

Quality Dosage, Thresholds, and Features in Early Childhood Settings: Literature Review Tables

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INTRODUCTION

The Quality Dosage, Thresholds, and Features in Early Childhood Settings: Literature Review Tables provide summaries of the sample, measures, research questions, analytic approach, and findings of the studies that met the criteria for the literature review conducted for the Child Care and Early Education Quality Features, Thresholds and Dosage and Child Outcomes (Q-DOT) project.¹ The text of the literature review is available in a separate document (Zaslow et al. 2010).

The overarching goal of Q-DOT project is to examine existing evidence and provide new evidence on the issue of whether it is appropriate to move beyond the widespread assumption that children's outcomes improve linearly with improvements in overall quality in early childhood settings, to a more complex conceptualization that permits for the possibilities that:

- A certain dosage is needed before quality can be linked with child outcomes;
- Certain thresholds of early care and education quality need to be met before more positive outcomes for children are seen;
- The relationship between quality and child outcomes depends on the features of quality in relation to specific aspects of development (for example, whether young children's early literacy is better predicted by specific aspects of quality—such as amount and characteristics of adult speech to children—than by global measures of quality).

The project is intended to progress through a series of steps building progressively towards design work for fielding a new study of dosage, thresholds, and features. The steps include:

1. Conducting a review of existing research focusing on these issues
2. Considering how the existing literature points to needed modifications in the prevalent conceptualizations of how quality and child outcomes are linked
3. Carrying out secondary analyses with specific data sets to uncover information on thresholds, dosage, and features of quality, including analyses of data with children during infancy and toddlerhood and later in the preschool years, data from programs for which quality standards and participation goals are clearly articulated, and data from children's participation in early care and education of more widely varying quality and without prescribed participation goals
4. Revising the conceptual model of the linkages between quality and child outcomes based on the secondary data analyses, aiming for a more fully articulated logic model
5. Identifying the implications of all of these phases of the project for fielding a study of thresholds, dosage, and features of quality, including the use of quality measures that

¹ While the name of the contract for the present projects presents the key constructs in the order of features, thresholds, and dosage, we felt it would be more informative to summarize the literature in a different sequence, with the research on dosage first, followed by the research on thresholds and then features. This sequence also parallels the acronym that has been provided for the project: Q-DOT. Throughout this introduction and the subsequent sections of this literature review, the ordering of the key constructs is dosage, thresholds, and features. This ordering is not intended to carry any implications about the relative importance of each of the constructs. It represents only the logic the authors felt worked best for presenting the research.

allow a careful examination of specific quality features and a design that permits scrutiny of the role of extent of exposure to care above specific levels of quality with respect to specified quality features.

The literature review for which tables are presented here is the first of the planned steps. In order for the secondary analyses to make the most meaningful contributions to the goals of this project, it is essential that these analyses both build on and go beyond work done to date. A review of findings from previous research regarding quality dosage, thresholds, and features, supported by detailed tables, can identify the directions that the body of findings suggests will be most promising to pursue further. Secondary analyses will require decisions about how to operationalize quality dosage, thresholds, and features, as well as what analytic approaches to take in examining them. A review of the literature for this project will accordingly need to focus not only on patterns of findings, but also on which alternative operationalizations of each of the key constructs and which analytic approaches have proven most illuminating. Detailed tables can help in the identification not only of patterns of findings, but also of the most promising approaches to operationalization and analysis. Secondary analyses will involve testing of a conceptual model. It will be important for the literature review to guide the development of the conceptual model to be tested, and help ensure that such a model goes beyond prevailing models if the research base raises questions about them.

The literature review and supporting tables, together with the secondary analyses, in turn, are intended to build towards further revision of the conceptual model and planning for new data collection. Secondary data analyses will inevitably be constrained by the nature of the data already collected in terms of sample and data collection approach (for example, whether data were collected in the context of an evaluation study with a relatively small sample, or a large and representative national dataset). Secondary analyses will also be constrained by the measures used in an existing dataset. The literature review and supporting tables may contribute to the planning for new data collection by helping to identify needed sampling approaches and what gaps in current measurement approaches are critical to address. The literature review and secondary analyses may cumulatively suggest further revisions to the conceptual model that can only be examined empirically in new data collection.

Thus, the literature review and supporting tables will be a source of input both into the secondary data analyses and the design work for new data collection, including the further revision of a conceptual model around which the planning for new data collection can be organized.

In determining an effective approach in searching for literature to include in the review and summarize in the detailed tables, as an initial exploratory step, keyword searches were conducted using the three key terms of quality dosage, thresholds, and features. The keyword searches yielded very few studies. We considered it a strong possibility that findings related to these core constructs were embedded within the research examining the relationship between quality and child outcomes. Research may in fact be focusing on the core constructs of the present project without using these labels either in the titles or text.

A broader strategy for including research in the present review was therefore viewed as essential. To “throw a broader net,” we started our search by using the same criteria that had been used by Burchinal and colleagues (Burchinal, Kainz & Cai, in press; Burchinal, Kainz, Cai, Tout, Zaslow, Martinez-Beck & Rathgeb, May 2009) in identifying studies for their meta-analysis (please see text of literature review for further details about this meta-analysis). These criteria required that studies:

- Had undergone peer review,
- Involved examination of the association between quality and child outcomes utilizing widely used measures of quality,
- Included at least 10 center-based early childhood classrooms, and
- Focused on preschool-age children (between the ages of 3 and 5 years).

We note that the peer review requirement allowed for the inclusion of government reports that had undergone peer review as well as research published in peer reviewed journal articles. We also note that the requirement to include at least 10 center-based early childhood classrooms allowed for the inclusion of major early childhood study samples that included both center-based and home-based care, such as the NICHD Study of Early Child Care and Youth Development.

Using these selection criteria, our starting point was the set of studies included by Burchinal and colleagues in their meta-analysis (a total of 20 publications). A template for summarizing both the methodology and results of each study in table form was developed and reviewed by the project officer and others on the project team. The template was revised and finalized in light of the feedback received.

The template used in the literature review tables in the current document includes pages summarizing:

- Research sample,
- Measures of quality included in the study,
- Measures of family context and of child outcomes,
- Study questions, analytic approach and overall findings, and
- Whether and how analyses considered quality dosage, threshold, and features and/or the interrelationships of these, and results of these analyses.

The reference list for the initial set of studies included in the literature review, and preliminary conclusions from the review of these studies, were presented at the first meeting of the Technical Working Group for the project, held on January 28, 2010 in Washington, DC.

With input from the Technical Working Group, the review was extended to include studies of infants and toddlers. The review was also extended to include studies published after the completion of the meta-analysis by Burchinal and colleagues. In all, 39 studies were reviewed for the present literature review and are summarized in the tables in the present document.

REFERENCES

- Burchinal, M. R., Kainz, K., & Cai, Y. (in press). How well are our measures of quality predicting to child outcomes: A meta-analysis and coordinated analyses of data from large scale studies of early childhood settings. In M. Zaslow, I. Martinez-Beck, K. Tout & T. Halle (Eds.), *Measuring quality in early childhood settings*. Baltimore: Brookes Publishing.
- Burchinal, M. R., Kainz, K., Cai, Y., Tout, K., Zaslow, M., Martinez-Beck, I., & Rathgeb, C. (May 2009). Early care and education quality and child outcomes. Research-to-Policy Research-to-Practice Brief: OPRE Research-to-Policy Brief #1. Washington, DC: Office of Planning, Research and Evaluation, Administration for Children and Families, US DHHS, and Child Trends.
- Zaslow, M., Anderson, R., Redd, Z. Wessel, J., Tarullo, L. & Burchinal, M. (2010). Quality Dosage, Thresholds, and Features in Early Childhood Settings: A Review of the Literature, OPRE 2011-5. Washington, DC: U.S. Department of Health and Human Services, Administration for Children and Families, Office of Planning, Research and Evaluation.

All.a	Sample					
Publication Information	Original Data Collection or Secondary Data Analysis	How Sample Selected	Sample Size	Number of EC Classrooms in Sample	Family Demographic Characteristics	Child Characteristics (Including Age)
Specifications for Entering information in Table		Include here if sample is nationally representative; diverse but not representative; based on participation in a particular program etc.		If possible, note also number of programs and whether there were multiple classrooms within programs	Include here information provided on sample re income and/or SES, race/ethnicity, family structure, language in home, number of children in the family, parent employment status	Children's ages, gender, year or class in early childhood program participating in (e.g., pre-k year prior to kindergarten; 3 year old class in HS)
1. Blau, D. M. (1999). The Effect of child care characteristics on child development. <i>The Journal of Human Resources</i> , 34 (4), 786-822.	Secondary data analysis of National Longitudinal Survey of Youth (NLSY).	National Longitudinal Survey of Youth (NLSY) data. Children of female sample members are assessed every other year beginning in 1986. Mothers' data are from 1979-1992 and children's data are from 1986-1992. Data are nationally representative, but include oversamples of Blacks, Hispanics and originally also of low-income Whites and military enlistees.	NLSY sample: 12,652 individuals aged 14 to 21, selected in 1979. This study uses the data on the children of all female participants.	Not reported.	NLSY data: data from 1979-1992 on mothers and 1986-1992 on children. Race/ethnicity (8% Hispanic, 19% Black); number of children aged 6-11 (average was .89); mother's employment history (39% worked full-time during pregnancy, 29% worked full-time during child's first 3 years); household structure of mother as a child, education of her parents (grandmother education average was 10 years), marital status, education of spouse if married (average was 12.6 years).	NLSY data includes child's age (average age at final assessment was 8 years), sex (50% male), birth weight (average was 117.1 oz), birth order, if child was ever in Head Start or preschool (16% attended Head Start, most attended preschool of some kind).
2. Broberg, A. G., Wessels, H., Lamb, M. E., & Hwang, C. P. (1997). Effects of day care on the development of cognitive abilities in 8-year-olds: A Longitudinal study. <i>Developmental Psychology</i> , 33 (1), 62-69.	Original data collection.	Children from the waiting lists of public child-care facilities around Goteborg, Sweden in 1982 and 1983. Children were between 12 and 24 months, firstborn/not living with younger sibling, living with both parents, and not attending day care. Families represented a range of backgrounds, but not nationally representative. 75% of eligible families agreed to participate in the study.	146 children at 16 months, 123 children remained in the study at 8-years-old	Not reported.	Parents' social and occupational backgrounds (as determined by Hollingshead scores (weighted sums of mothers' and fathers' education and occupation scores)), social support, child-care arrangements, parental involvement, children's temperament, whether siblings had been born since the previous test point.	Age (tested at 16 months, 28 months, 40 months, 80 months, and 101 months); gender (72 of the original 146 children were female, 65 of the 123 in the follow-up group were female); number of months spent in non-parental child care between 16 months and 3.5 years of age;

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<p>3. Burchinal, M. R. & Cryer, D. (2003). Diversity, child care quality, and developmental outcomes. <i>Early Childhood Research Quarterly</i>, 18, 401-426.</p>	<p>Secondary data analysis of subset of sample from the Cost, Quality, and Outcomes Project (CQO) and NICHD Study of Early Child Care (SECC)</p>	<p>Two studies were chosen because they both measure child care quality and outcomes and included a large number of children of color.</p> <p>CQO: Children from CA, CT, CO, NC and had to be eligible for kindergarten in the fall of 1994, enrolled in a classroom during a quality observation, expected to be in program for full year, and from English-speaking home.</p> <p>SECC: Children from 10 cities in U.S.; had to be white, African American, or Hispanic; enrolled in child care for at least 10 hours per week at 36 months old.</p>	<p>CQO: 546 children SECC: 584 children</p> <p>Both samples vary in size in some analyses due to missing information, etc.</p>	<p>CQO: 170 classrooms SECC: number of classrooms is not given</p>	<p>CQO: Average income for white families \$54,000, African-American families \$27,000, and Hispanic families \$21,000; 6% of white families were in poverty, 34% of African-American families, and 50% of Hispanic families; sample was 68% white, 15% African-American, 4% Asian, 6% Hispanic, 1% Native American (note: only white, African-American, and Hispanic children were included in analyses); average years of maternal education for white families 14.61, African-American families 13.18, Hispanic families 12.52.</p> <p>SECC: 6% of white families were in poverty, 27% of African-American families in poverty, 20% Hispanic families in poverty; 83% White, 10% African-American, 7% Hispanic; average years of maternal education for white families 15.01, African-American families 13.18, and Hispanic families 13.65.</p>	<p>CQO: Average age of child was 4.3 years old; % of children whose caregiver is of same ethnicity for white children 77%, African-American 47%, and Hispanic 42%.</p> <p>SECC: Children were observed/assessed at 6, 15, 24, and 36 months of age. % of children whose caregiver is of same ethnicity for white children 86%, African-American 70%, and Hispanic 34%.</p>

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Specifications for Entering information in Table		Include here if sample is nationally representative; diverse but not representative; based on participation in a particular program etc.		If possible, note also number of programs and whether there were multiple classrooms within programs	Include here information provided on sample re income and/or SES, race/ethnicity, family structure, language in home, number of children in the family, parent employment status	Children's ages, gender, year or class in early childhood program participating in (e.g., pre-k year prior to kindergarten; 3 year old class in HS)
4. Burchinal, M. et al. (2000). Children's social and cognitive development and child care quality: Testing for differential associations related to poverty, gender, or ethnicity. <i>Applied Developmental Science</i> , 4 (3), 149-165.	Secondary data analysis: (the Cost, Quality, and Child Outcomes (CQO) study from 1995, the North Carolina Head Start Partnership study from 1994, and the Public Preschool Evaluation Project from 1993.	Sample is diverse but not nationally representative. These studies were selected because they used the same quality measures, inclusion criteria (family selection factors) and same/similar child outcomes measures. CQO: Children in child-care centers selected at random from centers providing full-time care for at least 11 months in 4 regions (in CA, CT, CO, NC). Sample was divided into "impoverished" and "non-impoverished" subgroups. HS: 2 boys and 2 girls in their last year of HS were selected from each classroom from HS programs in a southern US metropolitan area (urban, suburban, and rural) in NC. PP: Randomly selected classrooms from Chapter 1 programs providing 9 months a year of full-day care in NC. Sample was divided into "impoverished" and "non-impoverished" subgroups.	N= 1,307 children in final analysis CQO: n= 811 HS: n=253 PP: n= 263	N= 277 classrooms CQO: n= 177 classrooms from 170 centers HS: n= 37 Head Start classrooms PP: n= 63 classrooms	CQO: 560 children from non-impoverished families and 251 from impoverished families. Family's primary language at home was English. Parents expected child to continue at same center the following year. 68% of sample European American, 15% African American, 6% Latinos, 4% Asian Americans, 1% Native Americans, and 8% other. HS: 253 children from impoverished families. 30% of mothers were married. On average, mothers had achieved a high school degree. 85% of sample African American, 10% White, 2% Asian American, 2% Latino, 1% Native American. PP: 56 children from non-impoverished families and 207 from impoverished. 63% of sample African American, 28% White, 6% Native American, 3% other.	CQO: Average child age was 4.3 years at time of assessments. 52% were boys. Children were eligible to enter kindergarten in the fall and child was enrolled in class when quality observations were completed. HS: Analysis sample of 253 children. Average child age was 4.9 years when assessed. About half were boys. PP: Analysis sample included 263 children. Average age at assessment was 4.6 years. 52% were boys.
5. Burchinal, M. R., Roberts, J. E., Nabors, L. A., & Bryant, D. M. (1996). Quality of center child care and infant cognitive and language development. <i>Child Development</i> , 67, 606-620.	Original Data Collection	Children in the sample were a part of a larger longitudinal study that focused on the effects of otitis media (ear infections) and hearing loss on African-American children's language development. The children had to begin child care by 10 months of age. The sample is not nationally representative nor diverse.	79 children	9 centers and 23 classrooms.	100% of the families were African-American 66% of the parents were single and 34% were married Mean years of maternal education was 12.5 67% of the families were below the poverty line (1006 level) Mean maternal age was 24.6 years	48% of the children were male Mean age that children began child care was 4.8 months. For these analyses, children we assessed at 12 months of age.

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Specifications for Entering information in Table		<p>Include here if sample is nationally representative; diverse but not representative; based on participation in a particular program etc.</p>		<p>If possible, note also number of programs and whether there were multiple classrooms within programs</p>	<p>Include here information provided on sample re income and/or SES, race/ethnicity, family structure, language in home, number of children in the family, parent employment status</p>	<p>Children's ages, gender, year or class in early childhood program participating in (e.g., pre-k year prior to kindergarten; 3 year old class in HS)</p>
<p>6. Burchinal, M., Vandergrift, N., Pianta, R., & Mashburn, A. (2010). Threshold analysis of association between child care quality and child outcomes for low-income children in pre-kindergarten programs. <i>Early Childhood Research Quarterly</i>.</p>	<p>Secondary Data Analysis</p>	<p>Two data sets used in this study: National Center for Early Development and Learning's (NCDEL) Multi-State Study of Pre-Kindergarten (Multi-State Study) NCDEL-NIEER State-Wide Early Education Programs Study (SWEEP Study)</p> <p>Purpose of both studies was to describe large federally funded pre-K programs in a total of 11 states. The Multi-State Study was in 6 states during 2001-2002 school year. The SWEEP study was in 5 states during the 2003-2004 school year.</p> <p>Samples are not nationally representative</p>	<p>Total children = 1129, but the article does not detail how many were included from each data sets. Two boys and two girls were randomly selected from each classroom when possible.</p>	<p>Multi-State Study: 40 pre-K sites in each of the 6 states (240 sites)</p> <p>SWEEP Study: nearly 100 pre-K programs in each of the 5 states (463 sites)</p> <p>In both studies, one classroom was randomly selected to participate from each pre-K site. Total of 671 pre-K classrooms in 11 states were included for this study.</p> <p>Classrooms were all a part of a pre-K program, but some were housed in public schools and some were Head Start classrooms.</p>	<p>All of the children in this study were from low-income households. Low income was defined as a household income level less than 150% of the FPL. Mean maternal education of the whole sample (both data sets combined) was 11.77 years.</p>	<p>Children all met the age criteria for Kindergarten the following year, but no ages were reported in the article. All were enrolled in a pre-K program. Children did not have an IEP (if so, ineligible). Children must speak either English or Spanish.</p>

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7. Dearing, E., McCartney, K., & Taylor, B. A. (2009). Does higher quality early child care promote low-income children's math and reading achievement in middle childhood? <i>Child Development, 80</i> (5), 1329-1349.	Secondary data analysis (NICHD SECCYD data).	First, second, and third phase data and data on the family, child, and parent from the NICHD SECCYD study. Not nationally representative, but economically and geographically diverse (women gave birth in 1991 in one of 10 U.S. sites. Does not include children with a disability, mothers under 18, who don't speak English, or who live in a dangerous neighborhood).	1,364 children.	Not reported.	Child ethnicity; mother's age; mother's education level; mother's partner status at 10 points during the study; household size; family annual income (income-to-needs ratio) at 6, 15, 24, 36, 54 months, kindergarten, first grade, third grade, and fifth grade).	Child gender; birth order; child care arrangements at 3 and 6 months intervals of 6, 15, and 24 assessments;
8. Deater-Deckard, K., Pinkerton, R., & Scarr, S. (1996). Child care quality and children's behavioral adjustment: A four-year longitudinal study. <i>Journal of Child Psychology and Psychiatry, 37</i> (8), 937-948.	Original data collection.	Sample included children with working mothers who had used full-time child care when the children were toddlers or preschoolers.	720 children at enrollment, 141 children and their employed mothers by four years after child care experience.	62 centers. One director and three caregivers (one from 12-18 month classroom, one from 19-36 month classroom, and one from 37-60 month classroom for 140 total) from each center participated. 72 teachers participated in the follow-up phase.	91% of mothers were Euro-American, 5% ethnic minority, 4% unreported; 86% of mothers married, 8% divorced, 3% separated, 3% unreported; 84% of households had 2 parents, 11% had single mothers, 5% included 3 or 4 adults; 29% of families had 1 child, 55% had 2 children, and 15% had 3 or 4 children; 93% of mothers worked 30 or more hours per week, 6% worked part time, 1% unreported; 61% of mothers returned to work within 2 months of child's birth, 95% returned within 11 months; maternal age (mean age=37 years), maternal education (mean years of education=15.28, range=8-18 years), per capita family income (mean=\$18,274, range=\$5,000-\$42,500).	Gender (73 girls, 68 boys); age (mean child age was 72.51 months, range was 45-104 months).

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Specifications for Entering information in Table		Include here if sample is nationally representative; diverse but not representative; based on participation in a particular program etc.		If possible, note also number of programs and whether there were multiple classrooms within programs	Include here information provided on sample re income and/or SES, race/ethnicity, family structure, language in home, number of children in the family, parent employment status	Children's ages, gender, year or class in early childhood program participating in (e.g., pre-k year prior to kindergarten; 3 year old class in HS)
9. Early et al., (2007). Teachers' education, classroom quality, and young children's academic skills: results from seven studies of preschool programs. <i>Child Development</i> , 78 (2), 558-580.	Secondary Analysis	Seven early childhood datasets with data about teacher education, quality and children's development with measures available on children's functioning so that it was possible to control for prior development. The samples in five of the seven studies are representative in the sense that they randomly sampled from a known population. However, these populations were of low income populations eligible for particular programs rather than nationally representative.	(1) Early Head Start and Follow-up: 887 children (2) Head Start Family and Child Experiences Survey (2003): 1041 children (3) Georgia Early Care Study: 630 children (4) More at Four Evaluation:785 children (5) National Study for Early Development and Learning Multi-State and SWEEP samples: 2966 children (6)NICHD Study of Early Child Care and Youth Development: 639 children ; (7)Preschool Curriculum Evaluation Research Program children from control group in pilot year: 667 children	(1) EHS: 887 classrooms; (2) FACES: 310 classrooms (3) GECS: 128 classrooms; (4) MAF: 233 classrooms; (5) NCEDL: 721 classrooms; (6) NICHD: 639 classrooms; (7) PCER 76 classrooms	% mothers with less than a high school degree: (1) EHS:61% ; (2) FACES: 31% (3) GECS: 14%; (4) MAF:NA ; (5) NCEDL:19% ; (6) NICHD:6% ; (7) PCER: 20%. % poor: (1) EHS: NR ; (2) FACES:68% (3) GECS:53% ; (4) MAF:89% ; (5) NCEDL:58% ; (6) NICHD:23% ; (7) PCER: 76%. Ethnicity (%Latino/ African American/ White/ Other or Multiracial): (1) EHS: (25, 35, 37, 3% respectively) ; (2) FACES (32, 35, 23, 10% respectively): (3) GECS:(2,40,49,9% respectively); (4) MAF (15, 43, 35, 8% respectively); (5) NCEDL: (26, 18,41, 14% respectively) ; (6) NICHD:(5, 10, 80, 5% respectively) ; (7) PCER (18, 44, 30, 9% respectively)	% male (1) EHS: 50%; (2) FACES: 49% (3) GECS: 53%; (4) MAF: 49%; (5) NCEDL: 49%; (6) NICHD: 50% (7) PCER 52%.Year or class in early childhood program: In all samples children were in year prior to kindergarten
10. Gallagher, P. A., & Lambert, R. G. (2006). Classroom quality, concentration of children with special needs, and child outcomes in Head Start. <i>Exceptional Children</i> , 73 (1), 31-52.	Original data collection by a university-based Research Center on Head Start Quality (QRC).	The study is not nationally representative. The QRC partnered with three Head Start programs in urban and rural areas of the southeastern region of the United States.	Level 1 "within classroom" analyses included 600 children in 70 Head Start classrooms. Level 2 "between classroom" analyses were based on these 70 Head Start classrooms [which served the 600 children].	Seventy classrooms comprised the analytic sample for the study. [Note: The study sampled 96 classrooms and 960 children, but received adequate data from 70 classrooms serving 600 children.]	Almost exclusively low-income households (study of Head Start classrooms). Reported for children: 67% African American, 28 % White, 4% Hispanic, 1% other minority groups. Average years of maternal education: 12.53 years. Father present in 36% of homes. Average household monthly income of \$1,165.99.	49% boys Child mean age of 59 months. 20% of children had at least 1special need

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11. Herrera, M. O. et al. (2005). Learning contexts for young children in Chile: Process quality assessment in preschool centers. <i>International Journal of Early Years Education</i> , 13 (1), 13-27.	Original data collection. Data from three related research projects done by the authors: one on environmental quality for children under three, the second on quality and preschool children's development, and the third following the preschool children through age eight.	1st project (ITERS): all registered centers in Concepcion province attended by children under three years old (if center had more than one classroom, one was chosen at random). 2nd study (ECERS): Two demographically different (one more urban, populated, high income, and fewer indigenous populations) regions selected; 60 centers in each region were randomly selected (if center had more than one classroom, one was chosen at random), and four children (preferably two boys and two girls) were randomly selected from each classroom. 3rd study (SACERS): Follow-up assessments with children from more rural, lower-income region three years later.	1st study (ITERS): classroom was unit of analysis. 2nd study (ECERS): 526 four and five year old children. 3rd study (SACERS): 247 (of the original 283 from study 2) children in elementary school (most in second grade).	1st study (ITERS): 63 classrooms in 63 centers. 2nd study (ECERS): 120 classrooms in 120 centers. 3rd study (SACERS): 168 classrooms in 134 schools.	SES (levels/ranges not reported)	Age (0 to 8 years), gender (sample was chosen to be 50% male).
12. Hill, J. L., Brooks-Gunn, J., & Waldfogel, J. (2003). Sustained effects of high participation in an early intervention for low-birth-weight premature infants. <i>Developmental Psychology</i> , 39 (4), 730-744.	Original Data Collection	Sample is from the Infant Health and Development Program a longitudinal study of low-birth-weight infants (children had to be born at least 3 weeks premature and had birth weights on less 2,500g or less) Not a nationally representative sample. Children and families were recruited from AK, NY, Harvard, Miami, PA, TX, WA, and Yale.	1082 children Two-thirds of sample were in lighter birth weight group (less than or equal to 2,000g) and the remaining one-third were in the heavier group (2,001-2,500g). Children were also assigned to dosage groups based on the number of days they attended an early childhood program, but the number of children in each group was not given.	Not examined- unit of analysis here is the child not the classroom	Average age of mother: 25 years old Maternal education: 39% not completed high school, 28% high school, 20% some college, 13% completed college.	51% female 53% Black, 11% Hispanic, 36% White or other. This study looks at outcomes when children were ages, 5, and 8 years old.

