal Education	
No HS Degree	6.3%
HS Degree or GED	19.7%
Some College	33.2%
College Degree or more	40.9%
Child Ethnicity	
White, Non-Hispanic	79.3%
Black, Non-Hispanic	10.5%
Hispanic	6.2%
Other	4.1%
Child Gender	
Male	51.7%
Two-Parent Family	
Yes	76.5%

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Attachment

- Strong evidence that attachment security related to maternal sensitivity
- No evidence that nonmaternal care was related to attachment security
 - No evidence that child care quality, amount of care, age of entry to care, stability of care, or type of care
- Some evidence that poor quality child care exacerbated negative effects of poor parenting

Proportion of Securely Attached Children

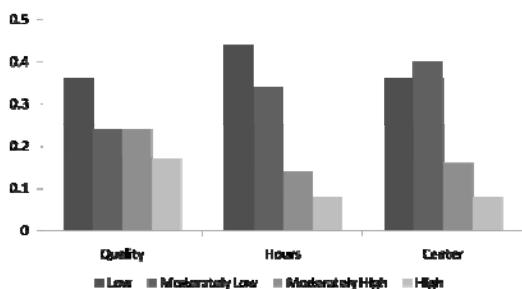


Child Care Measures

- Hours of non-relative care - Mother reports of hrs/wk every 3-4 months
- % center type care - Mother reports of types of arrangements every 3-4 months (16 epochs in all)
- Observed quality assessed at 6, 15, 24, 36, and 54 months using 4-point scales

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Distributions of Child Care Quality, Hours, and Center Type

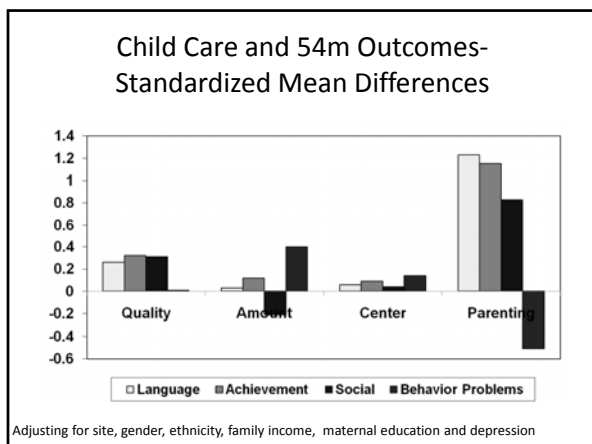


Note: Quality categories: Low 1-2.75, Moderately Low 2.75-3.00, Moderately High 3.00-3.30, High 3.30-4.00
 Hours categories: Low 0-10, Moderately Low 10-30, Moderately High 30-40, High >40
 Center Low 0, Moderately Low 0-33%, Moderately High 33-66.7%, High 67%-100%

Previous Findings from the NICHD SECCYD

- Child Care Quality
 - Higher quality child care predicted better pre-academic skills and language performance
- Child care quantity
 - Higher hours in care predicted with more behavior problems
- Child care type
 - Experience in center-type care predicted better language skills and memory, but also more behavior problems.

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Do Effects of Early Child Care Extend to Age 15?

- **Four Possibilities**
 - Disappear
 - Carry forward
 - Serve as a spring board
 - Emerge

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Adolescent Outcomes

- **Cognitive-Academic Achievement**
Woodcock-Johnson (Picture Vocabulary, Verbal Analogies, Passage Comprehension, Applied Problems)
- **Risk Taking** – 36-items youth report
- **Impulsivity** – 8-items youth report
- **Externalizing** – 30-items youth report

Analytic Strategy

SEM with full information maximum likelihood (FIML) used to examine the 3 questions

Analyses based on the full sample (n= 1364)

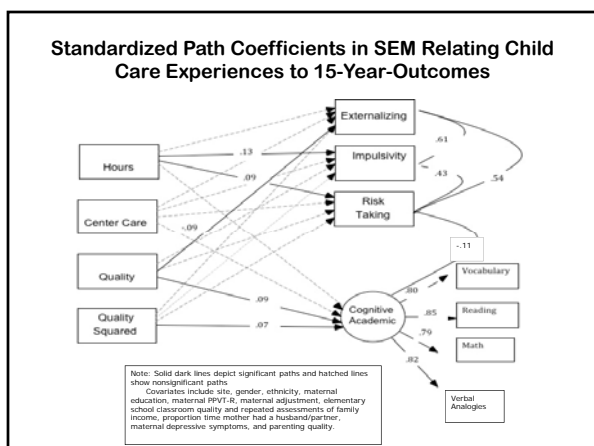
When significant associations detected, effect sizes computed: $d = B \times SD_{\text{predictor}} / SD_{\text{outcome}}$