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13. Howes, C. (1997). Children's experiences in center-based child care as a function of teacher background and adult:child ratio. <i>Merrill-Palmer Quarterly</i> , 43 (3), 404-425.	Secondary data analysis from two data sets: Cost, Quality, and Outcomes Study (CQO) and Florida Quality Improvement Study (FQIS)	CQO: Not nationally representative. Centers were in California, Colorado, Connecticut, or North Carolina. Details about how the sample was selected are not included in the article. FQIS: Not nationally representative. Centers were in four counties in Florida. The purpose of this study was to assess the impact of child-care regulation change on children's experience in child care. The changes in regulation were related to child:adult ratio and teacher training. Only data from one time point in this study were used. Sample was selected to represent the demographics within the counties.	CQO: 760 children FQIS: information on number of children is not given	CQO: 655 classrooms. Multiple classrooms within programs were selected. Ideally, one classroom would be serving children less than 30 months of age and the other would be serving children over 30 months of age FQIS: 410 classrooms. Multiple classrooms within programs were selected. Most often three classrooms were chosen: an infant classroom, toddler classroom, and preschool	CQO: 65% White, 15% African American 6% Latino remainder were Asian or mixed ethnicity Primary language spoken in the home was English FQIS: No information is presented on the family characteristics.	CQO: 47% female, mean age was 4.25 years, all we eligible for Kindergarten the next year
14. Howes, C., Burchinal, M., Pianta, R., Bryant, D., Early, D., Clifford, R., & Barbarin, O. (2008). Children's pre-academic achievement in pre-Kindergarten programs. <i>Early Childhood Research Quarterly</i> , 23, 27-50.	Secondary data analysis of data from two studies: the National Center for Early Development and Learning (NCEDL) Multi-State Study of Pre-Kindergarten and the State-Wide Early Education Programs Study (SWEEP) (Early et al., 2005)	These two studies were selected because they were conducted by the same research team employing the same measures; SWEEP was designed to supplement the NCEDL study. Together, the studies took place in 11 states that were among a group of states that committed significant resources in 2001 to Pre-K initiatives. States were selected to provide diversity on multiple dimensions: geography, program intensity, program settings, and teacher educational requirements. Both studies used stratified random sampling of "programs within states, classrooms within programs, and children within classrooms."	n=2800 children	692 classrooms	24% African American; 24% Hispanic; 11% Other; 41% White. 55% low income. Mean maternal education of 12.63 years. Mean household size of 4.34.	Children in pre-K year before kindergarten (mean age 4.56); 49% male. Other requirements for participation in the study: child eligible for kindergarten the following academic year; did not having an Individualized Education Plan; spoke English or Spanish well enough to understand a teacher's simple instructions.

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15. Howes, C., Phillips, D.A., Whitebook, M. (1992). Thresholds of quality: Implications for the social development of children in center-based care. <i>Child Development, 63</i> , 449-460.	Secondary data analysis of three data sets: Two data sets from California and Atlanta sample from the National Child Care Staffing Study (NCCSS)	California sample 1: Not nationally representative; the sample was collected when children entered care prior to their first birthday for a longitudinal study of child relationships with adults. California sample 2: Not nationally representative; recruited for a different longitudinal study of infancy-preschool; none of the subjects or child care centers overlapped in the two California samples NCCSS Atlanta sample: Random sampling strategy to select 45 centers in Metropolitan Atlanta Area. Matched proportion of full time licensed child care centers in low- medium and high-income census tracts and urban and suburban neighborhoods.	Total 414 children from across three studies (California 1: 72 children; California 2: 87 children; NCCSS: 255 children)	California 1: 30 classrooms California 2: 68 classrooms NCCSS: 45 centers, but no information on the number of classrooms.	Whole sample: 21% African American, 73% European-American, remainder were from other ethnic and racial origins "The children represented a full range of social classes, including children enrolled in subsidized child care centers because of family poverty or disorganization and children from two-parent, relatively wealthy homes." (p.451)	Whole sample: 46% female Children ranged from 14 to 54 months of age 17% infants, 42% toddlers, 41% preschoolers
16. Hubbs-Tait, A.M. Culp, Huey, R. Culp, Starost & Hare. (2002). Relation of Head Start attendance to children's cognitive and social outcomes: Moderation by family risk. <i>Early Childhood Research Quarterly, 17</i> , 539-558.	At	Children were attending Head Start programs in eight communities in rural north- central Oklahoma.	94 4 year old children (49 boys)	16 Head Start classrooms	Primary caregiver's ethnicity: 78% Caucasian, 16% Native American, 1% African American, 1% Hispanic and 4% multiethnic. Children's ethnicity was 59% Caucasian, 4% Native American, and 37% multiethnic.83% of mothers had completed high school while 17% had dropped out of high school. Median monthly household income was \$1250. 80% of the families received some form of federal or state assistance (10% TANF, 70% other forms such as school lunch or supplemental social security). 49% of the caregivers were married, 19% remarried, 16% were divorced, 9% were never married, 5% were separated and 2% were widowed. 35 families were categorized as in a low income risk group involving monthly per capita income of \$250 or less. 55 families were categorized as low income based on either this cut off for per capita income or receipt of benefits (TANF, SSI or participation in free or reduced lunch program).	4 year old children in Head Start in the year prior to kindergarten; 49 boys and 45 girls

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17. Kontos, S., Wilcox-Herzog, A. (1997). Influences on children's competence in early childhood classrooms. <i>Early Childhood Research Quarterly</i> , 12, 247-262.	Original data collection	10 classrooms from three early childhood centers were selected. The centers were all in a small Midwestern city and were affiliated with a university (two were housed in university departments and one was part of a university housing complex). Children were observed during free play time. Efforts were made to balance the numbers of boys and girls and match boys and girls by age.	114 children	10 early childhood classrooms in 3 centers	Not reported	61 of the 114 children were girls. Mean age was 51.7 months (range was 31 to 77 months). 41 children were bilingual and 73 were monolingual, but all spoke fluent English.
18. Lamdin, D. J. (1996). Evidence of student attendance as an independent variable in education production functions. <i>The Journal of Educational Research</i> , 89 (3), 155-162.	Secondary analysis of data from public elementary schools in the city of Baltimore that were tabulated for a report by the Baltimore Citizens' Planning and Housing Association (CPHA) in 1990.	The study is based on aggregate data collected from a diverse mix of urban elementary schools in Baltimore, MD.	The unit of analysis was the school as opposed to the student. The study examined aggregated school-level data from 97 public schools that serve children in grades K-5.	All results are based on 97 schools.	40.5% do not qualify to receive free lunch (aggregated percentage across schools). 79.1% of students are from minority racial/ethnic groups (non-White) (aggregated percentage across schools).	Elementary schools serving grades K-5. Outcome data were based on test scores available for children in grades 1-5.

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19. Loeb, S. et al. (2004). Child care in poor communities: Early learning effects of type, quality, and stability. <i>Child Development</i> , 75 (1), 47-65.	Original data collection	A 5-year study following low-income, single mother families in poor communities in San Francisco, San Jose, and Tampa while the children are in child care as mothers enter welfare-to-work. Sites were chosen based on demographic diversity, variety of local policies, variety of center-based programs, and cooperation of welfare officials. Mothers were recruited during their first visit to the TANF office. Observations, interviews and assessments were conducted in two waves two years apart.	451 families	Children attended 196 centers (158 were observed) and 228 home-based settings (136 were observed).	Single mother headed households that had at least one resident child aged 12-42 months. 41% African-American, 32% Latina, 24% White. 83% of mothers were employed during the previous year (earning an average of \$1,008 per month). 68% of mothers used nonparental care at least 10 hours a week. Percent of families using center care was 29% in wave one and 40% in wave 2 (due in part to children aging). Mother's age, school attainment level, Peabody Picture Vocabulary Test (PPVT) score (mean maternal score was 356), work experiences over past 12 months and interactions with welfare system (82% received welfare over the previous year and 22% of those worked and received welfare during that time).	Children ages 12 to 42 months when their mothers entered welfare-to-work programs in 1998. The children attended either center-based programs in poor communities or family, friend and neighbor care.
20. Mashburn, A. J., Pianta, R. C., Hamre, B. K., Downer, J. T., Barbarin, O. A., Bryant, D., Burchinal, M., Early, D. M., & Howes, C. (2008). Measures of classroom quality in prekindergarten and children's development of academic, language, and social skills. <i>Child Development</i> , 79 (3), 732-749.	Secondary Data Analysis	<u>Two data sets used in this study:</u> National Center for Early Development and Learning's (NCDEL) Multi-State Study of Pre-Kindergarten (Multi-State Study) NCDEL-NIEER State-Wide Early Education Programs Study (SWEEP Study) Purpose of both studies was to describe large federally funded pre-K programs in a total of 11 states. The Multi-State Study was in 6 states during 2001-2002 school year. The SWEEP study was in 5 states during the 2003-2004 school year. Samples are not nationally representative	Study sample: 2,439 children	671 pre-K classrooms	Child characteristics: 21% African American; 17% Latino; 46% White; 15% Other race Family characteristics: 47% poor; 53% not poor Mother's mean education of 12.9 years	4-year-old children in Pre-K Male: 49%

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21. McCartney, K. (1984). Effect of quality of day care environment on children's language development. <i>Developmental Psychology</i> , 20 (2), 244-260.	Original data collection	The study was conducted in Bermuda because 84% of children spend the majority of the work-week in nonmaternal care (so selection bias is reduced), center selection biases are minimal due to cultural reasons, and quality of staff, training, facilities, and curriculum are varied. All nine day care centers of varying quality that had been in operation for at least 5 years and accepted children from infancy through preschool in Bermuda were measured for the study. Eight are private, one is government run for low-income families. Parent refusal was low, so almost the entire population of Bermudian children attending centers with infant care is represented. Children, their parents, and their day care centers were evaluated with three sets of measures (for day care environment quality, children's language development, and family background/home environment).	166 Bermudian families	Nine day care centers	Race (133 families were black, 36 white), parent age, education, occupation, PPVT-r score. *A family demographic questionnaire was administered.	Child age (ranged from 36-68 months) and history of substitute care. Children had attended their current program for at least six previous months.
22. McCartney, K., Burchinal, M., Clarke-Stewart, A., Bub, K. L., Owen, M. T., Belsky, J. & The NICHD Early Child Care Research Network. (2010). Testing a series of causal propositions relating time in child care to children's externalizing behavior. <i>Developmental Psychology</i> , 46 (1), 1-17.	Secondary analysis of data from the National Institute of Child Health and Human Development Early Child Care Research Network (NICHD) Study of Early Child Care and Youth Development	Diverse and from varying regions of country, but not nationally representative. Families recruited in a 24 hour period in 1991 at hospitals in 10 cities (Little Rock AR, Irvine CA, Lawrence KS, Boston MA, Philadelphia PA, Pittsburgh PA, Charlottesville VA, Morganton NC, Seattle WA, Madison WI). Eligible families had healthy mothers over 18; conversant in English; baby not hospitalized for over 7 days, adopted, or a multiple birth; and family lived within 1 hour of research site and in neighborhood safe enough for home visitors. The sample was designed to represent "healthy births to nineteen parents at the selected hospitals."	Initial study sample: 1,364 children Sample at time of 54-month assessment: 1,083 children	Not reported	Maternal education: 14.4 years 85% married or partnered Infant characteristics: 79% European American, Non-Hispanic 11% African American 24% below poverty threshold Average family income: 3.6 times poverty threshold	Longitudinal data are analyzed for children over the course of the first 54 months of life; Male: 50%

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23. McCartney, K., Scarr, S., Rocheleau, A., Phillips, D. et al. (1997). Teacher-child interaction and child-care auspices as predictors of social outcomes in infants, toddlers, and preschoolers. <i>Merrill-Palmer Quarterly</i> , 43 (3), 426-450.	Primary data analysis.	Infants, toddlers, and preschoolers in nonprofit, local for-profit, national for-profit chains, and church-sponsored centers around Boston, MA, Richmond, VA, and Atlanta, GA. Eligible center directors were contacted; center participation rates were good (86% in MA, 79% in VA, 73% in GA).	718 children: 176 infants, 291 toddlers, and 251 preschoolers.	120 child care centers (40 in each metropolitan area).	594 of the children were White, 64 were African American, 18 children had other ethnic backgrounds, and 42 were unreported. Families were generally economically privileged families. Average parental education was 15.5 years and average family income was \$64,582. 86.7% of children were from two-parent families. Family resources: mother's education in years and log-transformed per capita income were also calculated.	Average infant age was 14.7 months (range= 11-17.9 months), average toddler age was 27 months (range= 18-35.9 months), average preschooler age was 47.9 months (range= 36-61.7 months).

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24. NICHD Early Child Care Research Network. (1998). Early child care and self-control, compliance, and problem behavior at twenty-four and thirty-six months. <i>Child Development, 69</i> (4), 1145-1170.	Secondary data analysis (NICHD Study of Early Child Care data)	New mothers recruited from hospitals in ten US metro areas during 24 hour sampling period in 1991. For the sample, at least 10% of families had to have mother who had not graduated high school, at least 10% had to be single parent families, and at least 10% had to be nonwhite. Mother had to be over 18, conversant in English, not be planning a move, not have a history of substance abuse, and child could not have spent more than 7 days in hospital after birth. Sample is diverse but not representative.	1,364 new mothers and their one-month-olds (1,085 children had two year outcome data and 1,041 children had three year data).	Close to 1,364 ("it was extremely rare for more than one child participant in this study to be in the same child-care arrangement" (1151)).	53% of mothers were planning on working full time, 23% part time, and 24% planned to stay home during the first year. 10% of mothers did not have a high school diploma and 14% were single parents. Mothers in the sample had a 4% higher intention-to-be-employed rate than their surrounding areas and had a higher income-to-needs ratio than contacted parents who chose not to participate.	Child gender and temperament. Child care use ascertained at three month intervals and detailed histories collected at 1, 6, 15, 24, 36 months.

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25. NICHD Early Child Care Research Network. (2000). The relation of child care to cognitive and language development. <i>Child Development</i> , 71, 960-980.	Original data collection: this paper reports on one of multiple analyses carried out with data collected by the authors.	Diverse and from varying regions of country, but not nationally representative. Families recruited in a 24 hour period in 1991 at hospitals in 10 cities (Little Rock AR, Irvine CA, Lawrence KS, Boston MA, Philadelphia PA, Pittsburgh PA, Charlottesville VA, Morganton NC, Seattle WA, Madison WI). Eligible families had healthy mothers over 18; conversant in English; baby not hospitalized for over 7 days, adopted, or a multiple birth; and family lived within 1 hour of research site and in neighborhood safe enough for home visitors. The sample was designed to represent "healthy births to non-teen parents at the selected hospitals."	Since this is a longitudinal study, sample size varied at data collection points: Children in child care: 6 mos: 595 15 mos: 595 24 mos: 739 36 mos: 856 Children in exclusively maternal care: 6 mos: 348 15 mos: 348 24 mos: 260 36 mos: 210 Some analyses do not include the whole sample due to missing data.	Not reported-- note that not all children in non-maternal care attended a center	Demographic information is given for children who had complete data on predictor variables and on at least one outcome variable. Demographic data are for children at age 3. Low-income in 1993 was income of \$23,573 or less. High-income was \$59,052 or more. Children in child care: 70% white, 6% Hispanic, 11% African American, 5% other; 6% of mothers had less than a high school degree, 21% high school degree, 34% some college/ vocational, 39% college degree or higher; 26% low income, 30% average, 35% high average/high; 78% always had a partner in house; 16% sometimes a partner, 6% never a partner Children in exclusive maternal care: 81% white, 5% Hispanic, 9% African American, 4% other; 15% of mothers had less than a high school degree, 19% high school degree, 31% some college/ vocational, 36% college degree or higher; 39% low income, 38% average, 23% high average/high; 86% always had a partner in house; 5% sometimes a partner, 9% never a partner	Children in child care: 52% male Children in exclusive maternal care: 54% male

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26. NICHD Early Child Care Research Network. (2002). Child-Care Structure→ Process→ Outcome: Direct and indirect effects of child-care quality on young children's development. <i>Psychological Science</i> , 13 (3), 199-206.	Original data collection: this paper reports on one of multiple analyses carried out with data collected by the authors.	Diverse and from varying regions of country, but not nationally representative. Families recruited in a 24 hour period in 1991 at hospitals in 10 cities (Little Rock AR, Irvine CA, Lawrence KS, Boston MA, Philadelphia PA, Pittsburgh PA, Charlottesville VA, Morganton NC, Seattle WA, Madison WI). Eligible families had healthy mothers over 18; conversant in English; baby not hospitalized for over 7 days, adopted, or a multiple birth; and family lived within 1 hour of research site and in neighborhood safe enough for home visitors. The sample was designed to represent "healthy births to non-teen parents at the selected hospitals."	The sample for the present analyses included 813 children from the full NICHD ECCRN sample who were in at least 10 hours per week of child care at 54 months, for whom care could be observed, and who had been in that arrangement for at least 6 months. Sample sizes for the SEM models ranged from 656 to 789.	Not reported. Full NICHD sample included both center and home-based care. Breakdown is not given here. Number of different child care settings also not given here: it may be that some children in sample participated in the same settings.	In the full sample, 24% of the children were ethnic minority; 11% of the mothers had not completed high school; and 14% of the children's mothers were single mothers.	54 months at time of observation of child care quality and assessment of child outcomes. Gender breakdown for this sample not given.
27. NICHD Early Child Care Research Network and Duncan (2003). Does quality of child care affect child outcomes at age 4 1/2? <i>Developmental Psychology</i> , 39 (3), 451-469.	Original data collection: this paper reports on one of multiple analyses carried out with data collected by the authors.	Diverse and from varying regions of country, but not nationally representative. Families recruited in a 24 hour period in 1991 at hospitals in 10 cities (Little Rock AR, Irvine CA, Lawrence KS, Boston MA, Philadelphia PA, Pittsburgh PA, Charlottesville VA, Morganton NC, Seattle WA, Madison WI). Eligible families had healthy mothers over 18; conversant in English; baby not hospitalized for over 7 days, adopted, or a multiple birth; and family lived within 1 hour of research site and in neighborhood safe enough for home visitors. The sample was designed to represent "healthy births to non-teen parents at the selected hospitals."	1,083 children at 4.5 years into study (1,364 recruited at birth)	Not reported.	Mother's education (11% with less than high school education at selection), family income-to-needs ratio (average family income of 3.6x poverty threshold at selection), mother's partner status (14% single mothers at selection), child's ethnicity (24% minority at selection).	Age (children followed from birth to 4.5 years), gender (50% male).

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28. NICHD Early Child Care Research Network. (2006). Child-care effect sizes for the NICHD Study of Early Child Care and Youth Development. <i>American Psychologist</i> , 61 (2), 99-116.	Original data collection: this paper reports on one of multiple analyses carried out with data collected by the authors.	Diverse and from varying regions of country, but not nationally representative. Families recruited in a 24 hour period in 1991 at hospitals in 10 cities (Little Rock AR, Irvine CA, Lawrence KS, Boston MA, Philadelphia PA, Pittsburgh PA, Charlottesville VA, Morganton NC, Seattle WA, Madison WI). Eligible families had healthy mothers over 18; conversant in English; baby not hospitalized for over 7 days, adopted, or a multiple birth; and family lived within 1 hour of research site and in neighborhood safe enough for home visitors. The sample was designed to represent "healthy births to non-teen parents at the selected hospitals."	n=1261 (sample sizes varied across analyses and survey period: 1,174, 1,187, 1,175 and 1,093)	Not reported.	12% African American;6%Hispanic4% Other;78% White. Maternal education 14.4 years 3.73 income to needs ratio 87% partner in house.	Longitudinal data are analyzed for children over the course of the first 54 months of life; Male: 51%
29. NICHD Early Child Care Research Network & Duncan, G. (2003). Modeling the impacts of child care quality on children's preschool cognitive development. <i>Child Development</i> , 74 (5), 1454-1475.	Secondary analysis of data from the National Institute of Child Health and Human Development (NICHD) Study of Early Child Care and Youth Development.	Diverse and from varying regions of country, but not nationally representative. Families recruited in a 24 hour period in 1991 at hospitals in 10 cities (Little Rock AR, Irvine CA, Lawrence KS, Boston MA, Philadelphia PA, Pittsburgh PA, Charlottesville VA, Morganton NC, Seattle WA, Madison WI). Eligible families had healthy mothers over 18; conversant in English; baby not hospitalized for over 7 days, adopted, or a multiple birth; and family lived within 1 hour of research site and in neighborhood safe enough for home visitors. The sample was designed to represent "healthy births to non-teen parents at the selected hospitals."	n=1,364/1,277; sample sizes varied across analyses and survey period: 1,162, 1,078 and 1,056.	Not reported.	79% White/non-Hispanic; 11% African American; 6% Hispanic; and 4% other; Mother's average number of years of schooling: 14.2 Partner in household: 85% Income/poverty threshold: 3.7	Longitudinal data are analyzed for children over the course of the first 54 months of life; Male: 50%