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Efforts to Reduce Selection Bias

Child and family background covariates

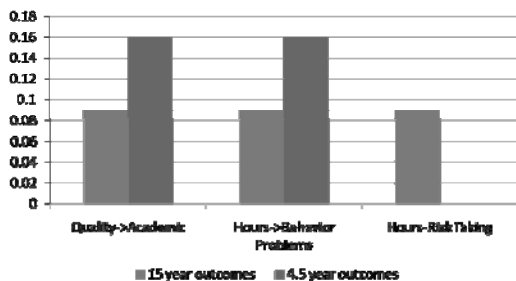
	Early Childhood	Middle Childhood	Adolescence
Child Gender	X		
Child Ethnicity	X		
Income to needs ratio	X	X	X
Two parent household	X	X	X
Maternal Education	X		
Maternal PPVT	X		
Maternal Adjustment	X		
Maternal Depression	X	X	X
Parenting Quality	X	X	X
Classroom quality	X	X	X



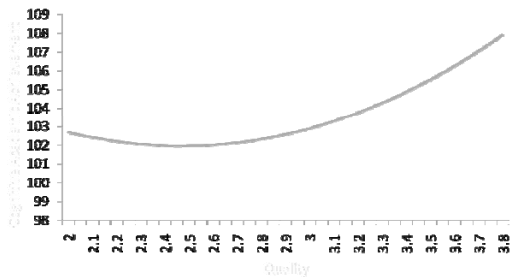
Longer-term associations

- !5 years-follow up: small, but reliable, associations
 - Quality of care
 - Language/academic composite (d=.10)
 - Problem behaviors (d=-.08)
 - Hours/week of nonrelative care
 - More risk taking (d = .08)
 - Impulsivity (d=.12)
 - Center care was not related 15 year outcomes

Child Care Effect Sizes



Predicting Cognitive-Academic Achievement from Child Care Quality Using Quadratic Regression



Who benefits or loses?

- SECCYD – no evidence of either stronger positive effects for low-income children or negative effects for middle- or high-income children
- Child care experiences so confounded with family characteristics

Cost, Quality, and Child Outcomes

- 1992-1997: examined center care in 4 states – North Carolina, Colorado, California, Connecticut
- Examined cost and quality of infant/toddler and preschool care
- Child outcomes assessed for 4 years-olds and children followed through second grade

Cost, Quality, and Child Outcomes Study

Sample

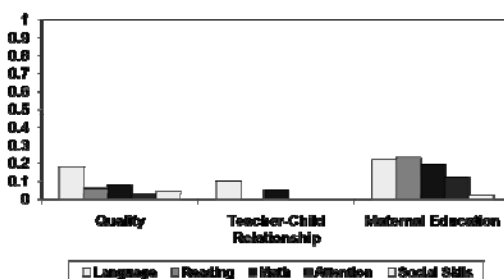
- 100 child care programs randomly selected per location
- Sites selected to reflect differences in regulations
- Two classes per program
- 4-10 children per class



CQO Findings

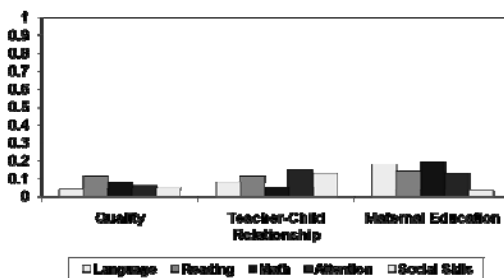
- Infant/toddler center care tended to be poor quality while preschool quality was mediocre quality
- Quality of care was related to child outcomes during the preschool and through second grade, especially for lower-income children
 - Language
 - Academic
 - Social Skills
- Low-income children received higher quality care when in publically funded programs

Child Care and 4-year Outcomes- Standardized Mean Differences



Adjusting for site, gender, ethnicity, family income, maternal education and depression