All.a	Sample					
Publication Information	Original Data Collection or Secondary Data Analysis	How Sample Selected	Sample Size	Number of EC Classrooms in Sample	Family Demographic Characteristics	Child Characteristics (Including Age)
Specifications for Entering information in Table		Include here if sample is nationally representative; diverse but not representative; based on participation in a particular program etc.		If possible, note also number of programs and whether there were multiple classrooms within programs	Include here information provided on sample re income and/or SES, race/ethnicity, family structure, language in home, number of children in the family, parent employment status	Children's ages, gender, year or class in early childhood program participating in (e.g., pre-k year prior to kindergarten; 3 year old class in HS)
30. Owen, M. T., Klauski, J. F., Mata-Otero, A., Caughy, M. O. (2008). Relationship-focused child care practices: Quality of care and child outcomes for children in poverty. <i>Early Education and Development</i> , 19 (2), 302-329.	Original data collection	The study recruited children from four relationship-focused child care centers (RFC) and eight comparison non-relationship-focused child care centers (non-RFC) with accreditation from the National Association for the Education of Young Children. The four relationship-focused centers were Head Start affiliates and the eight comparison centers were Head Start or Head Start affiliate centers. Relationship focused care centers grouped children into "family groups" with children of mixed ages receiving care from the same caregiver for most of each day from ages 3 to 5. All but two of the comparison centers had classrooms that were age-segregated and children changed classrooms (and caregivers) on a yearly basis; however two classrooms did not. Centers were also selected for the study if they enrolled between 50-100% low income children who received subsidized care.	Initial study sample: 223 children (123 in relationship focused centers and 100 in non-relationship focused centers) Follow-up sample: 119 children	12 child care centers	Child characteristics: 45% African American 55% Latino Annual income: \$19,157 (RFC center families had lower average incomes than non-RFC families) Average income to needs ration: 1.00 Average years of maternal education: 11.67 years	Children were recruited into the study at ages three and four (mean age RFC center children at time 1 testing: 54 months; mean age of non-RFC center children: 51 months) Male: 52%
31. Peisner-Feinberg, E. S., & Burchinal, M. R. (1997). Relations between preschool children's child-care experiences and concurrent development: The cost, quality, and outcomes study. <i>Merrill-Palmer Quarterly</i> , 43, 451-477.	Original Data Collection	Sample is not nationally representative. Centers were randomly selected from among those that met selection criteria in each of four regions of the US: Los Angeles County, CA; Hartford corridor in CT; the Frontal range in Colorado; and the Piedmont region in NC. These areas were selected because they varied substantially both in terms of local economy and stringency of state child care regulations. In order to participate centers had to provide full-time care meaning open for 11-months per year and over 50% of children attending for 30+ hours a week. Classrooms had to serve at least one child in next-to-last year of preschool. Up to 12 children/families per classroom was chosen to participate.	757 children	170 centers located in CA, CT, CO, and NC. 177 classrooms. One preschool classroom and one infant/toddler classroom was chosen per center. If the center served only one of these age groups, then two classrooms in same center were chosen.	Average family income was \$38,900 per year. Race/Ethnicity breakdown: African American 15.9% Latino 4.6% White 67.9% Other 11.6% 69.6% of the parents were married, 13.9% single, 16.5% other. Average # of years of maternal education was 14.22	Average child age was 4.30 years 51.1% male

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Publication Information	Original Data Collection or Secondary Data Analysis	How Sample Selected	Sample Size	Number of EC Classrooms in Sample	Family Demographic Characteristics	Child Characteristics (Including Age)
Specifications for Entering information in Table		Include here if sample is nationally representative; diverse but not representative; based on participation in a particular program etc.		If possible, note also number of programs and whether there were multiple classrooms within programs	Include here information provided on sample re income and/or SES, race/ethnicity, family structure, language in home, number of children in the family, parent employment status	Children's ages, gender, year or class in early childhood program participating in (e.g., pre-k year prior to kindergarten; 3 year old class in HS)
32. Peisner-Feinberg, E. S., Burchinal, M. R., Clifford, R. M., Culklin, M. L., Howes, C., Kagan, S. L., & Yazejian, N. (2001). The relation of preschool child-care quality to children's cognitive and social developmental trajectories through second grade. <i>Child Development, 72</i> (5), 1534-1553.	Original data collection as part of the Cost Quality and Outcomes longitudinal follow-up	There were 401 child care centers in the original Cost Quality and Outcomes Study sample randomly selected in each of four regions of the US: Los Angeles County CA; Hartford corridor in CT; the Frontal range in Colorado, and the Piedmont region in NC. These areas were selected because they varied substantially both in terms of local economy and stringency of state child care regulations. The longitudinal follow up focused on 183 classrooms from 176 of the centers in the full sample. Analysis sample was 167 classrooms from 160 centers that had complete quality data at preschool and at least some child assessment data. The average number of participating children per classroom was 4.	826 children in preschool year 1 (average age 4.3) in preschool year 2 (average age 5.1), 451 in kindergarten (average age 6), and 345 in second grade (average age 8).	The longitudinal follow up focused on 183 classrooms from 176 of the centers in the full sample. Analysis sample was 167 classrooms from 160 centers that had complete quality data at preschool and at least some child assessment data. The average number of participating children per classroom was 4.	"31 percent of the children were from diverse ethnic backgrounds." 82% of the children were from two-parent families. Average maternal education was 14.25 years. Average family income was \$47, 753. Primary language spoken in the home was English.	Children were followed longitudinally from preschool year 1 (average age 4.3 years), to preschool year 2 (average age 5.1) to kindergarten (average age 6) and to second grade (average age 8). 51% of the children were males
33. Poe, M. D., Burchinal, M. R., & Roberts, J. E. (2004). Early language and the development of children's reading skills. <i>Journal of School Psychology, 42</i> , 315-332.	Original Data Collection	Subsample of children in The Preschool to School Project, which is a longitudinal study of children's health and development. (article refers to a citation for more information on the full sample). Sample is not nationally representative nor diverse.	77 children	Children were recruited from 9 center-based child care programs in NC	100% African American 75% of families were low-income (less than 185% of the federal poverty threshold) 68% of caregivers were single Mean years of maternal education was 13.1 Maternal IQ mean score was 86.5	45% male

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34. Schlieker, E., White, D. R., & Jacobs, E. (1991). The role of day care quality in the prediction of children's vocabulary. <i>Canadian Journal of Behavioral Science</i> , 23 (1), 12-24.	Original data collection	11 Montreal-area centers were selected that represented a range of socio-economics areas of the city (lower to upper-middle class) and of Early Childhood Environment Rating Scale (ECERS) scores (93 to 239). The centers were selected from a list of licensed centers published by the Quebec Office des Services de Garde a L'enfance. Selected centers operated primarily in English.	100 children	10 day care centers	Family SES (using the Home Prestige Scale (HPS)) varied from low to upper-middle class. Family structure varied in the form of one vs. two parent families (37 single mother families, 63 two parent families). Parent education (mean 14.92 years for fathers, 13.93 years for mothers); age (mean 36.43 for fathers, 32.50 years for mothers); occupation type; number of minor children in the household (mean 1.72 children).	52 boys and 48 girls (28 boys and 24 girls in the five low-quality centers). Parents provided written consent; enrolled in full-time day care (35 hours per week) at the same center for at least one previous year; 4 years old; spoke primarily English.
35. Tran & Weinraub. (2006). Child care effects in context: Quality, stability, and multiplicity in nonmaternal child care arrangements during the first 15 months of life. <i>Developmental Psychology</i> , (42) 3, 566-582.	Secondary data analysis	NICHD ECCRN Data: Participants recruited during 24 hour sampling period in 10 sites around country. Diverse but not nationally representative. 1364 families with healthy newborns enrolled in sample (58% of those contacted at one month).	Present sample included 419 children who participated in study through 15 months of age and whose primary child care arrangement was rated for quality at 6 and 15 month assessment periods.	Primary nonmaternal arrangement of child observed at 6 and 15 months. Note that primary arrangements included father/partner, grandparent, in-home sitter, family child care home and center care.	<u>Demographic characteristics at 1 month (rounding of percentages to whole numbers): Race/ethnicity:</u> 80% of families in sample were white, 9% African American, 6% Hispanic, and 5% other. <u>Income to needs ratio</u> (family income/poverty threshold): 0-1: 16%, >1-2:21%, >2-3: 23%, >3-4: 12%, >4: 23% ; <u>maternal education</u> : <12 years: 2%, HS or GED: 17%, some college: 35%, bachelors:24%, post graduate: 22%. <u>Maternal employment status</u> : employed and at work: 13%, employed and on leave:78%, not employed:10%; <u>husband-partner in the home</u> : yes: 91%, no: 9%.	Data collection occurred between 1 and 15 months of age. 52% of the children in the sample were boys. Child temperament assessed using Early Infant Temperament Questionnaire (Medoff, Cooper et al, 1993): mean of nonmissing items on approach, activity, adaptability, intensity, mood subscales.

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36. Vandell, D.L., Belsky, J., Burchinal, M., Steinberg, L., Vandergrift, N. & NICHD Early Child Care Research Network. (forthcoming). Do effects of early child care extend to age 15 years? Results from the NICHD Study of Early Child Care and Youth Development: Age 15.	Secondary analysis of data from the National Institute of Child Health and Human Development Early Child Care Research Network (NICHD) Study of Early Child Care and Youth Development (SECCYD)	Diverse and from varying regions of country, but not nationally representative. Families recruited in a 24 hour period in 1991 at hospitals in 10 cities (Little Rock AR, Irvine CA, Lawrence KS, Boston MA, Philadelphia PA, Pittsburgh PA, Charlottesville VA, Morganton NC, Seattle WA, Madison WI). Eligible families had healthy mothers over 18; conversant in English; baby not hospitalized for over 7 days, adopted, or a multiple birth; and family lived within 1 hour of research site and in neighborhood safe enough for home visitors. The sample was designed to represent "healthy births to non-teen parents at the selected hospitals."	Initial study sample: 1,364 children Age 15 follow-up assessment sample: 958 adolescents	Not reported	Original sample: Maternal education: 14.4 years 85% married or partnered Infant characteristics: 79% European American, Non-Hispanic 11% African American 24% below poverty threshold Average family income: 3.6 times poverty threshold Age 15 Sample: Comparisons of the age 15 sample participants and nonparticipants found that: nonparticipants were: "more likely to be male (56% vs. 50%) and to have lower scores at 4 and 1/2 years on a test of math skills (97.8 vs. 102.5); and their mothers were less educated (13.4 years vs. 14.3 years) and provided lower quality parenting (-.25 standardized parenting score vs. -.02 standardized parenting score). (page 9)	Longitudinal data are analyzed for children over the course of the first 54 months of life; when they were in Kindergarten, grades 1, 2, 3, 4, 5, and 6 and at age 15. Male: 56% (at the age 15 follow-up)
37. Vernon-Feagans, L., Emanuel, D. C., & Blood, I. (1997). The effect of otitis media and quality daycare on children's language development. <i>Journal of Applied Developmental Psychology, 18</i> , 395-409.	Original data collection	Small local sample of children being followed from before one year of age to four years. This study focuses on period from 12-24 months.	67 children; data on quality collected for the 46 who were in infant/toddler rooms in the centers	Not reported	Almost all families were two parent families, with only four of the fathers not living in the home at child's first birthday (three because of military service). All families were dual earner families. Parents tended to be educated professionals. Nearly half of the children did not have a sibling. All families were white and English speaking.	In this study, children were followed from 12-24 months. All started participation in center-based care before one year of age.

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38. Volling, B. L. & Feagans, L. V. (1995). Infant day care and children's social competence. <i>Infant Behavior and Development, 18</i> , 177-188.	All children in the sample were part of a study of health and day care.	36 children who had been enrolled in a high or low-quality day care center sometime during their first year. Sample was from a semirural northwestern area of the US.	36 children.	Children attended one of three center-based day care programs.	All children/families were Caucasian. Mother's average age was 31.20 years and average father age was 33.98 years. All of the mothers and fathers had a high-school degree and 44.4% of the mothers and 65.7% of the fathers had at least a bachelor's degree. 55.6% of the families had no other children in the home and 33.3% had one other child. All but three fathers in the sample were living in the home (two were deployed in the Persian Gulf War).	The sample included 17 males and 19 females. The average child age was 3.02 months (range was 1 to 8 months) at enrollment into the study. All children were enrolled in center-based day care during their first year.

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39. Votruba-Drzal, E., Coley, R. L., & Chase-Lansdale, P. L. (2004). Child care and low-income children's development: Direct and moderated effects. <i>Child Development</i> , 71 (1), 296-312.	Original data collection. This is one of multiple analyses conducted with data from large multi-site longitudinal study.	"The main survey was conducted with a household-based, stratified random sample of about 2,400 low-income children and their primary caregivers in low-income neighborhoods in Boston, Chicago, and San Antonio. In 1999, these families were randomly selected from more than 40,000 screened households, with a screening rate of 90%. In households that had incomes below 200% of the poverty line and a child between the ages of 0 and 4 years or 10 and 14 years, interviewers randomly selected one focal child and interviewed the child and his or her primary female caregiver. In most cases (90%) the caregiver was the mother... The interview completion rate was 83%, resulting in an overall response rate of 74%. In 2000 and 2001, on average 16 months after the first wave, the same families were recontacted and interviewed again in Wave 2 of the survey. Approximately 88% of the families interviewed in Wave 1 were followed in Wave 2." (p. 299). The embedded development study (EDS) took a more in-depth look at development of children between 2 and 4. 85% of EDS sample completed a further mother interview. Those in regular child care 10 or more hours per week were invited to participate in child care component, with on-site observation and interview with provider. Response rate in Wave 1 of child care component was 70%.	204 families who participated in Wave 1 of the child care substudy in the embedded development study (EDS) as well as the mother interview for the EDS, along with the Wave 1 and Wave 2 interviews of the main study.	The 204 children in the sample participated in 186 separate child care arrangements. 20% of sample were in non-profit center, 9% in for profit center, and 15% in Head Start. More than half of this sample was in home-based care (47% in unregulated home, 9% in regulated home).	Mothers' average age was 29 years. 25% of mothers had a high school diploma or GED and 47% had beyond a high school education. 57% of the mothers were employed full time and 19% part time. 81% of the mothers in the sample were single. Mean income to needs ratio was .85. All households had incomes below 200% of the FPL. 61% of the children in the sample were black; 30% Hispanic and 9% White.	Mean child age was 3.04 and 56% of the sample was male.

All.b									
Measures of Early Childhood Settings									
Publication Information	Type(s) of early childhood setting(s); (e.g., child care, Head Start) as reported with %	Features of early childhood program described in article	How children's access to early childhood program is determined	Global or Summary Measure of Quality Collected and Descriptive Statistics	Measures of quality pertaining to group size and ratio	Measures of quality pertaining to teacher/caregiver education in higher education, credentials, and training not providing credits towards a higher ed degree	Measures of quality pertaining to adequacy of space, organization of space, and adequacy of materials overall and on specific topics	Measures of quality focusing on interactions	Measures of quality focusing on fidelity of implementation of a particular curriculum or educational approach
Specifications for Entering Information in Table	Sometimes names used for programs differ (e.g. center based care may be called preschool). Use terminology provided by authors	Note information provided regarding teacher/caregiver qualifications, curriculum used, all or part day, languages used in instruction, whether a particular educational approach or philosophy is used, accreditation status	Include here if there were income requirements for participation (as in HS); if a pre-k program is targeted to certain groups or universal.	Examples include ECERS-R total score; CLASS total. List all global or summary measures of quality collected but then note those actually included in analyses summarized in this article or report with *	Examples include total number of children in group; staff/child ratio. Note information provided by way of description and then note with * those measures included in analyses	Examples (ed) include years of ed; degree attained, major; (credential) CDA, state early childhood credential; (training) hours completed ever or in last year. Note all described and then with * those measures included in analyses	Examples include scales/ratings re adequacy of space, appropriateness of furnishings, activity centers, adequacy of play/learning materials, materials re literacy, science etc *Note all described and then with * those included in analyses.	Examples include scales/ratings of caregiver/teacher sensitivity, frequency and quality of verbal interaction, disciplinary approach, quality of instruction. Note all described and then with * those included in analyses	Examples include implementation checklist for Creative Curriculum, observations of implementation of a newly developed approach for early math instruction. Note all described and then with * those included in analyses
1. Blas, D. M. (1999). The Effect of child care characteristics on child development. <i>The Journal of Human Resources</i> , 34 (4), 786-822.	All non-parental care: center care (11% of infants/toddlers in care, 25% of preschoolers); family day care home (15% of infants/toddlers, 4% of preschoolers); relative care (17% of infants/toddlers, 46% of preschoolers); babysitter care (3% of infants/toddlers, 3% of preschoolers). Of sample: 44% of infants and toddlers and 71% of preschoolers were in care in the "last four weeks" (797).	Not described in this article	Not described in this article	Not examined	*Group size and ratios are measured by NLSY. (type- infant/toddler, preschool): Group size: (center-9.9,3; family home-3.9, 2.8; relative-2.6,4.2; babysitter-2.4,1.2) Ratio: (center-.33, .23; family home-.46, .64; relative-.66, .59; babysitter-.62, .97).	*Specialized early education teacher training documented by NLSY (specific training not reported).	Not examined	Not examined	Not examined
2. Broberg, A. G., Wessel, H., Lamb, M. E., & Hwang, C. P. (1997). Effects of day care on the development of cognitive abilities in 8-year-olds: A longitudinal study. <i>Developmental Psychology</i> , 33 (1), 62-69.	Within 3 months of enrollment, 54 children in public day-care centers, 33 in family day-care settings; and 59 in parental care.	Not reported.	All children on waitlist for public day-care; space shortage did not permit all children access.	Spot Observation Checklist (to look at "dynamic" (child-adult interactions) measures of care in home care settings).	Group sizes and ratios and day length measured but not reported.	Not reported.	Not reported.	Not reported.	Not reported.
3. Burchinal, M. R. & Cryer, D. (2003). Diversity, child care quality, and developmental outcomes. <i>Early Childhood Research Quarterly</i> , 18, 401-426.	CQO: child care center (100%) SECC: children were in one of the following types of care: child care center (white: 42%, African American 47%, Hispanic 39%), child care home (W 24%, AA 18%, H 24%), non-familial care at home (W 13%, AA 5%, H 5%), grandparent care (W 8%, AA 15%, H 21%), father care (W 13%, AA 15%, H 21%)	Not described in this article	Not described in this article	CQO: ECERS-R* (Harms & Clifford, 1980), total score was used Note: a single quality composite score was also calculated using the ECERS-R, CIS, ECOF, and AIS and is called "positive caregiving" SECC: Observational Record of the Caregiving Environment (ORCE)* (NICHD ECCRN, 1996), used positive caregiving rating composite score	CQO: average staff: child ratio was 1:8 and average group size was 14.	Not examined	CQO: Not examined separately (related items included in global measure) SECC: Not examined	CQO: Caregiver Interaction Scale (CIS)* (Amett, 1989)- used to measure child care provider sensitivity CQO: UCLA Early Childhood Observation Form (ECOF)* (Stipek, 1993)- used to measure teaching style as didactic or child-centered CQO: Adult Involvement Scale (AIS)* (Howes & Stewart, 1987)- used to measure child care provider responsiveness	Not examined
4. Burchinal, M. et al. (2000). Children's social and cognitive development and child care quality: Testing for differential associations related to poverty, gender, or ethnicity. <i>Applied Developmental Science</i> , 4 (3), 149-165.	CQO: Child care centers of variable quality in community-based settings (54% nonprofits). HS: Head Start programs (6 operated by school systems and remaining operated by one community action agency). PP: Public preschool programs in public schools.	CQO: Centers providing full-time care for at least 11 months. HS: 46% had a bachelor's degree and another 19/37 respondents had an associate's. PP: Centers providing full-day care for at least 9 months. All teachers were certified to teach in NC with a BA or BS.	CQO: Information not provided. HS: All families had incomes below the poverty threshold, "which was required to be eligible to participate in Head Start." PP: "All programs served children selected for participation due to poverty or on the basis of poor performance on screening tests, and some programs enrolled additional children not at risk."	All 3 studies: ECERS (Harms & Clifford, 1980)*	CQO: Average group size about 14 children. Average observed staff: child ratio of 1:8. HS: Information not provided. PP: Information not provided.	CQO: Of lead teachers, 2% had less than a high school degree, 16% had high school diploma or GED, 27% had some college, 21% had an associate's degree, and 34% had a baccalaureate or graduate degree. HS: Educational background of 37 of the 48 participating teachers available. Of these, 1 had a HS degree, 16 had a CDA, 3 had an associate's degree, 17 had a bachelor's degree. PP: All teachers were certified to teach in North Carolina with a minimum education of a BA or BS.	Not examined separately (related items included in global measure)	Not examined (Included as part of the ECERS global measure but not measured separately).	Not examined
5. Burchinal, M. R., Roberts, J. E., Nabors, L. A., & Bryant, D. M. (1996). Quality of center child care and infant cognitive and language development. <i>Child Development</i> , 67, 606-620.	community based child care centers	Two of the centers were non-profit and the remaining 5 were for-profit. Seven centers had an A license and the remaining has an AA license (regarding ratio, space and training criteria in the state the study occurred in). None of the centers were NAEYC accredited.	Not examined.	Infant/Toddler Environmental Rating Scales (ITERS; Harms et al., 1990), Total Score*	Average class size* Staff-teacher ratio*	Teacher interview about training and experience in classroom (does not seem like a standardized measure)*	Included in the ITERS	Not examined.	Not examined.
6. Burchinal, M., Vandegrift, N., Pianta, R., & Mathburn, A. (2010). Threshold analysis of association between child care quality and child outcomes for low-income children in pre-kindergarten programs. <i>Early Childhood Research Quarterly</i> .	All programs were pre-K programs. Some were housed in public schools and some were a part of a Head Start program. All Head Start programs had to meet Head Start and pre-K regulations. No percentages of program type are reported	Some programs were full day and some programs were half day.	This study focuses on low-income children since most federal and state programs were "mandated to address concerns about school readiness among low-income children." (p.3) Only children meeting the low-income eligibility criteria from the pre-K programs in the data sets were included in this study.	Classroom Observation Scoring System (CLASS; Pianta, La Paro, & Hamre, 2004) Emotional Support composite* (mean of positive climate, negative climate-reverse scored, teacher sensitivity, over-control-reverse scored, and behavior management ratings) and Instructional Quality composite* (mean of concept development and quality of feedback ratings).	Average classroom size, in both data sets, was 17 children.	Not examined.	Not examined.	Both of the composite scores* from the CLASS focus on quality of interaction. See Global measures of quality box. Many of the individual CLASS dimensions are also measures of quality of interactions including positive climate, negative climate, teacher sensitivity, behavior management, and quality of feedback.	Not examined.

All.b									
Measures of Early Childhood Settings									
Publication Information	Type(s) of early childhood setting(s); (e.g., child care, Head Start) as reported with %	Features of early childhood program described in article	How children's access to early childhood program is determined	Global or Summary Measure of Quality Collected and Descriptive Statistics	Measures of quality pertaining to group size and ratio	Measures of quality pertaining to teacher/caregiver education in higher education, credentials, and training not providing credits towards a higher ed degree	Measures of quality pertaining to adequacy of space, organization of space, and adequacy of materials overall and on specific topics	Measures of quality focusing on interactions	Measures of quality focusing on fidelity of implementation of a particular curriculum or educational approach
Specifications for Entering Information in Table	Sometimes names used for programs differ (e.g. center based care may be called preschool). Use terminology provided by authors	Note information provided regarding teacher/caregiver qualifications, curriculum used, all or part day, languages used in instruction, whether a particular educational approach or philosophy is used, accreditation status	Include here if there were income requirements for participation (as in HS); if a pre-k program is targeted to certain groups or universal.	Examples include ECERS-R total score; CLASS total. List all global or summary measures of quality collected but then note those actually included in analyses summarized in this article or report with * included in analyses	Examples include total number of children in group; staff/child ratio. Note information provided by way of description and then note with * those measures included in analyses	Examples (ed) include years of ed; degree attained, major; (credential) CDA, state early childhood credential; (training) hours completed ever or in last year. Note all described and then with * those measures included in analyses	Examples include scales/ratings re adequacy of space, appropriateness of furnishings, activity centers, adequacy of play/learning materials, materials re literacy, science etc. Note all described and then with * those included in analyses.	Examples include scales/ratings of caregiver/teacher sensitivity, frequency and quality of verbal interaction, disciplinary approach, quality of instruction. Note all described and then with * those included in analyses	Examples include implementation checklist for Creative Curriculum, observations of implementation of a newly developed approach for early math instruction. Note all described and then with * those included in analyses
7. Dearing, L., McCartney, K., & Taylor, B. A. (2009). Does higher quality early child care promote low-income children's math and reading achievement in middle childhood? <i>Child Development, 80</i> (5), 1329-1349.	Nonmaternal care.	Not examined.	Not examined.	*Observational Record of the Caregiving Environment (ORCE) at 6, 15, 24, 36, and 54 months at the primary child care setting (minimum of 10 hours per week). [See measures of interactions on this page; ORCE total quality score is sum of those ORCE items]	Not examined.	Not examined.	Not examined.	From the ORCE: At 24 months: Sensitivity to child's non-distress expressions, positive regard, stimulation of cognitive development, detachment, flat affect. At 36 months: All previous categories plus fostering exploration and intrusiveness. At 54 months: Sensitivity, responsiveness, stimulation of cognitive development, intrusiveness, and detachment. Scores summed to create total quality measure.	Not examined.
8. Deater-Deckard, K., Plomin, R., & Scarr, S. (1996). Child care quality and children's behavioral adjustment: A four-year longitudinal study. <i>Journal of Child Psychology and Psychiatry, 37</i> (8), 937-948.	Programs were for-profit independents, for-profit chains, church-sponsored, and non-profit centers. 70% used for-profits and 44% used non-profit centers. 21% also used family care, 12% used relative in-home care, 23% used non-relative in-home care, 12% used relative out-of-home individual care, and 28% used non-relative out-of-home individual care. 50% of children used between one and three arrangements in the four years between the first and second assessments and 50% used more than three arrangements during that period (so figures sum to over 100%). At the follow-up, 70% of children were in center care as a primary arrangement and 18% of mothers reported using 2 or 3 arrangements.	Not reported (may vary by type).	Not reported (may vary by type).	*Infant-Toddler Environment Rating Scale (ITERS), *Early Childhood Environment Rating Scale (ECERS), *Assessment Profile (includes caregiver-child ratios, caregiver wages, and caregiver education and training).	Assessment Profile measures child-adult ratio: average ratio is 1 adult for every 7.7 children.	*Caregiver education and amount of early childhood training; caregiver wage.	Not reported.	Not reported.	Not reported.
9. Early et al. (2007). Teachers' education, classroom quality, and young children's academic skills: results from seven studies of preschool programs. <i>Child Development, 78</i> (2), 558-580.	(1) Early Head Start (2) Head Start (3) GECS: Children attending full day pre-k programs in Georgia including Head Start, Georgia Pre-K and private pre-k (4) More at Four program for at risk 4 year olds; (5) state funded pre-k (6) NICHQ children in center-based care in year before kindergarten; (7) PCER preschools	Detailed data provided regarding teacher education for each of the seven studies in Table 2 of paper. Selective summary of information in this table: <u>Percent with bachelor's degree</u> : (1) EHS 55%; (2) FACES 34%; (3) GECS: 53%; (4) MAF: 87%; (5) NCELD: 71%; (6) NICHQ: 58%; (7) PCER: 67%. <u>Percent with a major in early childhood or child development</u> : (1) EHS: 97%; (2) FACES: 71%; (3) GECS: 72%; (4) MAF: 58%; (5) NCELD: 50%; (6) NICHQ: 35%; (7) PCER: 40%. <u>Mean school day in hours</u> : (1) EHS: not reported; (2) FACES: 4.88 (3) GECS: 6.5; (4) MAF: 6.65; (5) NCELD: 4.58; (6) NICHQ: 4.86; (7) PCER: not reported	(1) Early Head Start and Follow-up: Children from low income families eligible for EHS in 17 sites (2) Head Start Family and Child Experiences Survey (2003): Children eligible for Head Start (3) Georgia Early Care Study: Children attending full day pre-k programs in Georgia, including Head Start, Georgia Pre-K, and private pre-k (4) More at Four Evaluation: participants in program for at-risk 4 year olds (5) National Center for Early Development and Learning Multi-State and SWEEP samples: participants in state funded pre-k in 11 states with well established programs (6) NICHQ Study of Early Child Care and Youth Development: no access determination (7) Preschool Curriculum Evaluation Research Program children from control group in pilot year: no information about children's access to these preschools is provided.	All of the studies except the NICHQ SECCYD used the ECERS-R*. The NICHQ SECCYD used the ORCE. Measure of quality used here is positive caregiving rating composite	<u>Mean ratios</u> : (1) EHS: NA; (2) FACES: 6.39; (3) GECS: 10.02; (4) MAF: 6.23; (5) NCELD: 7.55; (6) NICHQ: 8.69; (7) PCER: 7.28. <u>Mean group size</u> : (1) EHS: 17.5; (2) FACES: 14.38; (3) GECS: 16.82; (4) MAF: 15.99; (5) NCELD: 18.5; (6) NICHQ: 15.49; (7) PCER: 16.32	(1) Highest level of education* - HS or GED, associate's degree, bachelor's degree, graduate degree. (2) Bachelor's degree/no bachelor's degree* (3) Major: early childhood or child development, education major, any field outside of education*.	Not reported	NICHQ SECCYD used the ORCE positive caregiving rating composite*	Not reported
10. Gallagher, P. A., & Lambert, R. G. (2006). Classroom quality, concentration of children with special needs, and child outcomes in Head Start. <i>Exceptional Children, 73</i> (1), 31-52.	Head Start centers	Study indicates that classrooms in sample followed criteria and requirements of Head Start settings.	Head Start programs are required to serve predominantly low-income 3- to 5-year-old children. A minimum of 10% of enrollment slots in programs are to be held for children with disabilities.	The Assessment Profile for Early Childhood Programs: Research Edition II* (Abbott-Shim & Sibley, 1998)	Group size* and child-staff ratio*	Not examined	Not examined	Not examined	Not examined
11. Herrera, M. O. et al. (2005). Learning contexts for young children in Chile: Process quality assessment in preschool centers. <i>International Journal of Early Years Education, 13</i> (1), 13-27.	Early Childhood Program centers (sometimes called preschool) (100%).	Some early childhood programs are public (run by the government and funded mostly with public resources, further categorized by having a preschool teacher in each classroom or having a preschool teacher as a supervisor to the technical professional in each classroom), some are mixed (publicly funded but operated by a non-government entity), some are private (mostly privately funded and operated by a non-government entity). All centers use Chile's national holistic curriculum framework.	Early childhood programs are universally accessible in Chile, although attendance is not compulsory. 85% of five to six year olds attend, 40% of children under age four, and 4% of children under age two attend. Only 1 in 4 low SES children attend while 1 in 2 medium and high SES children do.	*Early Childhood Environment Rating Scale (ECERS) with 2 items deleted, *Infant and Toddler Environment Rating Scale (ITERS), *School Age Care Environment Rating Scale (SACERS) (with some modifications to fit Chilean practices). To test validity of ITERS, ECERS, and SACERS in Chile: Caregiver Interaction Scale (CIS), TVI (comprehension vocabulary test), adaptation of the Social Competence Scale, Vineland measurement of adaptive behavior, National Educational Quality Measurement Test (SIMCE).	Not examined separately	Not examined	Note examined separately (related items included in global measure)	Included in ITERS, ECERS, SACERS items but not examined separately.	N/A (all centers use Chile's national curriculum framework).

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12. Hill, J. L., Brooks-Gunn, J., & Waldfogel, J. (2003). Sustained effects of high participation in an early intervention for low-birth-weight premature infants. <i>Developmental Psychology</i> , 39 (4), 730-744.	Intensive early childhood education at child development centers	All centers were full-day and full-year programs.	The intervention group of children received access to early childhood program and received home visits biweekly until age 3.	Not examined.	Not examined.	Not examined.	Not examined.	Not examined.	Not examined.
13. Howes, C. (1997). Children's experiences in center-based child care as a function of teacher background and adult:child ratio. <i>Merrill-Palmer Quarterly</i> , 43 (3), 404-425.	All programs for both data sets were centers. CQO: Equal representation of for-profit and nonprofit FQIS: programs that served at least 50% subsidized children were considered low-income, programs that served less than 50% subsidized children were considered high-income	CQO: All programs were full-day (at least 30 hours a week) and full year (at least 11 months a year) FQIS: No information is given about features	Not reported	Not examined	CQO and FQIS: Classroom ratio regulations* The article states that there is no national standard for adult:child ratio, but for this study the ratios they are using are based of NAEYC and the National Academies of Sciences Panel on Child Care Policy: Children 0 to 1 year 1:3, Children 1 to 2 years 1:5, Children 2 to 3 years 1:5, Children 3 to 5 years 1:8, and Children 5 to 6 years 1:10. Classroom ratio was recorded by observers, and they also noted whether the classroom was in or out of compliance with the age-appropriate ratio. The observers also noted the group size.	CQO and FQIS: Teacher background* was collected including formal education and training in early childhood education. Teachers were categorized into one of five background categories based on their education and training experiences including a) high school education plus a few workshop trainings in child development b) CDA c) some college courses in early childhood education d) a 2-year associate of arts degree in ECE and e) a bachelors or more advanced degree in ECE.	Not examined.	CQO and FQIS: Caregiver Interaction Scale (CIS; Arnett, 1989)*, three scores: sensitivity, harshness, and detachment. Adult Involvement Scale (AIS; Howes & Stewart, 1987)*	Not examined.
14. Howes, C., Burchinal, M., Pianta, R., Bryant, D., Early, D., Clifford, R., & Barban, O. (2008). Ready to learn? Children's pre-academic achievement in pre-kindergarten programs. <i>Early Childhood Research Quarterly</i> , 23, 27-50.	The studies from which the dataset was derived included a mixed set of early childhood locations, including centers, schools and program sites. Approximately 63% of the classrooms were based in public schools.	The sample includes a variety of pre-K classrooms across several states with varying requirements. The study notes that 56% of the programs were run full-day (defined as 20 or more hours per week).	Varied by state and program. However, on average, 58% of children in classrooms in this study were in poverty.	SECC: Observational Record of the Caregiving Environment (ORCE)* (NICHD ECCRN, 1996), used positive caregiving rating composite score	Classrooms in the combined sample: group size proxy of approximately 19 children enrolled; 1:8.6 adult-student ratio.*	Education* and experience of teachers in the combined sample: mean of 9 years experience teaching preschool; 60.2% had a B.A. and early childhood certification; 11.1% had a B.A. only; 11.9% had a Child Development Associate certificate; 16.8% had higher a BA nor early childhood certification or training.	Based on factor analysis of ECERS-R items, a composite of several indicators was created that was used as a measure of materials (labeled Provisions for Learning*), the scale included indicators of furnishings, gross motor equipment, art, dramatic play, and nature/sciences.	Based on factor analysis of ECERS-R items, a composite of several indicators was created that was used as a measure of sensitive interactions (labeled Teaching and Interactions*), the scale included indicators of staff-child interactions, discipline, supervision, encouraging child's communication, and using language to develop reasoning skills). Factor analysis of the CLASS yielded two factors associated with the socioemotional and instructional climate of the classroom: Emotional Climate* is a composite of Negative Climate (reversed), Positive Climate, Teacher Sensitivity, Over-control (reversed), and Behavior Management. Instructional Climate* is a composite of Quality of Feedback and Concept Development indicators. Emerging Academics Snapshot (3 engagement codes*), including letters and sounds, oral language development and being read to, were examined) Student-teacher relationships were measured using the Student Teacher	Not examined
15. Howes, C., Phillips, D.A., Whitebook, M. (1992). Thresholds of quality: Implications for the social development of children in center-based care. <i>Child Development</i> , 63, 449-460.	All three data sets use the word center. No further breakdowns are reported	All children were enrolled in care at least 20 hours per week and all children were enrolled in the center at least 2 months before observation	Not reported.	Early Childhood Environmental Rating Scale(ECERS; Harms and Clifford, 1980)* Infant-Toddler Environmental Rating Scale (ITERS; Harms and Clifford, 1986)* Two subscales of quality were derived from these measures: 1. Appropriate caregiving: included items pertaining to child-adult interactions, supervision, and discipline 2. Developmentally appropriate activity- included items pertaining to materials, schedule and activities of the classroom	Adult:child ratio was measured through direct observation. Three categories of ratios were developed based off of the Federal Interagency Day Care Requirements for each age group: <u>Infants</u> : 1) three children per adult 2) more than 3, but not more than 4 children per adult 3) more than four children per adult 2) more than four, but no more than six children per adult 3) more than six children; <u>Preschool</u> : 1) no more than eight children per adult 2) more than eight but no more than nine children per adult 3) more than nine children per adult Similar categories were created for group size: <u>Infants</u> : a) 6 children or less b) 7-12 children c) more than 12 children; <u>Toddlers</u> : a) 12 children or less b) 13-18 children c) more than 18 children; <u>Preschool</u> : a) 18 children or less b) more than 18 children	Not examined.	See Global Measures of Quality box which includes this type of measure.	Not examined, but see Measures of Social and Emotional Development box on next tab.	Not examined.

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16. Hubbs-Tait, A.M. Culp, Huey, R. Culp, Starost & Hare. (2002). Relation of Head Start attendance to children's cognitive and social outcomes: Moderation by family risk. <i>Early Childhood Research Quarterly</i> , 17, 539-558.	Head Start	Not reported	Not reported, but Head Start programs so can be assumed to use Head Start eligibility criteria	ECERS. Minimum score across the classrooms was 4.25 and maximum was 6.44. Average was 5.49.15/16 classrooms were rated as good or higher.	Not reported	Not reported	Not reported	Not reported	Not reported
17. Kontos, S., Wilcox-Herzog, A. (1997). Influences on children's competence in early childhood classrooms. <i>Early Childhood Research Quarterly</i> , 12, 247-262.	Early childhood programs (100%).	All programs were affiliated with universities. Two programs were full-day, one was half-day.	Not described in this article	Not examined	The sampled centers had "richer" teacher-child ratios than usual (about four children per adult due to presence of student teachers and practicum students).	The teachers were more well educated than most child care teachers (most had masters degrees). Descriptive statistics not reported.	Not examined	*Howes Involvement Scale: measures teacher responsive involvement and verbal stimulation when teacher is within 3 feet of child. (253) Responsive Involvement has six levels (ignoring the child, routine care giving, minimal caregiving, simple caregiving, elaborative caregiving, intense caregiving) in simple, elaborative, or intense categories. Verbal interactions has five categories (no teacher verbalizations, directives, non-elaborative, elaborative).	Not examined
18. Landrin, D. J. (1996). Evidence of student attendance as an independent variable in education production functions. <i>The Journal of Educational Research</i> , 89 (3), 155-162.	Not relevant. Sample of elementary schools.	Not described in this article	None. Sample includes all Baltimore city public elementary schools serving grades K-5.	Not examined.	*School input measures: "Teacher/pupil ratio", professional staff/pupil ratio"	Not examined	Not examined	Not examined	Not examined
19. Loeb, S. et al. (2004). Child care in poor communities: Early learning effects of type, quality, and stability. <i>Child Development</i> , 75 (1), 47-65.	Center-based care (21% in both waves, 19% moved to center care between wave 1 and 2); home-based care (4% in both waves); family friend and neighbor care; faith and kin care/individual nonparental provider (16%); 31% in mixed care arrangement; 9% not using any care.	Not described in this article	Not described in this article	*Early Childhood Environmental Rating Scale (ECERS); *Family Day Care Rating Scale (FDCRS). Observations at centers and home-based programs were conducted twice during the study; in 1998 when the mean child age was 2.5 years and in 2000 when the mean child age was 4.	Not examined separately	Not examined separately	Not examined separately (related items included in global measure)	*Arnett Scale of Caregiver Behavior	Not examined
20. Mashburn, A.J., Pianta, R. C., Hamre, B. K., Downer, J. T., Barbarin, O. A., Bryant, D., Burchinal, M., Early, D. M., & Howes, C. (2008). Measures of classroom quality in prekindergarten and children's development of academic, language, and social skills. <i>Child Development</i> , 79 (3), 732-749.	All programs were pre-K programs. Some were housed in public schools and some were a part of a Head Start program. All Head Start programs had to meet Head Start and pre-K regulations. No percentages of program type are reported	Teacher has BA or higher degree: 70% Teacher has training in ECE/CD: 60% Assistant teacher has CDA or BA: 20% Class has 20 or fewer students: 82% Child-to-teacher ratio is 10:1 or better: 87% Program serves meals: 78% Program provides family support services: 81% Program offers health services: 47% Program uses a comprehensive curriculum* that addresses all developmental domains: 57% (*Note: programs that used multiple curricula, no curricula, locally developed curricula or a curriculum that didn't address all domains were not counted in this category)	Not described in this article. May vary across states.	The Early Childhood Environment Rating Scale* (ECERS; Harms & Clifford, 1980); The Classroom Assessment Scoring System (CLASS; Pianta et al., 2007) Nine-item National Institute for Early Education Research (NIEER; Barnett, Hustett, Robin, & Schulman, 2004; Barnett et al., 2005) index*	Features of program infrastructure and design as recommended by NIEER: class size*, child-to-teacher ratio*	Features of program infrastructure and design as recommended by NIEER: teacher education*, teacher/assistant teacher background in early childhood or child development*, use of comprehensive curriculum*, child-to-teacher ratio*	The Early Childhood Environment Rating Scale-Revised(ECERS-R; Harms et al., 1998) includes measures of the quality of the space and environment for learning. The NIEER benchmark includes a measure assessing whether a comprehensive curriculum is used.*	The Classroom Assessment Scoring System (CLASS; Pianta et al., 2007) assesses instructional and social features of classroom interactions. Seven scales from the CLASS relevant for this study include: positive climate, negative climate, teacher sensitivity, over control, behavior management, concept development, and quality of feedback. From these CLASS subscales, two factors, instructional support* and emotional support*, were created and used in the analyses.	Not examined
21. McCartney, K. (1984). Effect of quality of day care environment on children's language development. <i>Developmental Psychology</i> , 20 (2), 244-260.	Bermudian day care centers (100%).	Eight of the centers were private; one was government run for low-income families. All aspects of quality varied widely. All centers served infants through preschool aged children.	Parents select care; although the large percentage of children in care reduces the selection biases compared to the US system. The one government-run center serves low-income children although specific access criteria are not reported.	ECERS	Not examined separately	Not examined	*The Day Care Environment Interview (based on the Observation Schedule for Physical Space from the Day Care Environment Inventory).	*Observational coding of caretaker-child interactions. Interactions are categorized as control, expressive, representational, or social.	Not examined

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22. McCartney, K., Burchinal, M., Clarke-Stewart, A., Bub, K. L., Owen, M. T., Belsky, J. & The NICHD Early Child Care Research Network. (2010). Testing a series of causal propositions relating time in child care to children's externalizing behavior. <i>Developmental Psychology</i> , 46 (1), 1-17.	The study included children attending a variety of types of early childhood settings or in exclusive maternal care.	Characteristics of settings varied widely in keeping with variation in child care types included in the study. Features of settings also varied across age groups.	Not described in this article	The Observational Record of the Caregiving Environment* (ORCE) (mean rating across four subscales)	Not examined.	Center care* was the only organization-level characteristic that was measured.	The study found that center care did not moderate the effects of amount of time spent in child care and child outcomes.	Many of the subscales of the ORCE* focus on the caregiver-child interactions and caregiver responsiveness to child.	Not examined
23. McCartney, K., Scarr, S., Rochelleau, A., Phillips, D. et al. (1997). Teachers, child interaction and child-care auspices as predictors or social outcomes in infants, toddlers, and preschoolers. <i>Merrill-Palmer Quarterly</i> , 43 (3), 426-450.	Non-profit (10 from each Richmond and Atlanta, 20 from Boston), local for-profit (10 in each area), national for-profit (10 in each area), or church-sponsored (10 in Richmond and Atlanta, none in Boston) centers.	Centers had to be in operation for at least one year, have children from 12 to 60 months old, and receive no more than 30% of income from subsidy programs (federal, state, or local).	Not reported (likely varied by program).	*Early Childhood Environment Rating Scales (ECERS). Infant/Toddler Environment Rating Scale (ITERS). Assessment Profile for Early Childhood Programs.	In 1989: MA: 7:2 for infants, 9:2 for toddlers, 10:1 for preschoolers. VA: 4:1 for infants, 5:1 for toddlers, 10:1 for preschoolers. GA: 7:1 for infants, 10:1 for toddlers, and 15:1 for preschoolers.	Teachers completed questionnaire on personal background, child care experience, wages and benefits, educational background, activities during the workday, professional satisfaction, and staff morale. [The specifics of the questions were not provided in the article]	Not examined.	*Items on the ITERS/ECERS and Assessment Profile for Early Childhood Programs that relate to child-teacher interaction.	Not examined.
24. NICHD Early Child Care Research Network. (1998). Early child care and self-control, compliance, and problem behavior at twenty-four and thirty-six months. <i>Child Development</i> , 69 (4), 1145-1170.	Care setting was where child spent at least 10 hours per week and could be any care that was not maternal care (including paternal care).	Not reported.	N/A (children participated in all types of care).	Observational Record of the Caregiving Environment (ORCE) conducted at 6, 15, 24, and 36 months in settings where child spent at least 10 hours per week. Overall quality measure is standardized and averaged total of the two composite measures described in column in this table for *Measures of quality focusing on interactions.*	Not reported.	Not reported.	Not reported.	Positive Caregiving Frequency composite (9 ORCE items on caregiving behavior). Positive Caregiving Ratings composite (including ORCE items on sensitivity, responsiveness, affect, and stimulation).	Not reported.
25. NICHD Early Child Care Research Network. (2000). The relation of child care to cognitive and language development. <i>Child Development</i> , 71, 960-980.	Children were in one of four types of care: 1. child care center 2. child care home (care in someone else's home by a nonrelative or relative other than the child's grandparents) 3. grandparent or in-home care (care in the child's home, including care by father) 4. exclusive maternal care	Children were considered to be in non maternal care if they spent 10 or more hours a week in one of three types of care (child care center, child care home, grandparent or in-home care). If they spent less than that, then they were considered to be in maternal care. Features of settings varied in keeping with types of care included in study and also across age groups.	Not described in this article	Observational Record of the Caregiving Environment (ORCE)* (NICHD ECCRN, 1996), used two scores: a composite of positive caregiving ratings and frequency of language stimulation.	Not examined	Not reported.	Not examined	Included as part of the ORCE, but no separate measures.	Not examined
26. NICHD Early Child Care Research Network. (2002). Child-Care Structures → Process → Outcome: Direct and indirect effects of child-care quality on young children's development. <i>Psychological Science</i> , 13 (3), 199-206.	Not described in this article.	Not described in this article	Not described in this article	Not examined	*Staff-child ratio was observed at the beginning and end of each of two ORCE cycles and averaged across these.	*Caregiver training in child development or early childhood education, derived from interviews with the caregivers	Not examined	Observation Record of the Caregiving Environment (ORCE), included 4 ratings of the caregiver-child relationship (sensitivity to nondistress, detachment, stimulation of cognitive development, and intrusiveness) and 4 pertaining to climate of the classroom (including chaos, over control, positive climate and negative climate). *Summary rating of nonmaternal caregiving: a latent variable including sensitivity, detachment, positive climate and caregiver cognitive stimulation.	Not examined