Child Care and 2nd Grade Outcomes- Standardized Mean Differences



Adjusting for site, gender, ethnicity, family income, maternal education and depression

Head Start

- Head Start FACES
 - Head Start tended to provide higher quality care than other programs for low-income children
 - Higher quality related to better outcomes
- Early Head Start
 - Combination of parent education and infant child care
 - Children’s language and social skills improved, especially if they were in child care

Head Start

- Head Start Impact Study
 - Nationally representative, experimental study
 - Random assignment in programs with wait list
 - Separate analyses of 3 year-olds and 4 year-olds
 - Head Start
 - Higher quality care
 - Higher language, reading, and math skills for 3 and 4 year-olds (mixed pattern of findings)
 - Language skills in first grade

Pre-kindergarten programs

- National Center for Early Development and Learning
 - Selected 11 states with largest mature programs
 - Randomly selected programs, classrooms within programs, and children within classrooms
 - Fall and spring data collection
 - Findings
 - Quality of instruction related to gains in academic skills
 - Teacher sensitivity related to gains in social skills

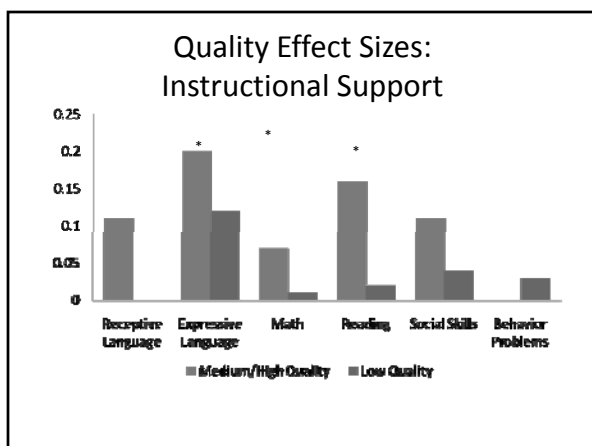
NCEDL Pre-Kindergarten Evaluation
Sample

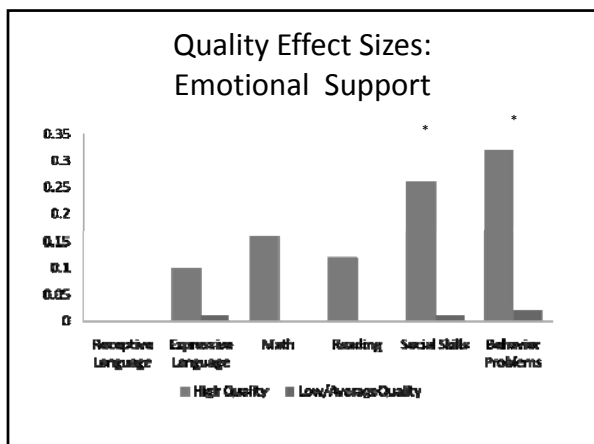
- 11 states
- 50-100 child care programs randomly selected per state
- One classes per program
- 4 children per class

Location of participating families

Analysis

- Spline or piecewise regressions
 - Allow for different association between quality and outcomes in high quality and low/average quality classrooms
 - CLASS Emotional Climate
 - High quality : scores of 5 -7 42% of sample
 - CLASS Instructional Climate
 - High/medium quality: scores of 3.25-7 16% of sample





Other Studies

- Low-income children appear to benefit from good quality infant child care
 - Durham NC, follow 100 African-American children.
 - Montreal,
 - Early Childhood Longitudinal Study – Birth & Kindergarten Cohorts

Summary

- Growing evidence of nonlinear associations
 - Quality related to child outcomes only when quality is relatively high
 - Caution: Evidence is not obtained in all analyses – but is suggestive



Conclusions

- Relatively consistent research finding:
 - Stronger language, academic, and social outcomes in higher quality child care classrooms
 - Experimental and natural history studies
 - Associations may be stronger with aligned than global quality measures
- Family “matters”:
 - Child care “effects” tend to be modest.
 - Family characteristics, especially parenting, tends to have larger effects

Conclusions

- Growing evidence that child care quality-outcome associations may be nonlinear
 - Stronger associations at higher quality levels
 - Weaker or not associations at lower quality levels

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