All.b									
Measures of Early Childhood Settings									
Publication Information	Type(s) of early childhood setting(s); (e.g., child care, Head Start) as reported with %	Features of early childhood program described in article	How children's access to early childhood program is determined	Global or Summary Measure of Quality Collected and Descriptive Statistics	Measures of quality pertaining to group size and ratio	Measures of quality pertaining to teacher/caregiver education in higher education, credentials, and training not providing credits towards a higher ed degree	Measures of quality pertaining to adequacy of space, organization of space, and adequacy of materials overall and on specific topics	Measures of quality focusing on interactions	Measures of quality focusing on fidelity of implementation of a particular curriculum or educational approach
Specifications for Entering Information in Table	Sometimes names used for programs differ (e.g. center based care may be called preschool) - Use terminology provided by authors	Note information provided regarding teacher/caregiver qualifications, curriculum used, all or part day, languages used in instruction, whether a particular educational approach or philosophy is used, accreditation status	include here if there were income requirements for participation (as in HS); if a pre-k program is targeted to certain groups or universal.	Examples include ECERS-R total score; CLASS total. List all global or summary measures of quality collected but then note those actually included in analyses summarized in this article or report with *	Examples include total number of children in group; staff/child ratio. Note information provided by way of description and then note with * those measures included in analyses	Examples (ed) include years of ed; degree attained, major; (credential) CDA, state early childhood credential; (training) hours completed ever or in last year. Note all described and then with * those measures included in analyses	Examples include scales/ratings re adequacy of space, appropriateness of furnishings, activity centers, adequacy of play/learning materials, materials re literacy, science etc *Note all described and then with * those included in analyses.	Examples include scales/ratings of caregiver/teacher sensitivity, frequency and quality of verbal interaction, disciplinary approach, quality of instruction. Note all described and then with * those included in analyses	Examples include implementation checklist for Creative Curriculum, observations of implementation of a newly developed approach for early math instruction. Note all described and then with * those included in analyses
27. NICHD Early Child Care Research Network and Duncan. (2003). Does quality of child care affect child outcomes at age 4.1/2? <i>Developmental Psychology</i> , 39 (3), 451-469.	In-home caregivers, child-care centers, father care, grandparent care, child-care homes.	Measures of program quality (composite of assessment observations): overall caregiver quality (see measures of quality focusing on interactions), language stimulation, TV viewing, positive physical contact, positive talk, positive interaction with other children stimulating physical materials.	Not described in this article	*Observational Record of the Caregiving Environment (ORCA)	Not examined	Not examined	*Assessment Profile for Early Childhood Programs	*Five 4-point scales: caregiver's sensitivity to child's nondistress signals, stimulation of child's development, positive regard towards child, detachment, flatness of affect.	Not examined
28. NICHD Early Child Care Research Network (2006). Child-care effect sizes for the NICHD Study of Early Child Care and Youth Development. <i>American Psychologist</i> , 61 (2), 99-116.	The study included children attending a variety of types of early childhood settings or in exclusive maternal care.	Characteristics of settings varied widely in keeping with variation in child care types included in the study. Features of settings also varied across age groups.	Not described in this article	The Observational Record of the Caregiving Environment* (ORCE; NICHD ECCRN, 1996, 2002)	Not examined	Not examined	Not examined	Many of the subscales of the ORCE* focus on the caregiver-child interactions and caregiver responsiveness to child: "sensitivity to child's nondistress signals, stimulation of cognitive development, positive regard toward child, detachment [reflected], and flatness of affect [reflected]."	Not examined
29. NICHD Early Child Care Research Network & Duncan, G. (2003). Modeling the impacts of child care quality on children's preschool cognitive development. <i>Child Development</i> , 74 (5), 1454-1475.	The study included children attending a variety of types of early childhood settings or in exclusive maternal care.	Characteristics of settings varied widely in keeping with variation in child care types included in the study. Features of settings also varied across age groups.	Not described in this article	The Observational Record of the Caregiving Environment* (ORCE) (mean rating across four subscales)	The study examined observed group size*and child-adult ratio.*	The study examined caregiver years of education.*	Not examined	Many of the subscales of the ORCE* focus on the caregiver-child interactions and caregiver responsiveness to child: "sensitivity to child's nondistress signals, stimulation of child's development, positive regard for child, emotional detachment [reversed], flatness of affect [reversed], intrusiveness [reversed], and detachment [reversed]."	Not examined
30. Owen, M. T., Klauski, J. F., Mata-Otero, A., Caughy, M. O. (2008). Relationship-focused child care practices: Quality of care and child outcomes for children in poverty. <i>Early Education and Development</i> , 19 (2), 302-329.	100% child care centers	53.3% of the centers were nonprofit and the remaining were for-profit.	Not described in this article	ECERS-R* total score from 37 items	Staff: Child ratio was 1:8 on average. Average number of children per classroom was 14 children.	Not examined.	Not examined separately	Caregiver Interaction Scale (CIS) (Arnett, 1989)* UCLA Early Childhood Observation Form (ECOF)* (Stipek, et al 1992) - measures child-centered teaching styles Adult Involvement Scale (AIS)* (Howes & Stewart, 1987) - measures teacher responsiveness	Not examined
31. Peisner-Fainberg, E. S., & Burchinal, M. R. (1997). Relations between preschool children's child-care experiences and concurrent development: The cost, quality, and outcomes study. <i>Merrill-Palmer Quarterly</i> , 43, 451-477.	The study included Head Start and Head Start affiliate centers.	The study included four relationship-focused centers (RFC) and eight comparison non-relationship-focused centers (non-RFC) with accreditation from the National Association for the Education of Young Children (NAEYC). RFC centers grouped children into "family groups" with children of mixed ages where children could possibly receive care from the same caregiver for most of each day and could experience a continuous relationship with that caregiver from ages 3 to 5. All study centers operated as full-day programs. All caregivers had some post-secondary education (mean years of education: 14.13 years) Varied in experience in centers (mean months in center: 79.74 months with a SD of 83.59 months)	All centers in the study were Head Start or Head Start affiliate. Centers that enrolled between 50% to 100% low income children who received subsidized care.	A coding scheme adapted from the Observational Record of the Caregiving Environment* of the NICHD Study of Early Child Care (ORCE; NICHD Early Child Care Research Network, 2000) and Howe's Adult Involvement Scale* (Howes & Stewart, 1987).	Child-to-caregiver ratio* was observed averaged over three observation periods. (Lower ratios were observed in RFC centers)	Mean years of caregiver education: 14.13 years Amount of experience in their center: 79.74 months (with a SD of 83.59 months)	Not examined	Parent questionnaire data collected by phone included information on "...caregiver-child relationships." caregiver-child relationship quality was measured using a shortened version of the Student-Teacher Relationship Scale* (STRS; Pianta, 1994) Sub-sections of the ORCE and Howe's Adult Involvement Scale focus on observed caregiver-child interactions.	Not examined

All.b									
Measures of Early Childhood Settings									
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Specifications for Entering Information in Table	Sometimes names used for programs differ (e.g. center based care may be called preschool) . Use terminology provided by authors	Note information provided regarding teacher/caregiver qualifications, curriculum used, all or part day, languages used in instruction, whether a particular educational approach or philosophy is used, accreditation status	Include here if there were income requirements for participation (as in HS); if a pre-k program is targeted to certain groups or universal.	Examples include ECERS-R total score; CLASS total. List all global or summary measures of quality collected but then note those actually included in analyses summarized in this article or report with *	Examples include total number of children in group; staff/child ratio. Note information provided by way of description and then note with * those measures included in analyses	Examples (ed) include years of ed; degree attained, major; (credential) CDA, state early childhood credential; (training) hours completed ever or in last year. Note all described and then with * those measures included in analyses	Examples include scales/ratings re adequacy of space, appropriateness of furnishings, activity centers, adequacy of play/learning materials, materials re literacy, science etc .Note all described and then with * those included in analyses	Examples include scales/ratings of caregiver/teacher sensitivity, frequency and quality of verbal interaction, disciplinary approach, quality of instruction. Note all described and then with * those included in analyses	Examples include implementation checklist for Creative Curriculum, observations of implementation of a newly developed approach for early math instruction. Note all described and then with * those included in analyses
32. Peiser-Feinberg, E. S., Burchinal, M. R., Clifford, R. M., Culkin, M. L., Howes, C., Kagan, S. L., & Vazjian, N. (2003). The relation of preschool child-care quality to children's cognitive and social developmental trajectories through second grade. <i>Child Development, 72</i> (5), 1534-1553.	Child care centers	Not described in this article	Not described in this article	Year 1, Early Childhood Environment Rating Scale (ECERS). On the ECERS, a single total score of child related items used. Psychometric analyses indicated that the ECERS, CIS, ECOF and AIS were highly intercorrelated (see column on quality measures based on interactions for descriptions of these). *A single composite score, the classroom practices quality index, was computed based on factor analysis. Kindergarten , *an abbreviated version of the ECERS collected based on 1 hour of observation. Total mean item score. Second grade : An abbreviated version of the Instructional Environment Observation Scales (IEOS; Secada, 1997). *General climate (classroom climate, social support for student learning, student engagement) and linkages subscales (cross-disciplinary linkages and linkages to life outside of classroom). The average ECERS score in Year 1 of preschool was 4.38. The shortened ECERS had a mean of 4.53 in kindergarten and 3.98 in second grade. Scores on the IEOS indicated fairly high average classroom climate, but fairly low linkages (mean scores of 3.68; 1.93 respectively).	Not examined	Not examined	Not examined separately (related items included in global measure)	Caregiver Interaction Scale (CIS). Single factor best reflected data, based on ratings of teacher sensitivity, harshness, detachment and permissiveness. Child Centeredness measured using the UCLA Early Childhood Observation Form (ECOF), with total mean score ranging from didactic to child centered. Teacher responsiveness measured with the Adult Involvement Scale (AIS) reported in terms of percentage of time teacher was at least minimally responsive to the target child. CIS mean score of 3.01 indicated that teachers were moderately sensitive. Teachers were observed to be at least minimally responsive to the children in their classrooms 31% of the time. ECOF scores indicated slightly more child centered than didactic approach. *Teacher-Student Relationship Scale (TSRS) in year 1 of preschool averaged 4.17 indicating fairly close relationships. *The mean score on the TSRS was 4.17 in kindergarten, and 3.98 in second grade. (Note that the CIS, ECOF and AIS were found to be highly correlated with the ECERS and a single composite variable focusing on classroom practices was computed based on factor analysis. This is included in the column for global or summary measure of quality.)	Not examined
33. Poe, M. D., Burchinal, M. R., & Roberts, J. E. (2004). Early language and the development of children's reading skills. <i>Journal of School Psychology, 42</i> , 315-332.	Children were recruited from 9 center-based child care programs.	Not described in this article	Not described in this article	ITERS* total score (used from birth to 2 years old) and ECERS-R* total score (used for children 2 years and older)	Not examined	Not examined	Not examined	Not examined	Not examined
34. Schlieker, E., White, D. R., & Jacobs, E. (1991). The role of day care quality in the prediction of children's vocabulary. <i>Canadian Journal of Behavioral Science, 23</i> (1), 12-24.	licensed day care centers (100%)	Centers were licensed, offered full-time care (35 hours per week), and operated primarily in English.	Varied by center (parents enrolled their children in the centers).	ECERS	Not examined separately	Not examined separately	Not examined separately (related items included in global measure)	Not specifically examined (included as part of ECERS).	Not examined
35. Tran & Weinraub, (2006). Child care effects in context: Quality, stability, and multiplicity in nonmaternal child care arrangements during the first 15 months of life. <i>Developmental Psychology, 42</i> (3), 566-582.	Primary nonmaternal child care arrangement at 6 and 15 months (arrangement child participated in for most time, or if equal times, the more formal of the two) . At least 10 hours/week. Included care by fathers, grandparents, in-home sitters, family day care homes, and centers. Percentages given according to whether children did or did not change arrangements over period from 6 to 15 months. 254 children (61%) did not change arrangements during this time. Of these, 17% were cared for by father/partner, 13% by grandparent, 13% by in-home care, 32% by family child care home, and 26% center care. 39% (n not given) of families made at least one change between consecutive data collection points (6 and 9 months, 9 and 12 months, 12 and 15 months). Descriptive statistics that is given is then number of changes (rather than number of children who made these changes). E.g., 35 changes within family caregivers, 49 family to non family changes, and 59 nonfamily to nonfamily changes.	Not reported	Not reported	Not reported	Not reported	Not reported	Not reported	Observational Record of the Caregiving Environment (ORCE) collected at 6 and 15 months in child's primary nonmaternal caregiving setting. Four 44 minute cycles of observation spread over 2 days. Frequency checklist and qualitative ratings. Three summary scores developed: (1) positive behavior (shared positive affect and positive physical contact); (2) responsibility (responds to vocalizations and facilitates infant behavior); and (3) stimulation (asks questions, other talk, stimulates cognitive and social development, and reads to infant). These summary scores were standardized and averaged to create composite score of positive caregiving frequencies: quantity or occurrences of positive interactions. This composite created for 6 and for 15 month observation. Average quality created by averaging this score at 6 and 15 months. Quality slope created by subtracting 6 month composite score from the 15 month composite score.	Not reported
36. Vandell, D.L, Belsky, J., Burchinal, M., Steinberg, L, Vandergrift, N, & NICHD Early Child Care Research Network. (forthcoming). Do effects of early child care extend to age 15 years? Results from the NICHD Study of Early Child Care and Youth Development: Age 15.	The study included children attending a variety of types of early childhood settings or in exclusive maternal care.	Characteristics of settings varied widely in keeping with variation in child care types included in the study. Features of settings also varied across age groups.	Not described in this article	The Observational Record of the Caregiving Environment* (ORCE)	Not examined.	Not examined. (Note: the study did look at the relationship between type of care, with a focus on center care, and adolescent outcomes.)	Not examined	Many of the subscales of the ORCE* focus on the caregiver-child interactions and caregiver responsiveness to child.	Not examined

All.b									
Measures of Early Childhood Settings									
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Specifications for Entering Information in Table	Sometimes names used for programs differ (e.g. center based care may be called preschool) . Use terminology provided by authors	Note information provided regarding teacher/caregiver qualifications, curriculum used, all or part day, languages used in instruction, whether a particular educational approach or philosophy is used, accreditation status	Include here if there were income requirements for participation (as in HS); if a pre-k program is targeted to certain groups or universal.	Examples include ECERS-R total score; CLASS total. List all global or summary measures of quality collected but then note those actually included in analyses summarized in this article or report with *	Examples include total number of children in group; staff/child ratio. Note information provided by way of description and then note with * those measures included in analyses	Examples (ed) include years of ed; degree attained, major; (credential) CDA, state early childhood credential; (training) hours completed ever or in last year. Note all described and then with * those measures included in analyses	Examples include scales/ratings re adequacy of space, appropriateness of furnishings, activity centers, adequacy of play/learning materials, materials re literacy, science etc .Note all described and then with * those included in analyses.	Examples include scales/ratings of caregiver/teacher sensitivity, frequency and quality of verbal interaction, disciplinary approach, quality of instruction. Note all described and then with * those included in analyses	Examples include implementation checklist for Creative Curriculum, observations of implementation of a newly developed approach for early math instruction. Note all described and then with * those included in analyses
37. Vernon-Feagans, L., Emanuel, D. C., & Blood, I. (1997). The effect of otitis media and quality daycare on children's language development. <i>Journal of Applied Developmental Psychology, 18</i> , 395-409.	(1) A hospital based child care center providing care to children of employees; (2) a community run infant care program housed at a university, and (3) a for profit center.	Not reported	Hospital based child care center provided care to children of employees. No description of how access to two other centers was determined.	Not reported	Number of children observed to be present, number of adults observed to be present, and ratio of these	Only reported that teachers in the low vs. high quality sites did not differ on education level, but did differ in expected direction on kinds of courses taken and kind of degree obtained.	Not reported	Not reported	Not reported
38. Volting, B. L. & Feagans, L. V. (1995). Infant day care and children's social competence. <i>Infant Behavior and Development, 18</i> , 177-188.	Children were in one of three center-based day care programs that varied from low to high quality.	Three day care centers: 1) 5 children attended a non-profit program in a university setting (the program served the general community). 2) 5 children attended a for-profit center on the outskirts of a university town. 3) 26 children attended a for-profit center in a small industrial city (the center was on the site of a large hospital and was employee-sponsored and served only employees).	Two programs served the general community, one served hospital employees through employee-sponsored care.	Quality measured in terms of group size, number of caregivers, child-adult ratios, caregiver education/training, and administrative stability (see "measures of quality pertaining to teacher/caregiver education).	*Group size(M=13.9 in hospital site, M=6.9 in university site, M=9.9 for community site). *child-adult ratio (1:8 in hospital site, 1:3 in community site, 1:2 in university site). *number of adults present in the classroom (M=1.9 in hospital site, M=2.7 in community site, M=3.5 in university site).	Caregiver education levels across the three programs were the same. Caregivers at the community and university sites were twice as likely to have had child care courses in their education (59% vs. 29%) and twice as likely to a child-care -related degree (64% vs. 33%). The hospital site had high levels of administrator turnover while the community and university sites did not.	Not examined.	Not examined.	Not examined.
39. Votruba-Drzal, E., Coley, R. L., & Chase-Lansdale, P. L. (2004). Child care and low-income children's development: Direct and moderated effects. <i>Child Development, 75</i> (1), 296-312.	Center-based care (non-profit, for-profit and Head Start) and home-based care (regulated and unregulated). 47% of the children were in unregulated home-based care; 9% in regulated home-based care; 20% were in non-profit centers; 9% in for-profit centers, and 15% in Head Start.	Not described in this article	Not described in this article	Mean ECERS-R/FDCRS score was 4.22 There was substantial variability, with 24% of the children in inadequate care (below a rating of 3), 36% in care that was minimally adequate (3-4.9), and 40% in good quality care (5 or above). Centers had higher mean scores than regulated homes, which in turn had higher scores on average than unregulated homes. *A composite was created based on ECERS-R or FDCRS and the Arnett composite score. Parallel scales were created for the ECERS-R and FDCRS by collapsing two of the ECERS-R subscales so that there would be parallel of subscales across ECERS-R and FDCRS. The two subscales of the ECERS-R that were combined were Activities and Program Structure.	Not examined	Not examined	Not examined	Mean Arnett CIS was 3.24. This was included with ECERS-R/FDCRS in a composite measure of global quality.	Not examined

All.c	Measures of Family Context			Child Outcome Measures				
	Publication Information	Parent Attitudes, Psychological Well-being	Home Environment	Parent-Child Interaction	Measures of Social and Emotional Development	Measures of Approaches Toward Learning	Measures of Language and Literacy Development	Measures of Math, Science and General Cognitive Development
Specifications for Entering information in Table	Examples include parental depression or stress; childrearing attitudes. Note all those collected and then with * those included in analyses	Includes global measurements of home environment that include parent-child interaction	Examples include observations of parental sensitivity in NICHD Study. Note all those collected and then with * those included in analyses	Examples include measures of cooperative behavior, self-regulation, behavior problems. Note all measures collected, including informant, and then with * those included in analyses. Do not abbreviate measure names.	Examples include persistence on tasks, enthusiasm, motivation for learning. Note all measures collected, including informant, and then with * those included in analyses. Do not abbreviate measure names.	Note all measures collected and then with * those included in analyses. Categorize according to internal definitions. Do not abbreviate measure names.	Note all measures collected and then with * those included in analyses. Categorize according to internal definitions. Do not abbreviate measure names.	Note all measures collected and then with * those included in analyses. Do not abbreviate measure names.
1. Blau, D. M. (1999). The Effect of child care characteristics on child development. <i>The Journal of Human Resources</i> , 34 (4), 786-822.	Not examined.	The NSLY data set includes about 30 age-specific questions re: toys, books, music/musical instruments, newspapers/magazines, how often child is read to, taken on outings, watches television, sees his father, is spanked, eats meals with both parents, is included in conversations, is helped by parents to learn the alphabet and numbers, responses to child's misbehavior, etc.. Measurement includes interviewer observations of mother-child interaction and physical environment. *Raw responses were converted into dichotomous scores and summed to create a cognitive stimulation index and an emotional support index. These decrease the chance that child care variables pick up effects of omitted home inputs.	Not examined (mother-child interaction is covered in home environment survey and observation).	*Behavior Problems Index (BPI). An index was formed by summing a series of 28 questions for the mother on the child's behavior. Data was collected every year from four-years-old and on.	Not examined.	*Peabody Individual Assessment Tests (PIAT) in reading. Administered to children aged five and over in every year they were age-eligible during the study (1986-1992). *Peabody Picture Vocabulary Test (PPVT). Administered to all children aged three and over, re-administered to 10-11-year-olds in 1988 and 1990, and all age-eligible children in 1992.	*Peabody Individual Assessment Tests (PIAT) in math. Administered to children aged five and over in every year they were age-eligible during the study (1986-1992).	Prenatal and infant health information from NLSY data including month of pregnancy in which prenatal care was first obtained, well-care medical visits in first year of life, whether and how much mother smoked or drank during pregnancy.
2. Broberg, A. G., Wessels, H., Lamb, M. E., & Hwang, C. P. (1997). Effects of day care on the development of cognitive abilities in 8-year-olds: A Longitudinal study. <i>Developmental Psychology</i> , 33 (1), 62-69.	Child Rearing Practices Report (CRPR) (parental child rearing attitudes); *Parental Responsibility Questionnaire (PRQ) (parental involvement).	*Home Observation for Measurement of the Environment (HOME); the Spot Observation Checklist (quality of home care at first three data collection points).	Not reported.	*Inhibition: mother's rating of eight items from the California Child Q-Set (at 40 months); observer's rating of lack of sociability with a stranger adult and lack of involvement in a peer play situation (at 40 months); preschool teacher's rating on seven items from the Preschool Behavior Q-Sort.	Not reported.	*Language subscale of the Griffiths Developmental Scales (administered in Swedish) (in early childhood); *Reading and Vocabulary subscales of standard school readiness assessment (before school entry); word and sentences subtests of standardized reading test (in second grade); *Reading comprehension test with story activity (in second grade).	*Numerical subscales of the Standardized School Readiness Test (before school entry); figure writing, addition, subtraction, and problem solving subtests of standardized test of mathematical ability (in second grade).	Not reported.
3. Burchinal, M. R. & Cryer, D. (2003). Diversity, child care quality, and developmental outcomes. <i>Early Childhood Research Quarterly</i> , 18, 401-426.	CQO: Not examined SECC: Mother's caregiving attitudes-- no measure name stated.	Not Examined	Not examined.	CQO: Classroom Behavior Inventory (CBI)* (Schaefer, et al, 1978) SECC: Child Behavior Checklist-2/3 (CBCL)* (Achenbach, et al, 1987). Total problems score SECC: Adaptive Social Behavior Inventory (ASBI)* (Hogan et al, 1992), pro-social scale	Not examined.	CQO: Peabody Picture Vocabulary Test-Revised (PPVT-R)* (Dunn & Dunn, 1981) CQO: Woodcock-Johnson Tests of Achievement-Revised (WJ-R)* (Woodcock & Johnson, 1990), Letter-Word Identification Subtest SECC: Reynell Developmental Language Comprehension Scale (RDLS)* (Reynell, 1991), receptive language scale	CQO: Woodcock-Johnson Tests of Achievement-Revised (WJ-R)* (Woodcock & Johnson, 1990), Applied Problems Subtest SECC: Bracken School Readiness Scale* (Bracken, 1984).	Not examined.
4. Burchinal, M. et al. (2000). Children's social and cognitive development and child care quality: Testing for differential associations related to poverty, gender, or ethnicity. <i>Applied Developmental Science</i> , 4 (3), 149-165.	CQO: *Rank Order of Parental Values Questionnaire (Schaefer & Edgerton, 1985): how important parent viewed various types of behaviors for children to learn. Two factors: *Conformity (with higher scores indicating less emphasis on conformity) and self-directedness. HS: *Rank Order of Parental Values Questionnaire	*Home Screening Questionnaire	Not examined.	CQO: The Classroom Behavior Inventory (CBI) (*Behavior Problems Factor consisting of the Distractibility, Hostility, and Consideration reversed scales). Scores dichotomized and children who scored at least 1 SD above the sample mean score were classified as displaying more behavior problems than other children. HS: Adaptive Social Behavior Inventory (ASBI) (Express, Comply and *Disrupt subscales). PP: Adaptive Social Behavior Inventory (ASBI) (Express, Comply and *Disrupt subscales).	Not examined.	CQO: *Peabody Picture Vocabulary Test-Revised (PPVT-R). *Woodcock Johnson-Revised letter-word identification subtest. HS: *Kaufman Assessment Battery for Children (K-ABC). *Woodcock Johnson-Revised letter-word identification subtest. PP: *Peabody Picture Vocabulary Test-Revised (PPVT-R). *Woodcock Johnson-Revised letter-word identification subtest.	*Woodcock Johnson-Revised applied problems subtest.	Not examined.

All.c	Measures of Family Context			Child Outcome Measures				
	Publication Information	Parent Attitudes, Psychological Well-being	Home Environment	Parent-Child Interaction	Measures of Social and Emotional Development	Measures of Approaches Toward Learning	Measures of Language and Literacy Development	Measures of Math, Science and General Cognitive Development
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5. Burchinal, M. R., Roberts, J. E., Nabors, L. A., & Bryant, D. M. (1996). Quality of center child care and infant cognitive and language development. <i>Child Development, 67</i> , 606-620.	Not examined.	Home Observation for Measurement of the Environment—Inventory for Infants (HOME; Elardo & Bradley, 1981)*	Not examined.	Communication and Symbolic Behavior Scales-Research Edition (CSBS; no authors or date given); Total score* Includes items that assess the communicative, social affective, and symbolic skills of children between 8 months and 24 months. Direct observation measure. Total of 18 scales, but only the total score was used.	Not examined.	Sequenced Inventory of Communication Development-Revised (SICD-R; Hendrick, Prather, & Tobin, 1984)* Overall measure of children's receptive and expressive communication skills.	Bayley Scales of Infant Development (Bayley, 1969)- Used the Mental Development Index*	Not examined.
6. Burchinal, M., Vandergrift, N., Pianta, R., & Mashburn, A. (2010). Threshold analysis of association between child care quality and child outcomes for low-income children in pre-kindergarten programs. <i>Early Childhood Research Quarterly</i> .	Not examined.	Not examined.	Not examined.	Teacher-Child Rating Scale (TCRS; Hightower et al., 1986)- Assesses social competence and problem behaviors*	Not examined.	Peabody Picture Vocabulary Test- 3rd Edition (PPVT); Dunn & Dunn, 1997)* Oral and Written Language Scale- Oral Expression Scale (OWLS); Carrow-Woolfolk, 1995)* Woodcock-Johnson 3rd Edition- Letter Word Identification (WJ-3, Woodcock, McGrew, and Mather, 2001) (SWEEP Study only)*	Woodcock-Johnson 3rd Edition- Applied Problems (WJ-3, Woodcock, McGrew, and Mather, 2001)*	Not examined.
7. Dearing, E., McCartney, K., & Taylor, B. A. (2009). Does higher quality early child care promote low-income children's math and reading achievement in middle childhood? <i>Child Development, 80</i> (5), 1329-1349.	*Beliefs About the Consequences of Maternal Employment for Children scale (at one month); *Parental Modernity Scale (at 1 month); *NEO Personality Inventory (extraversion, agreeableness, and neuroticism subscales) (at 6 months). *Mother's score on Peabody Picture Vocabulary Test-revised (at 36 months).	*Home Observation Measure of the Environment (at 6 months).	*Maternal Separation Anxiety Scale (at 6 months); *observations on maternal sensitivity to distress and non-distress (at 6 months).	Not examined.	Not examined.	*School Readiness composite (including letter identification) from the Bracken Basic Concept Scale (at 36 months). *Woodcock-Johnson Psycho-educational Battery-Revised, Letter-Word Identification and Passage Completion subtests (at third and fifth grade and letter-word identification at 54 months). [*Broad reading* is computed with all of the aforementioned WJ-R subtests]	*School Readiness composite (including number and counting skills, comparisons, color and shape recognition) from the Bracken Basic Concept Scale (at 36 months). *Woodcock-Johnson Psycho-educational Battery-Revised, Calculations and Applied Problems subtests (at third and fifth grade and Applied Problems at 54 months); Memory for Sentences subtest (at 54 months, first and third grade); Picture Vocabulary subtest (at 54 months, first, third, and fifth grade). [*Broad math* is computed with all of the aforementioned WJ-R subtests]	Not examined.
8. Deater-Deckard, K., Pinkerton, R., & Scarr, S. (1996). Child care quality and children's behavioral adjustment: A four-year longitudinal study. <i>Journal of Child Psychology and Psychiatry, 37</i> (8), 937-948.	*Parenting Stress Index (PSI) (parental stress measured by indicators of depression, attachment level with child, role restriction, parenting competence, isolation, relationship with spouse, and physical health) and *PSI-Short Form; *Emotional Support Scale (parental support from spouses, relatives, and friends).	Two hour home visit at each phase of the study (preschool and four years later) including parent interviews.	*Parental Discipline Interview (PDI) (harsh parental discipline).	*EAS Temperament Scale (completed by parents and teachers/caregivers); *Manageability Index (MI) (in the first assessment); *Connors' Parent and Teacher Rating Scales (in second assessment).	Not examined.	Not examined.	Not examined.	Not examined.
9. Early et al., (2007). Teachers' education, classroom quality, and young children's academic skills: results from seven studies of preschool programs. <i>Child Development, 78</i> (2), 558-580.	Not reported	Not reported	Not reported	Not reported	Not reported	All studies included a measure of receptive vocabulary (six used the PPVT-R and one used the Preschool Language Survey) and the Reynell Developmental Language Scale). Six of the seven studies used the Letter-Word Identification Subtest of the Woodcock-Johnson Tests of Achievement.	All seven studies used the Applied Problems Subtest of the Woodcock-Johnson Tests of Achievement. In addition, the NICHD SECCYD used the School Readiness Composite of the Bracken Basic Concepts Scale.	Not reported

All.c	Measures of Family Context			Child Outcome Measures				
	Parent Attitudes, Psychological Well-being	Home Environment	Parent-Child Interaction	Measures of Social and Emotional Development	Measures of Approaches Toward Learning	Measures of Language and Literacy Development	Measures of Math, Science and General Cognitive Development	Measures of Health
Specifications for Entering information in Table	Examples include parental depression or stress; childrearing attitudes. Note all those collected and then with * those included in analyses	Includes global measurements of home environment that include parent-child interaction	Examples include observations of parental sensitivity in NICHD Study. Note all those collected and then with * those included in analyses	Examples include measures of cooperative behavior, self-regulation, behavior problems. Note all measures collected, including informant, and then with * those included in analyses. Do not abbreviate measure names.	Examples include persistence on tasks, enthusiasm, motivation for learning. Note all measures collected, including informant, and then with * those included in analyses. Do not abbreviate measure names.	Note all measures collected and then with * those included in analyses. Categorize according to internal definitions. Do not abbreviate measure names.	Note all measures collected and then with * those included in analyses. Categorize according to internal definitions. Do not abbreviate measure names.	Note all measures collected and then with * those included in analyses. Do not abbreviate measure names.
10. Gallagher, P. A., & Lambert, R. G. (2006). Classroom quality, concentration of children with special needs, and child outcomes in Head Start. <i>Exceptional Children</i> , 73 (1), 31-52.	Parents were administered the FACES Parent Interview* (Administration for Children, Youth, and Families, 1997), which contains questions on the following: caregiver depression, locus of control, and social support	Parents were administered the FACES Parent Interview*, which contains questions on Home learning activities, household routines and a broad range of home and neighborhood characteristics	Not examined.	The Adaptive Social Behavior Inventory* (ASBI) (Express, Comply, composite score, Prosocial, and Disrupt); Hogan, Scott, & Bauer, 1992). FACES parent interview includes questions on the child's social behavior*, the child's development and the child's transition to kindergarten.	Not examined.	Metropolitan Early Childhood Assessment Program Pre-literacy Inventory (M-KIDS (Print concepts* and Story Retelling* subscales); Nurs, 1995)	Not examined.	FACES Parent interview includes questions on: Health and safety related issues (NOTE: Unsure if the survey includes parent-reports of child's physical health)
11. Herrera, M. O. et al. (2005). Learning contexts for young children in Chile: Process quality assessment in preschool centers. <i>International Journal of Early Years Education</i> , 13 (1), 13-27.	Not examined.	*Measure of home environment quality (not specified).	Not examined.	Not examined.	Not examined.	*El Test de Vocabulario en Imágenes (TEVI, a vocabulary comprehension test); *Prueba de Lectura y Lenguaje Escrito (PLLE, a reading comprehension test).	Not examined.	Not examined.
12. Hill, J. L., Brooks-Gunn, J., & Waldfogel, J. (2003). Sustained effects of high participation in an early intervention for low-birth-weight premature infants. <i>Developmental Psychology</i> , 39 (4), 730-744.	Not examined.	Not examined.	Not examined.	Child Behavior Checklist (CBCL; Achenback & Edelbrock, 1983)*	Not examined.	Peabody Picture Vocabulary Test-Revised (PPVT-R; Dunn & Dunn, 1981)* Woodcock-Johnson (WJ; Hessler, 1982)- Broad Reading Scale*	Stanford-Binet Intelligence Scale (Terman & Merrill, 1960)* Weschler Preschool and Primary Scale of Intelligence-Revised (WPPSI-R; Weschler, 1989)* and Weschler Intelligence Scale for Children (WISC; Weschler, 1991)* Woodcock-Johnson (WJ; Hessler, 1982)- Broad Math Scale*	Birth weight*
13. Howes, C. (1997). Children's experiences in center-based child care as a function of teacher background and adult:child ratio. <i>Merrill-Palmer Quarterly</i> , 43 (3), 404-425.	Not examined.	Not examined.	Not examined.	CQO: Classroom Behavior Inventory (CBI; Schafer et al 1978),* problem behaviors subscale. FQIS: A measure was used to code children's activities in 5 clusters (creative, language arts, didactic teaching, gross motor and manipulative) of activities during 5 minute intervals of time Child's activity with objects during these intervals was also rated on a 5-point scale with a measure by Rubenstein and Howes (1979)*	Not examined.	CQO: Peabody Picture Vocabulary Test-Revised (PPVT-R; Dunn & Dunn, 1981)*	CQO: Woodcock-Johnson Tests of Achievement (WJ-R; Woodcock & Johnson, 1990) calculation, applied problems	Not examined.
14. Howes, C., Burchinal, M., Pianta, R., Bryant, D., Early, D., Clifford, R., & Barbarin, O. (2008). Ready to learn? Children's pre-academic achievement in pre-kindergarten programs. <i>Early Childhood Research Quarterly</i> , 23, 27-50.	Not examined.	Not examined.	Not examined.	Social Skills and Behavior Problems scale (Hightower et al., 1986; teacher report; social competence scale* and behavior problems scale*)	Not examined.	Teacher ratings: Early Childhood Longitudinal Study Kindergarten Cohort* (West, Denton, & Germino-Hausken, 2000) (ratings of children's language and literacy skills) Direct child assessments: Pre-LAS* for ESL students (Duncan & DeAvilla, 1998) to screen for English proficiency. Peabody Picture Vocabulary Test-3rd Edition* (PPVT-III; Dunn & Dunn, 1997). Oral & Written Language Scale (OWLS) (Oral Expression Scale* to assess the use and understanding of spoken language) (Carrow-Woolfolk, 1995) .	Woodcock-Johnson III Tests of Achievement: Applied Problems Subtest* (Woodcock, McGrew, & Mather, 2001)	Not examined.

All.c	Measures of Family Context			Child Outcome Measures				
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15. Howes, C., Phillips, D. A., Whitebook, M. (1992). Thresholds of quality: Implications for the social development of children in center-based care. <i>Child Development</i> , 63, 449-460.	Not examined.	Not examined.	Not examined.	Waters and Deane Attachment Q-Set (1995)* - this is an observational alternative to the Ainsworth Strange Situation measure; yields classification as secure, avoidant, or ambivalent in their emotional security with their primary teacher Measure of Social Orientation (Galluzzo et al, 1988)* - identifies four social orientations: to adults, to peers, to adults and to peers, and solidarity Revised Peer Play Scale (Howes, 1990)* - five measures of peer interaction were derived from the Peer Play Scale: percent uninvolved, percent of peer contact the child is an onlooker, percent of peer contact the child engages in interaction, percent of peer contact the child engages in competent social play and percent of peer contact the child engages in competent social pretend play.	Not examined.	Not examined.	Not examined.	Not examined.
16. Hubbs-Tait, A.M. Culp, Huey, R. Culp, Starost & Hare. (2002). Relation of Head Start attendance to children's cognitive and social outcomes: Moderation by family risk. <i>Early Childhood Research Quarterly</i> , 17, 539-558.	Center for Epidemiological Studies Depression Scale (CES-D) collected in the fall of the pre-kindergarten Head Start year.*A score of 18 or higher was used to identify depressed mothers. A summary rating of family risk was computed (note that this include measures from this column as well as mother-child interaction column and family demographic risk as well). *Cumulative Risk was calculated by giving a zero or one on (1) *low income (\$250 or less per capita monthly income or receipt of TANF, SSI or participation in food program) (2) *intrusive behavior (3) low cognitive stimulation, and (4) *depression	Not reported	Two ratings of physically intrusive behavior (physically restrains child and takes over task) were combined into a summary rating. These ratings were based on the first four minutes of a videotaped Mother-Child Teaching Task (MCTT) involving folding origami. The two ratings were summed and then dichotomized as "intrusiveness present/not present. In addition, each maternal utterance during the first four minutes of the MCTT was identified as a question or one of five other categories of verbalization (e.g., command). The proportion of questions (questions/total utterances) was computed and used as a measure of proportion of stimulating speech. Mothers were categorized as showing *low cognitive stimulation if their scores on the questioning measure were 1/2 s.d. or more below the mean.	Teachers rated children's social functioning with peers using three subscales from a Howes (1988) teacher rating measure: Difficult, Sociable, Hesitant. *The present study used the Sociable subscale to reflect child social skills.	Not reported	Children were assessed in the spring using the *PPVT-R. In addition, a summary rating of *Following Instructions was created based on teacher ratings on two items from the California Preschool Social Competency Scale: child's following verbal instructions and following new instructions. This is seen as a measures of child's receptive language.	Not reported	Not reported
17. Kontos, S., Wilcox-Herzog, A. (1997). Influences on children's competence in early childhood classrooms. <i>Early Childhood Research Quarterly</i> , 12, 247-262.	Not examined.	Not examined.	Not examined.	*Scan sampling of child behavior, activity setting, social context, and teacher behavior and proximity. *Howes and Parten's "competence with peer" forms. Categories: solitary, parallel, parallel with regard, simple social, reciprocal. Children's competence with peers has been shown to be correlated with other measures of social development. (248)	Not examined.	Not examined.	*Scan sampling of child behavior, activity setting, social context, and teacher behavior and proximity. *Howes and Smilansky's "competence with objects" forms. Categories: functional/no object, functional/passive, functional/active, constructive, dramatic). Children's interactions with objects and peers has been shown to be predictive of other measures of cognitive competence.	Not examined.
18. Lamdin, D. J. (1996). Evidence of student attendance as an independent variable in education production functions. <i>The Journal of Educational Research</i> , 89 (3), 155-162.	Not examined.	Not examined.	Not examined.	Not examined.	Not examined.	Not examined.	Not examined.	Not examined.

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19. Loeb, S. et al. (2004). Child care in poor communities: Early learning effects of type, quality, and stability. <i>Child Development</i> , 75 (1), 47-65.	*Center for Epidemiologic Studies Depression Inventory (CED-D)	*Home Observation for Measurement of the Environment (HOME) Inventory on parenting practices (reading behaviors, engagement with a focus on positive development). Maternal interviews on demographics, work and child care histories, and home environment.	(See measures of Home Environment: Home Observation for Measurement of the Environment (HOME) Inventory).	*Child Behavior Checklist (CBCL). *Bracken Basic Concept Scale (subscales on self-awareness and social awareness).	Not examined.	*Mother's responses about child and converted assessments both from MacArthur Communicative Development Inventory (CDI). *Bracken Basic Concept Scale (subscale on language proficiency).	*Bracken Basic Concept Scale (subscales measure basic cognitive proficiency, understanding of direction and position, understanding of texture and physical materials, understanding of quantity, understanding of time and sequences of events, and a school readiness composite). *Story and print concept portions (consisting of: storybook items, book mechanics, familiarity with storybook, and comprehension of read story) of Family and Child Experiences Study (FACES) to assess school readiness. *Maternal reporting on some items on basic skills/school readiness (child can count to 20, can write first name, can write or draw, can id primary colors) from the National Household Education Survey (NHES).	Not examined.
20. Mashburn, A. J., Pianta, R. C., Hamre, B. K., Downer, J. T., Barbarin, O. A., Bryant, D., Burchinal, M., Early, D. M., & Howes, C. (2008). Measures of classroom quality in prekindergarten and children's development of academic, language, and social skills. <i>Child Development</i> , 79 (3), 732-749.	Not examined.	Not examined.	Not examined.	Teacher-Child Rating Scale I (TCRS; Hightower et al., 1986) Assesses social competence* and problem behaviors*	Not examined.	Peabody Picture Vocabulary Test- 3rd Edition (PPVT; Dunn & Dunn, 1997)* Oral and Written Language Scale- Oral Expression Scale (OWLS; Carrow-Woolfolk, 1995)* Woodcock-Johnson 3rd Edition- -Sound Awareness and Rhyming Subtests (WJ-3, Woodcock, McGrew, and Mather, 2001)* Letter Naming Task (Bryant, Barbarian, & Aytch, 2001a)*	Woodcock Johnson-III Test of achievement, Applied Problems Subtest*	Not examined.
21. McCartney, K. (1984). Effect of quality of day care environment on children's language development. <i>Developmental Psychology</i> , 20 (2), 244-260.	*Parent as Educator Interview	Not examined.	*Parent as Educator Interview	Staff questionnaires on center quality and children's intellectual, language, social, and emotional development	Not examined.	*Preschool Language Assessment Instrument (PLAI); *Adaptive Language Inventory (ALI); * an experimental communication test (telling stories and talking to a puppet) for a subsample of children to measure comprehension, amount of production, and level of production, and verbal spontaneity; *Peabody Picture Vocabulary Test-Revised, free-speech samples from experimental communication task. Staff questionnaires on center quality and children's intellectual, language, social, and emotional development. Research team observed programs and conducted audio-taped child assessments. *An observational coding tool for verbal interactions (for peer and caregiver).	Staff questionnaires on center quality and children's intellectual, language, social, and emotional development.	Not examined.

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22. McCartney, K., Burchinal, M., Clarke-Stewart, A., Bub, K. L., Owen, M. T., Belsky, J., & The NICHD Early Child Care Research Network. (2010). Testing a series of causal propositions relating time in child care to children's externalizing behavior. <i>Developmental Psychology</i> , 46 (1), 1-17.	Maternal depressive symptoms (Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977).	Parenting quality was assessed through the Home Observation for Measurement of the Environment (HOME; Caldwell & Bradley, 1984)	Some measures of parent-child interactions are assessed through the HOME.	Child Behavior Checklist for Ages 2-3 (CBCL-2/3; Achenbach, 1991) Caregiver-Teacher Report Form for Ages 2-5 (TRF; Achenbach, 1991) *Observer raters of the child's aggression or angry affect in the child care setting (scale of 1-7) using the Observational Rating of the Caregiving Environment.	Not examined.	Not examined.	Not examined.	Not examined.
23. McCartney, K., Scarr, S., Ruchiesau, A., Phillips, D., et al. (1997). Teacher-child interaction and child-care outcomes as predictors of social outcomes in infants, toddlers, and preschoolers. <i>Merrill-Palmer Quarterly</i> , 43 (3), 426-450.	Parental Modernity Scale (parental attitudes). Work-family interference assessment (measures perceived psychological interference with work and family tasks). Parenting Stress Index (includes questions on depression, role restrictions, competence, social isolation, spousal support, attachment to child, and health).	Not examined.	Attachment Q-Set questionnaire. Child Behavior Survey (assesses secure-base behavior in the home). Strange Situation (assesses secure-base behavior in unfamiliar context). Teacher ratings of separation and reunion (between children and parents).	Classroom observation of social play, solitary play, social bids, aggressive acts, . The Parenting Stress Index-Child Domain (child's nonadaptability, unacceptability, demandingness, sad or angry mood, distractibility, lack of reinforcement). The Pictorial Scale of Perceived Competence and Social Acceptance for Young Children (cognitive competence, peer acceptance, physical competence, and maternal acceptance).	(see distractibility in The Parenting Stress Index-Child Domain).	Not examined.	Not examined.	Not examined.
24. NICHD Early Child Care Research Network. (1998). Early child care and self-control, compliance, and problem behavior at twenty-four and thirty-six months. <i>Child Development</i> , 69 (4), 1145-1170.	Composite of three subscales on the NEO Personality Inventory (neuroticism, extraversion, and agreeableness) at 1 month. CES-D measure of maternal depressive symptoms at 1, 6, 15, 24, and 36 months.	Not examined.	Maternal behavior composite (mother-child interactions in the home at 6 and 15 months, in the lab at 24 and 36 months and mother's behavior assessed with the Home Observation for Measurement of the Environment at 6, 25, and 36 month home visits). Infant-mother attachment security with the Strange Situation procedure at 15 months.	55 items from the Infant Temperament Questionnaire (administered at 6 months). Child Behavior Checklist (questionnaire completed by mothers and caregivers at 24 and 36 months). Adaptive Social Behavior Inventory (measures social competence and disruptive behavior at 24 and 36 months). Laboratory Observations: Cleanup Task (mother and child clean up toys at 24 and 36 months to observe level of compliance, cooperation, and child's affect). Bayley Scales of Infant Development (at 24 months to test nonparental compliance). Forbidden Toy Task (child told not to play with certain toy at 36 months). Three Boxes interaction procedure (mother and child play with toys in boxes to test child activity level, sustained attention, and negative mood at 24 and 36 months). Child Care Observation: Observational Record of the Caregiving Environment (ORCE) (looking at negative interactions and acts with peers and adults, compliance, mood, sustained attention, and activity level).	(see Three Boxes Interaction and ORCE observations of sustained attention in "measures of social and emotional development.")	Not examined.	Not examined.	Not examined.

All.c	Measures of Family Context			Child Outcome Measures				
Publication Information	Parent Attitudes, Psychological Well-being	Home Environment	Parent-Child Interaction	Measures of Social and Emotional Development	Measures of Approaches Toward Learning	Measures of Language and Literacy Development	Measures of Math, Science and General Cognitive Development	Measures of Health
Specifications for Entering information in Table	Examples include parental depression or stress; childrearing attitudes. Note all those collected and then with * those included in analyses	Includes global measurements of home environment that include parent-child interaction	Examples include observations of parental sensitivity in NICHD Study. Note all those collected and then with * those included in analyses	Examples include measures of cooperative behavior, self-regulation, behavior problems. Note all measures collected, including informant, and then with * those included in analyses. Do not abbreviate measure names.	Examples include persistence on tasks, enthusiasm, motivation for learning. Note all measures collected, including informant, and then with * those included in analyses. Do not abbreviate measure names.	Note all measures collected and then with * those included in analyses. Categorize according to internal definitions. Do not abbreviate measure names.	Note all measures collected and then with * those included in analyses. Categorize according to internal definitions. Do not abbreviate measure names.	Note all measures collected and then with * those included in analyses. Do not abbreviate measure names.
25. NICHD Early Child Care Research Network. (2000). The relation of child care to cognitive and language development. <i>Child Development</i> , 71, 960-980.	*A more targeted measure of maternal cognitive stimulation was obtained from a semi-structured mother-child interaction procedure conducted and videotaped at the family's home...rated for the number and quality of activities presumed to enhance perceptual, cognitive, linguistic, and physical development." No name of the measure is included* (p.966)	Home Observation for Measurement of the Environment (HOME)* (Caldwell & Bradley, 1984): Infant/Toddler Version used for 6 and 15 month observations, Early Childhood Version for 36 month observation	Included in the HOME measure.	Not examined, but some elements may be included in the Bayley and Bracken measures.	Not examined.	MacArthur Communicative Development Inventory (CDI)* (Fenson et al, 1994) Reynell Developmental Language Scales (RDLs)* (Reynell, 1991)	Bayley Scales of Infant Development* (Bayley, 1969,1993) Bracken Scale of Basic Concepts* (Bracken, 1984), school readiness subtest Bayley Mental Development Index (MDI)* (Bayley, 1993)	Not examined.
26. NICHD Early Child Care Research Network. (2002). Child-Care Structure→ Process→ Outcome: Direct and indirect effects of child-care quality on young children's development. <i>Psychological Science</i> , 13 (3), 199-206.	When infants were 1 month old, mothers completed survey regarding nonauthoritarian attitudes about child rearing (Schaefer & Edgerton (1985). This was included in the maternal caregiving composite.	Home Observation for Measurement of the Environment (HOME) completed at 6, 15, 36 and 54 months using appropriate versions for age. This was included in the maternal caregiving composite.	Composite measure of maternal sensitivity based on observer ratings of behavior during structured play sessions at 6, 15, 24 (sum of average ratings of sensitivity to nondistress, positive regard and intrusiveness reversed); and at 36 and 54 months (supportive presence, respect for autonomy, and hostility reversed). *The three maternal caregiving measures (maternal sensitivity, overall stimulation and support in the home environment, and maternal traditional beliefs) were combined into a single manifest exogenous measure using principal components analysis.	Mothers and caregivers completed the Child Behavior Checklist (CBCL). In addition, caregivers completed the California Preschool Social Competence Scale, and mothers completed the Social Skills Rating System. *A caregiver and a maternal latent variable were created based on measures of internalizing, externalizing, and social skills from each informant.	Not examined separately (note that one of the components of the cognitive competence latent variable pertains to sustained attention)	Not examined separately (note that multiple components of the cognitive competence latent variable pertain to language and literacy development).	*Seven measures contributed to a cognitive competence latent variable: (1) Woodcock-Johnson- Revised (WJ-R) incomplete words; (2) WJ-R memory for sentences; (3) WJ-R letter-work identification; (4) WJ-R applied problems; (5) Auditory Competence from the Preschool Language Scale; (6) Expressive Language from the Preschool Language Scale; and (7) number of omission errors from the Continuous Performance Task, a measure of sustained attention.	Not examined
27. NICHD Early Child Care Research Network and Duncan. (2003). Does quality of child care affect child outcomes at age 4 1/2? <i>Developmental Psychology</i> , 39 (3), 451-469.	*Center for Epidemiological Study Depression Scale (CES-D)	*Home Observation for Measurement of the Environment at 6, 15, 36, and 54 months.	*Parenting quality: derived from maternal behavior ratings (videotaped mother-child interactions. Maternal sensitivity, positive regard for child, and intrusiveness measures at 6, 15, and 24 month. Supportive presence, respect for child's autonomy, and hostility measured at 36 and 54 months) *Home Observation for Measurement of the Environment (administered at 6, 15, 36, and 54 months).	Social behavior: mother's responses to *Social Skills Rating System, caregiver's responses to *California Preschool Social Competency Scale, Four items on peer play. Observed social competence: videotaped interactions between child and friend in participating in three short games to assess positive vs. negative interaction, prosocially behavior vs. aggression, and positive vs. negative mood). Emotional well-being: mothers' and caregivers' responses to *Child Behavior Checklist.	*Continuous Performance Task (COPT)	*Preschool Language Scale (language comprehension and expressive vocabulary subscales).	*Woodcock Johnson Achievement and Cognitive Batteries (letter word identification, applied problems, incomplete words, and short-term memory subtests).	Not examined.
28. NICHD Early Child Care Research Network. (2006). Child-care effect sizes for the NICHD Study of Early Child Care and Youth Development. <i>American Psychologist</i> , 61 (2), 99-116	The following parenting measures were examined: A maternal psychological adjustment composite measure was created by summing scores for three scales of the NEO Personality Inventory (Costa & McCrae, 1984). Maternal depression with the Center for Epidemiological Studies Depression Scale* (CES-D; Radloff, 1977).	Home Observation for Measurement of the Environment* (HOME; Caldwell & Bradley, 1984).	A composite score of maternal sensitivity* (observed based on videotaped parent-child interactions; sensitivity to child; positive and negative (reversed) regard, intrusiveness, respect for autonomy, and hostility (reversed))	Social competence: The Adaptive Social Behavior Inventory (Hogan, Scott & Bauer, 1992; cooperative behavior*). Social Skills Questionnaire* from the Social Skills Rating System (Gresham & Elliot, 1990). Child Behavior Checklist* (Achenbach, 1991; Achenbach, Edelbrock, & Howell, 1987). California Preschool Social Competency Scale* (Levine, Elzey, & Lewis, 1969). Peer relations* were measured using observer ratings.	Not examined.	At 36 and 54 months, language was assessed using two 67-item scales assessing receptive language* and expressive vocabulary* of the Reynell Developmental Language Scales (Reynell, 1991). At 54 months, the Woodcock Johnson Achievement and Cognitive Batteries (Cognitive Memory for Sentences subtest*, Letter-Word Identification test* and the applied problems test*) were administered (Woodcock & Johnson, 1990) At 54 months, language competence was assessed with the Preschool Language Scale (Zimmerman, Steiner, & Pond, 1979); this was grouped into two subscales--auditory comprehension* and expressive language.* Continuous Performance Task* (Rosvold, Mirsky, Sarason, Bransome, & Beck, 1956).	At 15 and 24 months: cognitive skills were measured using the Bayley Scales of Mental Development (Bayley, 1969, 1993) (yields a standard score, the Mental Development Index*). The Bracken Basic Concept Scale* (Bracken, 1984) was used to assess school readiness.	Not examined.
29. NICHD Early Child Care Research Network & Duncan, G. (2003). Modeling the impacts of child care quality on children's preschool cognitive development. <i>Child Development</i> , 74 (5), 1454-1475.	The following parenting measures were examined: Maternal personality from the NEO Five-Factor Inventory*, a short form of the NEO Personality Inventory (Costa & McCrae, 1984). Maternal separation anxiety using Subscale I* of the Separation Anxiety Scale (Hock, Gnezda & McBride, 1983). Maternal social beliefs about childrearing* (30-item questionnaire) (Schaefer & Edgerton, 1985). Attitudes toward maternal employment* (questionnaire) (Greenberger, Goldberg, Crawford, & Granger, 1988). Maternal depression with the Center for Epidemiological Studies Depression Scale* (CES-D; Radloff, 1977).	Home Observation for Measurement of the Environment* (HOME; Caldwell & Bradley, 1984).	Maternal sensitivity* (observed based on videotaped parent-child interactions; positive, nonintrusive, responsive, and supportive maternal care).	Child difficult temperament was measured with the 55-item Infant Temperament Questionnaire* (Medoff-Cooper, Carey, & McDevitt, 1993). Bayley Mental Developmental Index* (Bayley, 1969--at 15 months; Bayley, 1993 revision--at 24 months).	Not examined.	At 54 months, cognitive and achievement composite scores were created. The cognitive score was computed using the mean of four scales, including the Woodcock-Johnson Picture Vocabulary* and Memory for Sentences tests* and the Preschool Language Scale Expressive* and Receptive* tests. The achievement score was computed using the mean of three scale scores (Woodcock-Johnson* Applied Problems (mathematics skill), Letter-Word Identification (reading skill) and Incomplete Words* Scales (phonological knowledge).	At 54 months, cognitive and achievement composite scores were created using: the Woodcock-Johnson Picture Vocabulary Scale Expressive and Receptive tests. The achievement score was computed as the mean of three scale scores (Woodcock-Johnson* Applied Problems (mathematics skill), Letter-Word Identification (reading skill) and Incomplete Words Scales (phonological knowledge).	Not examined.

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	Parent Attitudes, Psychological Well-being	Home Environment	Parent-Child Interaction	Measures of Social and Emotional Development	Measures of Approaches Toward Learning	Measures of Language and Literacy Development	Measures of Math, Science and General Cognitive Development	Measures of Health
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30. Owen, M. T., Klauski, J. F., Mata-Otero, A., Caughy, M. O. (2008). Relationship-Focused child care practices: Quality of care and child outcomes for children in poverty. <i>Early Education and Development</i> , 19 (2), 302-329.	Not examined.	Not examined.	Parent questionnaire data collected by phone included information on "closeness of the parent-child...relationships."	The Child Behavior Checklist* (Achenbach, 1991a); Teacher's Report Form* (teacher's version of the Child Behavior Checklist; Achenbach, 1991b); The Adaptive Social Behavior Inventory Express* and Comply* Pro-social subscales (Hogan, Scott, & Bauer, 1992)	Not examined.	Peabody Picture Vocabulary Test-Third Edition* (PPVT; Dunn & Dunn, 1997); Test de Vocabulario en Imagenes Peabody (TVIP; Spanish version of PPVT; Dunn, Luga, Padilla, & Dunn, 1986)	School Readiness subscale composite* of the Bracken Basic Concept Scales (Bracken, 1984)	Not examined.
31. Peisner-Feinberg, E. S., & Burchinal, M. R. (1997). Relations between preschool children's child-care experiences and concurrent development: The cost, quality, and outcomes study. <i>Merrill-Palmer Quarterly</i> , 43, 451-477.	Not examined.	Not examined.	Not examined.	Classroom Behavior Inventory (CBI)* (Schaefer, Edgerton, & Aaronson, 1978)- teacher ratings	Student-Teacher Relationship Scale (STRS)* - conflict, closeness, and over dependency scales (Pianta, 1992)- teacher ratings Attitudes/Perceptions of Competence* (Stipek, 1993)	Peabody Picture Vocabulary Test-Revised (PPVT-R)* (Dunn & Dunn, 1981). Woodcock-Johnson Revised, letter-word identification subtest (WI-R)* (Woodcock & Johnson, 1990)	Woodcock-Johnson Revised, applied problems subtest (WJ-R)* (Woodcock & Johnson, 1990)	Not examined.
32. Peisner-Feinberg, E. S., Burchinal, M. R., Clifford, R. M., Calkins, M. L., Howes, C., Kagan, S. L., & Yoozejian, N. (2001). The relation of preschool child-care quality to children's cognitive and social developmental trajectories through second grade. <i>Child Development</i> , 72 (5), 1534-1553.	Not examined	Not examined	Not examined	Teacher ratings on the Child Behavior Inventory (Schaefer, Edgerton and Aaronson, 1978) provided basis for sociability and behavior problems factor scores. *Sociability factor included extroversion and introversion (reversed) scales. *Behavior problems included distractibility, hostility and consideration (reversed).	Teacher ratings on the Child Behavior Inventory (Schaefer, Edgerton and Aaronson, 1978) provided basis for *cognitive/attention factor score, including ratings of creativity, verbal intelligence, independence, task orientation, dependence (reversed), and distractibility (reversed)	*Woodcock-Johnson Revised (WJ-R) Letter-Word Identification subtest	*Woodcock-Johnson Revised (WJ-R) Applied Problems subtest.	Not examined
33. Poe, M. D., Burchinal, M. R., & Roberts, J. E. (2004). Early language and the development of children's reading skills. <i>Journal of School Psychology</i> , 42, 315-332.	Maternal sensitivity score- see Home Environment Measures box	Home Observation for the Measurement of the Environment (HOME)* (Elardo & Bradley, 1981) Used 3 scores from HOME: 1. mean HOME observation score 2. maternal sensitivity score 3. maternal book reading score	Included in HOME- see Home Environment box	Not examined	Not examined.	Clinical Evaluation of Language Fundamentals (CLEF)* (Wiig et al, 1992). Used Kindergarten and School-Age versions. Used Total Language Score. Woodcock-Johnson Psycho-Educational Battery-Revised (WJ-R)* (Woodcock & Johnson, 1990) Used Incomplete Words scale, Letter-Word Identification scale, and Passage Comprehension scale.	Not examined.	Not examined.
34. Schlieker, E., White, D. R., & Jacobs, E. (1991). The role of day care quality in the prediction of children's vocabulary. <i>Canadian Journal of Behavioral Science</i> , 23 (1), 12-24.	Not examined.	*Family structure (one vs. two parent families).	Not examined.	Not examined.	Not examined.	*Peabody Picture Vocabulary Test-Revised (PPVT-R), Form L	Not examined.	Not examined.
35. Tran & Weinraub. (2006). Child care effects in context: Quality, stability, and multiplicity in nonmaternal child care arrangements during the first 15 months of life. <i>Developmental Psychology</i> , (42) 3, 566-582.	*Mother's completed the Center for Epidemiological Studies Depression Scale (Radloff, 1977) and the *Maternal Separation Anxiety Scale (Hock, Gnezda & McBride, 1983) at 1, 6 and 15 months: level of worry and guilt when away from infant, beliefs about importance of exclusive maternal care, and beliefs about importance of nonmaternal care (three scores averaged to form composite of maternal separation anxiety)	*Home Observation for Measurement of the Environment or HOME (Caldwell & Bradley, 1984)	*Maternal sensitivity was assessed using the Mother-Child Interaction Procedure (NICHD ECCRN, 1999) in the child's home at 6 and 15 months. Semi structured mother-child interaction task videotaped. Mothers asked to play with child with specific toys. Summary of ratings of sensitivity to nondistress, positive regard and intrusiveness (reverse scored).	*Infant-mother attachment security assessed using the Strange Situation at 15 months	Not reported	*Vocabulary comprehension and vocabulary production subscales of the MacArthur Communicative Development Inventory (CDI)	*Bayley Scales of Infant Development assessed at 15 months	No reported

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	Parent Attitudes, Psychological Well-being	Home Environment	Parent-Child Interaction	Measures of Social and Emotional Development	Measures of Approaches Toward Learning	Measures of Language and Literacy Development	Measures of Math, Science and General Cognitive Development	Measures of Health
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36. Vandell, D. L., Belsky, J., Burchinal, M., Steinberg, L., Vandergrift, N. & NICHD Early Child Care Research Network. (forthcoming). Do effects of early child care extend to age 15 years? Results from the NICHD Study of Early Child Care and Youth Development: Age 15.	Maternal depressive symptoms* (Center for Epidemiological Studies Depression Scale (CES-D); Radloff, 1977).	The parenting quality composite* was based in part on home observations from the adolescent version of the HOME scale combined with semi-structured interviews (HOME; Bradley et al., 2000).	The parenting quality composite* was based in part on an 8-minute video-recorded discussion of the mother and adolescent having discussions about areas of disagreement. Maternal sensitivity* was coded and scored based on this discussion.	Externalizing problem behaviors* were measured using 30 items from the Youth Self-Report (YSR; Achenbach & Rescorla, 2001). Adolescent risk-taking*, including substance use, safety behaviors, and delinquency behaviors, were measured using a computer-assisted self-interview based on 36 items drawn from survey instruments used in adolescent research studies (Halpern-Felsher, Bieh, Kropp, & Rubenstein, 2004) Impulsivity* was measured using the Weinberger Adjustment Inventory (Weinberger & Schwartz, 1990)	Not examined.	The Woodcock-Johnson Psycho-Educational Battery-Revised Tests* of Cognitive Ability and Tests of Achievement (WJ-R; Woodcock & Johnson, 1989) Picture Vocabulary and Verbal Analogies subscale; Passage Comprehension subscale.	The Woodcock-Johnson Psycho-Educational Battery (WJ-R; Woodcock & Johnson, 1989)-Achievement* the Applied Problems subscale.	Not examined.
37. Vernon-Feagans, L., Emanuel, D. C., & Blood, I. (1997). The effect of otitis media and quality daycare on children's language development. <i>Journal of Applied Developmental Psychology, 18</i> , 395-409.	Not reported	Not reported	Not reported	Not reported	Not reported	Sequenced Inventory of Communicative Development (SICD) administered at 24 months. Yields scores for receptive and expressive language.	Not reported	Otitis Media assessed via physical examination on a weekly basis by nurse and physician. Children diagnosed with OM at least 20% of the time placed in chronic OM group. Children participated in hearing testing at 12, 15, 18, 21 and 24 months
38. Volling, B. L. & Feagans, L. V. (1995). Infant day care and children's social competence. <i>Infant Behavior and Development, 18</i> , 177-188.	Not examined.	*Parent questionnaires on family environment (4 subscales for the Family Environment Scale: expressiveness, conflict, independence, control) and *family social status (mother's and father's education, family income).	Not examined.	*Maternal questionnaire of child temperament (Infant Behavioral Questionnaire) at enrollment into study. *Maternal questionnaire (Toddler Behavior Assessment Questionnaire) for all children age 16 months and older. *Children's social behavior in the classroom collected at 2 1/2 years (age range from 14-48 months) during indoor free play over two, 10 minute occasions (behavior categorized as solitary (includes unoccupied and onlooker behavior), behavior towards peers (positive and negative), and behavior towards adults (positive and negative)).	Not examined.	Not examined.	Not examined.	Not examined.
39. Votruba-Drzal, E., Coley, R. L., & Chase-Lansdale, P. L. (2004). Child care and low-income children's development: Direct and moderated effects. <i>Child Development, 71</i> (1), 296-312.	Not examined	*Cognitive Stimulation subscale of the Home Observation for Measurement of the Environment-Short Form (HOME-SF), based on combination of interviewer ratings and maternal report.	Not examined	Mother report of age appropriate version of Child Behavior Checklist (CBCL; Achenbach 1991, 1992). *Internalizing, externalizing and total behavior problems. Mother report of *Child Positive Behavior (Quint, Bos & Polli, 1997).	Not examined	*Woodcock Johnson -Revised (WJ-R) Letter-Word Identification subtest in waves 1 and 2 of main study. Spanish version if either parent or child reported that Spanish was the child's primary language.	*Woodcock-Johnson-Revised (WJ-R) Applied Problems subtest in waves 1 and 2 of main study. Spanish version if either parent or child reported that Spanish was the child's primary language.	Not examined

All.d		Overall Analytic Approach and Findings			
Publication Information	Study Questions	Analytic Approach	Covariates	Overall Findings	Comments/Methodological Issues
Specifications for Entering information in Table	Summarize study questions as presented by authors	Describe data analyses including type of analysis (HLM, log-linear, regression analysis, etc.)	Note whether covariates included in analyses are demographic variables or go beyond demographic variables to include measures such as parental psychological well-being; parenting. Not whether variables are covariates, interaction variables, or variables for simultaneous regressions analysis.	Provide brief summary of overall study findings	
1. Blau, D. M. (1999). The Effect of child care characteristics on child development. <i>The Journal of Human Resources</i> , 34 (4), 786-822.	What are the effects of group size, staff-child ratio, training, and other characteristics of child care on children's behavioral and mental development? How are children's development affected by the interactions and environment they experience in non-parental care?	Data from the NLSY study was used to estimate production functions (with alternative specifications and estimation methods) for child outcomes (test scores on ability, achievement and behavior). Effects are lagged. Ordinary least squares (OLS) (with two observations per child to because of lagging). Fixed effects (but not fixed within-child) analysis to eliminate bias of parents who have unobserved ability to produce good developmental outcomes and who select high quality care.	The function includes quantity and quality of home and child care inputs, family and child characteristics, school effects, and permanent and transitory child and family effects. Mother fixed effects, mode, age, race/ethnicity, child care inputs, and poverty are controlled for. Authors ran OLS regressions with four specifications: 1. Simple correlations; 2. Regressions with inputs of mode of care only; 3. Regressions including inputs, mode, and others (not additional child care variables); 4. Regressions with all inputs and other repressors.	"The estimates presented in this paper suggest that the child care inputs experienced during the first three years of life have little impact on the child outcomes studied here. The magnitudes of the effects are generally small, often insignificantly different from zero, and are as likely to be of the "wrong" sign as the "right" sign. This conclusion holds when mother fixed effects are controlled and when the effects are allowed to vary by mode, age, race/ethnicity, and poverty. It also holds when a value-added specification is used in which the child outcomes are regressed on child care inputs during the previous two years along with the lagged outcome. In contrast, a smaller group size experienced during the second three years of life has positive effects on child outcomes. These effects are significantly different from zero but fairly small" (812). There are few associations between child care characteristics (group size, child-adult ratios, and provider training) and child development. Some of the associations that are present are likely spurious (if home environments and selection bias are not accounted for) or not robust (from unobserved heterogeneity).	Accuracy of production function depends on information that is not available (all of child's inputs); unclear how suited a production function is to measuring child outcomes. Child-level and transitory family heterogeneity are imperfectly controlled for with measure of family and home inputs.
2. Broberg, A. G., Wessels, H., Lamb, M. E., & Hwang, C. P. (1997). Effects of day care on the development of cognitive abilities in 8-year-olds: A Longitudinal study. <i>Developmental Psychology</i> , 33 (1), 62-69.	What are the effects of early day care on later cognitive outcomes in middle childhood. How does time spent in out-of-home care affect cognitive outcomes in middle childhood?	Regression analysis, ANOVAs, stepwise regression analysis.	Gender, sibling presence, child temperament, early cognitive abilities, SES, family background (mother's and father's education and occupation, quality of home (HOME), parental involvement, time in day care, quality of alternative care.	Verbal abilities in second grade were associated with verbal abilities at 40 and 80 months. Verbal abilities in second grade were associated with mathematical abilities at 80 months. Mathematical ability in second grade was associated with verbal scores at 40 and 80 months and mathematical ability at 80 months. Early inhibition scores were not associated with cognitive scores in second grade. There were no associations with gender or sibling presence, SES, and home-care quality and second grade cognitive outcomes. Correlations between 40 and 101 months were stronger than those between 80 and 101 months (may be explained by recent transition into kindergarten). Children in center-based care had consistently better outcomes, followed by children in parental care, and then children in family day care settings. Children in public center-based care at 16 and 28 months had the best verbal outcomes at age 8 (101 months). Children in center care in early childhood had the best mathematical outcomes at age 8. Mathematical scores among children who attended center-based care at 16 and 28 months were higher than those of children in parental care; mathematical scores of children who had been in center-based care at 40 months were higher than those of children who had been in both parental and family day care. Care quality at 40 and 80 months was associated with math outcomes in second grade, but not verbal outcomes. Measures of the home environment predicted verbal abilities at earlier ages, but not at age 8.	Family day care sample size was very small and makes comparison with other groups difficult. Little discussion of quality levels or variability across and within types of care even though quality was measured.
3. Burchinal, M. R. & Cryer, D. (2003). Diversity, child care quality, and developmental outcomes. <i>Early Childhood Research Quarterly</i> , 18, 401-426.	4 goals: 1. Determine whether child care quality is related to outcomes differently for children from diverse ethnic backgrounds 2. Determine whether children's cognitive and social development was enhanced by having child care provider of same ethnic background 3. Are mainstream measures of quality less predictive of children's outcomes? 4. Examine discrepancies in maternal and caregiver attitudes about child-rearing and its association for child outcomes (only SECC data)	CQO: Hierarchical mixed-effect regression, correlations SECC: Hierarchical regression, correlations	CQO: maternal education, gender, and ethnicity were used in analyses; other family characteristics were covariates	CQO: "Children of diverse backgrounds showed better cognitive outcomes when they experienced more sensitive and stimulating childcare. No evidence emerged to indicate that these measures of child care quality were less reliable or valid for African-American or Hispanic children regardless of the race of their care providers" (412). SECC: "Positive care giving was significantly correlated with all but one outcomes for the white children and showed similar correlations for the cognitive outcomes for African-American and Hispanic children" (417). The match between mother's and caregivers' attitudes did not show a consistent pattern of correlation with outcomes. Positive care giving was significantly related to receptive language, school readiness, care provider report of child pro-social skills, and report of child behavior problems. "The extent to which mothers endorsed traditional attitudes about child-rearing was significantly related to the cognitive outcomes and to her ratings of the child's behavior" (419). Overall: "We did not observe stronger association between child care quality and child outcomes for white children than for other children." (421).	CQO: While the children were included in the data collection, Asian and Native American children were not included in the data analysis. Overall: Limited to English speaking families, small Hispanic samples; family variables were only used if comparable across studies; ethnicity and income were confounded.

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4. Burchinal, M. et al. (2000). Children's social and cognitive development and child care quality: Testing for differential associations related to poverty, gender, or ethnicity. <i>Applied Developmental Science, 4</i> (3), 149-165.	<p>"This study was designed to test whether child and family characteristics moderate the relation between child-care quality and preschool children's behavioral, language, and preacademic outcomes" (151).</p> <p>Do the relationships between child care quality and children's developmental outcomes differ as a function of poverty, ethnic background, gender, or parental beliefs? Are some risk factors or populations more affected by quality care (are all children equally affected by quality)?</p> <p>Competing hypotheses: (1) children from more advantaged families will be buffered from harmful effects of poor quality care and enhancing effects of high quality care while relationship exists for children from less advantaged families; (2) quality of care is related to outcomes for all children but effects are stronger for children from higher risk backgrounds; and (3) stronger relationship between quality and child outcomes when parents express similar beliefs about childrearing to those underlying the child care quality measures.</p>	<p>Log linear analyses were used to analyze the categorical outcomes (behavior problems) and regression models using hierarchical linear modeling were used to analyze the continuous outcomes (language skills, WJ-R reading score, and WJ-R math score).</p> <p>First set of analyses included as fixed effect predictors: child care quality, gender, whether the family income was at or below 185% of federal poverty threshold, whether child was of a minority ethnic background, and all two way interactions among these. This set of analyses examined interactions between quality of care and poverty, minority ethnic background and gender.</p> <p>Significant interactions would support first hypothesis that child care quality is positively associated with better outcomes for at risk children and not for other children. Support for second hypothesis would be indicated by finding that these interactions were significant because child care quality was positively related to better outcomes for all children, but that the magnitude of the association was stronger for children with risk factors. Second set of analyses added maternal education and parental beliefs about conformity in samples where this was possible (CQO and HS) and with outcomes of behavior problems and language skills. Support for the third hypothesis would be indicated by a significant interaction between parental authoritarian beliefs and child care quality, indicating that level of developmentally appropriate practices in child care were less strongly related to developmental outcomes when parents held authoritarian beliefs.</p>	<p>Analyses considered interactions of demographic and attitudinal variables with quality. In second set of analyses, maternal education was used as a covariate.</p>	<p>"...quality of child care is modestly but significantly related to children's social, language and academic development. Children experiencing poor-quality child care on average displayed more behavior problems, fewer language skills, and lower levels of academic skills than children in medium- or high-quality care. On one of the four outcomes, language development, analyses provided support for the hypothesis that quality of care is differentially more important for children experiencing one of the social risk factors. The study did not support the contention that the developmental outcomes of children who experience discontinuities between child-care values in the home and practices in child-care centers are less strongly associated with child-care quality than children who do not experience such discrepancies" (160).</p> <p>Behavior problems were only independently related to gender among family variables. Part-time and 1 year programs do not produce the results of early intervention programs.</p>	<p>The studies include few children in poor quality care so little could be tested around the effects of low quality care on children with the presence or absence of risk factors.</p> <p>Study includes few control variables.</p> <p>Combining data from studies introduces bias due to differences across the studies (there were some differences in the measures timing, age of child, goals, selection criteria and data collection procedures).</p>
5. Burchinal, M. R., Roberts, J. E., Nabors, L. A., & Bryant, D. M. (1996). Quality of center child care and infant cognitive and language development. <i>Child Development, 67</i> , 606-620.	<p>Relationship between quality of child care and infant cognitive and language development.</p> <p>Hypotheses:</p> <ol style="list-style-type: none"> 1. Quality of infant care is positively associated with cognitive and language outcomes for infants in community-based child care 2. Infant development is related to structural characteristics of child care quality 3. Association between child care quality and infant development is moderated by family factors 	HLM	Demographic variables	<p>"Quality of infant care was a modest, but significant correlate of cognitive and language development among African-American infants at 12 months of age." p. 616</p> <p>Quality of child care was modestly related to quality of home environment, family characteristics, and infant's development.</p> <p>"Quality of child care environment independently contributed to the prediction of the infant's overall cognitive level and communication skills." p. 616</p>	<p>5 limitations included:</p> <ol style="list-style-type: none"> 1. Limited range of child care quality 2. Small number of classrooms 3. Assessment of development at 12 months might not be predictive to future outcomes 4. Infant care quality was not consistently related to language development across all measures of language skills 5. causal linkages cannot be inferred because of correlations in analyses

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6. Burchinal, M., Vandergrift, N., Pianta, R., & Mashburn, A. (2010). Threshold analysis of association between child care quality and child outcomes for low-income children in pre-kindergarten programs. <i>Early Childhood Research Quarterly</i> .	<p>Test for thresholds in the association between quality and child outcomes. Study the threshold effects of teacher-child interactions on child outcomes.</p> <p>To what extent does pre-K quality matter for children from low-income households? Is there a threshold, or level, of quality at which the effect is more or less pronounced?</p>	<p>Linear regression analysis</p> <p>Spline technique to estimate piecewise linear models</p>	<p>Covariates include: pre-test scores, race, sex and mother's education. One covariate (race) was included for simultaneous regression analysis.</p>	<ul style="list-style-type: none"> No evidence to indicate that a certain level of quality was sufficient for producing certain levels or gains on outcomes as might be obtained at a higher level of quality Some evidence of minimal levels of quality, at or below which would not return learning gains as might be obtained at higher levels of quality Analyses indicate that there is not an asymptotic level of quality above which increases in quality are no longer associated with increases in child outcomes "Children may not obtain social and academic benefits from pre-kindergarten experiences unless the teacher maintains high-quality teacher-child interactions and at least moderate- to high-quality instruction." (p.10) 	<ul style="list-style-type: none"> Small effect sizes even in high-quality classrooms High-quality was not typically observed
7. Dearing, E., McCartney, K., & Taylor, B. A. (2009). Does higher quality early child care promote low-income children's math and reading achievement in middle childhood? <i>Child Development</i> , 80 (5), 1329-1349.	<p>Does higher quality care during infancy and early childhood act as a moderator of associations between family economic status and children's math and reading scores in middle childhood?</p> <p>Do low-income children who experience more high-quality care do better in middle childhood than other children?</p>	<p>Regression analysis with covariates; estimated random intercept models to examine average math and reading achievement across 3rd and 5th grades and variations by grade; propensity scores to match those in and not in high quality care; created a sociocontextual risk factor based on income-to-needs ratio and correlated maternal and family risk factors; multilevel growth models (linear and quadratic achievement slopes centered on grand means).</p> <p>Analysis controlled for the moderating effects of multivariate combinations of child, maternal, and family characteristics associated with selection into high quality care (because selection into higher quality care is likely multivariate). Models assumed correlation of low-income and related sociocontextual factors (i.e. parental education).</p>	<p>Reading and math outcomes (regressed on family income-to-needs ratio; number of episodes in high-quality care; number of episodes in low-quality care; interaction of child care quality variables and income-to-needs). Characteristics thought to be associated with selection (child gender, ethnicity, birth order, maternal age, years of education, average partner status, childrearing values, sensitivity, separation anxiety, personality, attitudes towards employment, verbal intelligence, family household size, quality of the home environment).</p>	<p>Higher quality care moderated the association between sociocontextual risk and math, reading, and applied problems outcomes in early childhood.</p> <p>Low-income status was less a predictor of underachievement for children who were in two episodes of higher quality care than for children who were never in higher quality care (quality care may have indirectly influenced school achievement via promoting early school readiness skills). Children in three or more spells of high-quality care had no associations between income-to-needs and outcomes on broad math, broad reading, and letter-word identification outcomes. Even one spell of higher-quality care had statistically significant impacts on the math scores of low-income children. There was no relationship between income-to-needs and applied problems outcomes for children in four or more episodes of high-quality care. "Family characteristics associated with selection into child care also appeared to promote the achievement of low-income children, but the moderating effect of higher quality care per se remained evident when controlling for selection using covariates and propensity scores" (1329). Increases remained stable over time. Higher quality care moderated the association between sociocontextual risk and math, reading, and applied problems outcomes in early childhood; with a risk score of 2 or more, each spell in high quality care was associated with significantly higher achievement.</p>	<p>Attempts made to control for selection bias and differences between groups in different types of care. Five assessments may not capture all variability in quality of care.</p>

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8. Deater-Deckard, K., Pinkerton, R., & Scarr, S. (1996). Child care quality and children's behavioral adjustment: A four-year longitudinal study. <i>Journal of Child Psychology and Psychiatry</i> , 37 (8), 937-948.	How does full-time child care quality affect children's behavioral adjustment four years after attendance?	Bivariate correlations, regression analyses with composite variables (center quality, SES, parent stress, child behavior (behavior problems and social withdrawal)); Hierarchical liner modeling to test prediction strength of center quality to outcomes four years after care.	Home environment (parental stress, marital satisfaction, emotional support, etc); center quality; SES, child-adult ratios; child age, child gender, child previous behavior.	Home environment and earlier behaviors predicted individual differences in adjustment four years after care, but center quality was mostly unrelated to mother and teacher ratings of the child's behavioral adjustment. On average, center quality was low (ITERS/ECERS mean= 3.48) as was caregiver education and training. Mothers were highly educated, had high prestige jobs with high income levels with low to moderate parental stress and moderately happy marriages and reported high emotional support and rarely using physical discipline. A lower quality score on the Assessment Profile was associated with higher conduct problems. Children with caregivers with more early education training had lower conduct problems. Higher maternal parent-domain parenting stress at both time points was associated with poorer behavioral adjustments in all assessed subscales in children. Parent-child dysfunctional interaction was positively correlated with all mother-rated behavior problems scales. Marital dissatisfaction was correlated with mother-rated child anxiety. Early emotional support was marginally associated with conduct problems. Physical punishment was associated with learning problems and caregiver ratings of behavioral problems. Higher parenting stress four years after care was associated with higher teacher-rated conduct problems. Mother's rating of social withdrawal was associated with child-adult ratios in care and greater parenting stress; teacher-rated social withdrawal was associated with low center quality. Mother ratings of behavioral problems were associated with greater parent stress and physical punishment. Predictors of mother-rated behavioral problems included mother ratings of problem behavior at 1st time point, SES, parenting stress, and physical punishment. Including center quality did not increase explained variance for mother-rated behavior problems, teacher-rated behavior problems or social withdrawal.	Centers were in three states and the follow-up took place in only one of the three states.
9. Early et al., (2007). Teachers' education, classroom quality, and young children's academic skills: results from seven studies of preschool programs. <i>Child Development</i> , 78 (2), 558-580.	"The goal of the current project was to consider the links between teachers' education, specifically educational degree and major, and two important outcomes classroom quality as well as children's academic skills in the year before kindergarten entry" (p. 560). (1) Do teachers with a bachelors degree or higher have classrooms that are of higher quality or children who learn more in pre-k year? (2) Among those with a degree in early childhood child development, does highest degree attained predict quality or learning? (3) Among teachers with a bachelors degree, does having a major in early childhood or child development predict higher quality or child outcomes?	Each study team carried out parallel analyses following detailed descriptions of the analyses and using common SAS code. For each of the research questions, four models were estimated, one for classroom quality, receptive vocabulary, prereading skills, and early math skills. Control variables noted were included in each model. Standard errors were adjusted for cluster effects and other design effects. Analyses used hierarchical linear modeling to adjust for dependencies in the data when there were multiple children per classroom. For FACES and GECS, which used stratified random sampling, the analyses weighted the data to be representative of the populations. Effect sizes were computed when statistically significant associations were found. Missing data was imputed using multiple imputation.	For the classroom level analyses, the control variables were site/state, group size, ratio, length of day, and teacher ethnicity (White, African American, Latino, or Other/Multi Racial). Wherever possible, analyses also controlled for interaction of variable of interest and site/state, or variable of interest and length of school day. Child level analyses controlled for site/state, child gender, ethnicity (White, African American, Latino, other/Multi-Racial), years of maternal education, poverty/family income and previous assessment score. Wherever possible, these analyses also control for site/state and variable of interest, and the variable of interest and poverty/income.	"Using seven recent, major studies of classroom based educational programs for 4-year-olds, these analyses, taken together, do not provide convincing evidence of an association between teachers' education or major and either classroom quality or children's academic gains. Most of the analyses yielded null findings. Although there were some statistically significant associations, no clear pattern emerged" (p. 573)	
10. Gallagher, P. A., & Lambert, R. G. (2006). Classroom quality, concentration of children with special needs, and child outcomes in Head Start. <i>Exceptional Children</i> , 73 (1), 51-52.	The study examines the interaction between classroom quality, proportion of children in classrooms with special needs, and child outcomes.	Hierarchical linear modeling (HLM) was used to examine the relationship between classroom quality and child outcomes.	Level 1 Models: mother's education, household income, child gender, exposure to home and neighborhood violence, maternal depression, child's age in months, parent report of whether child has special needs, low/high quality. Level 2 models (aggregated classroom level unit of analysis): mean maternal education level, mean household income, percentage boys, mean violence exposure, mean maternal depression, mean child age, categorical variable based on %classroom with special needs, mean teacher-child ratio, mean class size, *high/low quality classrooms, interaction between quality and percentage of children with special needs.	"No main effect on child outcomes for the classroom concentration of children with special needs was observed." "A high-quality classroom environment serving no children with special needs was associated with more favorable classroom mean scores on social behaviors for typically developing children. Inversely, the combination of high-quality classroom environment and more than 20% children with special needs was associated with more problem behaviors and lower scores in print concepts for typical children"	

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11. Herrera, M. O. et al. (2005). Learning contexts for young children in Chile: Process quality assessment in preschool centers. <i>International Journal of Early Years Education</i> , 13 (1), 13-27.	What are the impacts of global process quality in early child care classrooms on young children and school-aged children? How well do current measurement tools (-ERS) measure classroom quality in Chile? What is the range of classroom quality in Chile?	Hierarchical regression analyses	Steps of hierarchical regressions: 1) child age and gender, 2) family variables (including environment by quality by home), 3) preschool classroom quality, 4) center type and geographical location, 5) regions and provinces.	Overall, the ITERS, ECERS, and SACERS "present adequate psychometric characteristics, when used in Chile" (19). Average global quality in Chile has a wide range (with better quality in private centers and schools than public ones), but is overall barely mediocre. In general, process quality (i.e. interactions) is generally better than quality around materials and space. The first hierarchical regression explained 52% of the variance in child outcomes with center quality contributing about 5% (which is as much as child characteristics and a third of family characteristics). In the follow-up study three years later, the hierarchical regression explained 55% of the variance in child outcomes with preschool quality contributing 8%. Preschool experience and school experience together account for 16% of the variance in child outcomes.	Measures of child characteristics and especially home environment quality are not described. Outcomes are measured with two language/literacy tests only.
12. Hill, J. L., Brooks-Gunn, J., & Waldfogel, J. (2003). Sustained effects of high participation in an early intervention for low-birth-weight premature infants. <i>Developmental Psychology</i> , 39 (4), 730-744.	Goal: "Estimate distinct treatment efforts for different dosage groups in order to determine whether those who participated more intensely demonstrated larger development gains." (p.730) Do more days in center-based child care produce better outcomes for low birth weight children? Do children with higher rates of attendance in high-quality center care demonstrate more prolonged effects than children with lower attendance rates?	Linear modeling to estimate treatment effects. Treatment and control groups compared; dosage amounts within the treatment group were compared to each other and to the outcomes of the intent to treat estimates; comparison group matching (treatment effects estimated by matching a high-dosage group to comparison group that was similar on all observed background characteristics). Matching methodology: 1) Calculated propensity that a treatment participant actually received a high dose of treatment (with logistic regression on pretreatment characteristics). 2) Used those coefficients and values of background characteristics to calculate dosage propensity scores (called "principal scores"). 3) Matched each high-dose treatment participant to the control participant from the same site and LBW category with the most similar principal score. Logistic regression with propensity score matching (to address selection bias around attendance rates).	Covariates include mother's marital status when child was born, whether mother worked prior to pregnancy, whether mother worked during pregnancy, whether child was a twin, number of weeks child was preterm, child's birth order, and whether mother received prenatal care.	Increased attendance at center-based care was associated with widespread and persistent gains among both heavier and lighter low-birth-weight babies. Higher attendance (over 400 days as opposed to over 350 days) was associated with better outcomes at age 8, as was being a heavier low-birth-weight baby. At age 3, children who participated in more days of center care had greater gains on cognitive scores. At age 8 the effects of having attended over 400 days of the high-quality center care program was associated with increases on the Weschler Intelligence Scale for Children Full and Verbal scales and many other outcome measurements. Heavier low-birth weight children experienced greater increase associated with attendance than lighter low-birth-weight children. At age 8 there were also positive effects for both heavier and lighter low-birth-weight babies who attended over 350 days of center care, but the results were not as large as those associated with over 400 days of attendance. Treatment effects for the low-dosage group (between 100 and 300 days attendance) were lower than the treatment effects for the high-dosage groups. If the low-dosage group participants had switched to attending at least 300 days, their outcomes would have been higher on 10 measures (8 for the lighter LBW group and 3 for the heavier LBW group). The low-dosage group would have even more to gain from switching to a higher attendance group than the children in the 350 day attendance group would gain if they increased their attendance. All effects for both groups and both attendance dosages were "substantially higher than corresponding ITT effects" (730). Among children receiving higher dosage (higher attendance rates), "attenuation of effects over time was less drastic among the heavier LBW children" (740). Children with less than 100 days attendance were dropped to account for possible outside factors like moving out of the area. Attendance in the 300-350 day range was used for comparison only and was not independently evaluated.	It is not specified if the >350 day attendance group consists of 350-399 days or any attendance over 350 days (i.e. whether the more than 350 day and more than 400 day groups are distinct or represent different possible thresholds that may overlap). The effects of home-visiting (part of the IHDP program in the 1st through 3rd years of life) and home-visiting dosage are not considered.
13. Howes, C. (1997). Children's experiences in center-based child care as a function of teacher background and adult:child ratio. <i>Merrill-Palmer Quarterly</i> , 43 (3), 404-425.	Can a teacher with a particular background teach as effectively in a classroom that has less stringent adult:child ratios as a teacher with a less advanced background but a more stringent ratio?	Analysis of variance/ANOVA	CQO: maternal education (but they do not give us the descriptive statistics about the maternal education for this sample) FQIS: none	"Both teacher background and adult:child ratio (only in one study) appear to distinguish among child-care classrooms associated with more effective teaching behaviors and children's development." p.422 More advanced education and training does not allow teachers to be as effective with more lenient adult:child ratios as less-well-prepared teachers with more rigid ratios. "Most advanced teacher preparation was associated with sensitive and responsive teaching." p.423	Not examined.
14. Howes, C., Burchinal, M., Pianta, R., Bryant, D., Early, D., Clifford, R., & Barbarin, O. (2008). Ready to learn? Children's pre-academic achievement in pre-kindergarten programs. <i>Early Childhood Research Quarterly</i> , 23, 27-50.	The study examined whether gains in child outcomes over the course of the pre-K year were associated with three dimensions of program quality, including structural features, overall classroom processes, and the quality of the teacher-child relationship. The study also examined whether specific classroom practices were associated with gains in child outcomes between fall and spring of the pre-K year.	Analyses were conducted using hierarchical linear modeling (HLM) to examine whether "growth in school-related learning and social skills over the pre-kindergarten (pre-K) year in state-funded programs designed to prepare children for kindergarten" could be attributed to "variations in the structural and classroom process dimensions of program quality." In addition to examining the predictors of growth in learning and social skills in the pre-K year, analyses were repeated using the post-test score as the dependent variable and the pre-test score as a covariate.	Covariates varied somewhat across models, but generally included the following: first set of models: (state, gender, child's age at the time of the fall assessment, ethnicity, maternal education, poverty, and household size); second set of models focused on quality (also included teacher credentials, ratio, in/out school, full/part day, overall classroom processes-quality composite, and teacher-child relationship); third set of models focused on specific classroom processes: (also included "proportion of time the child was observed engaged in three reading activities...or in math activities")	"No evidence emerged indicated that gains during the pre-K year were related to the child-adult ratio whether the teacher had a B.A., or whether the program was full- or part-day or was located in school. Modest, but statistically significant, gains in language skills were related to process quality." "Process quality composite was significantly related to the two language outcomes and teacher-child closeness was related to both of the literacy outcomes." "When evaluating the relative value of certain aspects of classroom processes for children's learning in that classroom, direct observations of direct experiences of the child are more powerful predictors than either teacher reports of those experiences or structural features of the classroom." "Teacher reports of closer relationship with a child was associated with modestly larger gains in teacher-rated global language and literacy skills and child's letter-identification skills." "CLASS Instructional Climate was the only significant predictor of gains in either receptive language or expressive language" Warmer teacher-reported relationships with the child were associated with larger gains on social skills, bigger decreases in teacher-reported problem behavior, but also with smaller gains on the Applied Problem Subscale (math). "...classroom practices only contributed to predicting gains in global ratings of language and literacy. More time spent in oral language activities was related to modestly larger gains in the outcome."	It is possible that the 6-month pre-post period was not a sufficient time to detect large gains. The study does not examine (or control for) prior child care experiences, even though some children may have been exposed to up to three years of child care prior to the study. The classrooms may not have included a large enough number at the higher end of the instructional quality spectrum. Findings in the repeat analyses that used spring scores as the outcome variable rather than gain scores, largely supported the gain score findings (with the exception of the odd negative teacher/relationship-math gains finding and found more relationships between specific non-global aspects of quality and specific (sometimes substantively related) outcomes.

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15. Howes, C., Phillips, D.A., Whitebook, M. (1992). Thresholds of quality: Implications for the social development of children in center-based care. <i>Child Development</i> , 63, 449-460.	To examine the thresholds of quality and children's social development. Hypotheses: - Classrooms that met federal standards provide higher quality care than classrooms that failed to meet the standards. - Adult:child ratio is linked to the provision of developmentally appropriate activities and appropriate caregiving - Children with acceptable caregiving will be securely attached to teachers and socially oriented to both teachers and peers - Children with secure attachment behaviors and social orientations that include peers will be socially competent with peers.	ANOVA (two-way, multivariate), path analysis	None mentioned.	"Licensing standards for ratios do make a difference in the quality of care provided for children." (p.458) "A child was more likely to receive appropriate caregiving than developmentally appropriate activities." (p.459) These findings support a pathway "from group size to developmentally appropriate activities to social orientation and then to social competence with peers." (p.459) "This analysis suggests that the influence of regulatable quality [structural] on social competence with peers is mediated through process quality and through children's relationships with adults and peers rather than directly influencing peer competence...process quality is mediated through children's relationships with adults and peers rather than directly influencing peer competence." (p.457)	The authors state that the lack of knowledge about parental decision making about child care limits this study. "If there were choices between child care arrangements for families, we would expect to find links between family characteristics and the quality of care provided for their children." (p.459)
16. Hubbs-Tait, A.M. Culp, Huey, R. Culp, Starost & Hare. (2002). Relation of Head Start attendance to children's cognitive and social outcomes: Moderation by family risk. <i>Early Childhood Research Quarterly</i> , 17, 539-558.	"We reasoned that the effectiveness of Head Start like that of other intervention programs would also be influenced by the degree of participation by program participants (Gomby, Culross, & Berhman, 1999; Olds et al., 1999; Wagner & Clayton, 1999). We operationalized degree of participation as child attendance" (p. 540). In addition: "...we hypothesized that attendance at Head Start would matter most for children of higher risk. That is, for children coming from family backgrounds that were more likely to prepare them for school, family backgrounds would be sufficient to account for children's outcomes (e.g., Robinson, Weinberg, Redden, Ramey, & Ramey, 1998), and there would be no significant relation between daily attendance and cognitive or social skills. In contrast, for children at higher risk, we predicted students' performance on cognitive and social measures would be significantly related to their attendance" (p. 542)	Hierarchical regression examining attendance and cumulative family risk as predictors of the three child outcomes (PPVT-R, following verbal instructions, sociability). Analyses considered main effects as well as interactions. Analyses conducted with and without maternal PPVT-R controlled. Follow up analyses consider individual risk factors and interaction of the risk factor and attendance in predicting the child outcomes. Analyses controlled for maternal PPVT-R scores.	Maternal PPVT-R	Study finds interaction of attendance and risk for children's PPVT-R, such that attendance predicted stronger receptive vocabulary only for high risk children. Study finds main effect of attendance for child sociability, with greater attendance predicting stronger sociability ratings irrespective of family risk. Finally, only cumulative risk predicted following instructions.	
17. Kontos, S., Wilcox-Herzog, A. (1997). Influences on children's competence in early childhood classrooms. <i>Early Childhood Research Quarterly</i> , 12, 247-262.	What is the effect of classroom context ("activity settings, teacher behavior, contact with peers and teachers") on children's cognitive and social competence? How do teacher involvement, activity setting, and social context affect children's social and cognitive competences? In what direction does teacher involvement affect child competence?	Multiple regression analysis, simultaneous multiple regression (responsive involvement and verbal stimulation summed to form teacher involvement), descriptive statistics, Pearson correlations.	Child age, gender, cognitive competence, social competence	Descriptive findings: "The means revealed that the children were in high yield activities (art, blocks, dramatic play) a little less than half the time. They were in contact with peers the vast majority of the time and in contact with teachers just over half the time. When teachers were within three feet of the target child, they were responsive to that child 36% of the time and verbally stimulating 21% of the time" (255). Child age and gender were not related to teacher behaviors. Teacher verbal stimulation and responsive involvement were negatively related to children's cognitive competence (however only a negative association between teacher verbal stimulation and child social competence was significant after age was controlled for). Child age, gender, cognitive competence, and social competence accounted for 10% of the variance in teacher behavior and only cognitive competence predicted teacher involvement significantly when age, gender, and social competence were controlled for. More peer interaction (without adults present) increases children's social competence; more involvement with adults increases children's cognitive competence. Children's cognitive and social competences are negatively associated with the presence of teachers and positively associated with the presence of peers and participating in "high yield activities." Age, cognitive competence, presence of teachers, presence of peers, participation in high yield activities, and teacher involvement account for 57% of variance in children's social competence (age, contact with teachers, presence of peers, and teacher behavior were significant predictors). Age, presence of teachers, presence of peers, participation in high yield activities, and teacher involvement predicted 52% of the variation in children's cognitive competence (with presence of teachers and time in high yield activities as significant predictors). Children with higher social competence were older, more often in the presence of peers, and less often in the presence of teachers but received more involvement from teachers. Children with higher cognitive competence were less often in the presence of teachers and did more "high yield activities." These classroom components account for over 50% of variance in social and cognitive competence. Type, not presence, of teacher interaction and activity settings matter most.	May not be very generalizable (centers were alike and not like an average center); data is more correlational than causal so practical implications are uncertain (i.e. is the negative association between teacher presence and cognitive competence because teachers are interfering with child activities or because teachers "station" themselves by children who are likely to need help. Information needed on understanding teacher decisions around creating opportunities for social and cognitive development, strategies on how to integrate social and cognitive development activities in early childhood classrooms.

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18. Lamdin, D. J. (1996). Evidence of student attendance as an independent variable in education production functions. <i>The Journal of Educational Research</i> , 89 (3), 155-162.	When considering school attendance as an independent variable in a production function or input-output approach, will school attendance be positively related to performance on standardized achievement tests?	The study uses the following analyses to test their key questions: An examination of bivariate correlations among school-level dependent and independent variables; OLS regression analyses t test the relationship between attendance and achievement test scores; OLS regressions to examine the relationship between standardized test performance and school input measures, such as teacher/pupil ratio and school expenditures.	Covariates include the following: % no free lunch % minority (in some models) %attendance school input measures (entered one at a time)	School attendance was consistently found to have a positive and significant association with student performance. School input measures, such as school expenditures and staff/pupil ratio, were either not significant or had modest negative relationships. Specifically, teacher-pupil ratio was negatively associated with performance. Although this seems counterintuitive, one hypothesis is that school systems invest more teaching staff in lower performing schools.	The study did not control for family-level variables, teacher quality, or related variables that have been found to predict student attendance and performance.
19. Loeb, S. et al. (2004). Child care in poor communities: Early learning effects of type, quality, and stability. <i>Child Development</i> , 75 (1), 47-65.	What type and quality of child care is available to those in the welfare system? How does this type of care affect children's cognitive development? How does this type of care affect children's emotional development? Do differences in developmental effects remain after controlling for child, family, and home factors?	OLS regression, 3 models (1) controlling for cognitive proficiency, maternal and family attributes, and location; 2) adds predictors for work-welfare group, income, and parenting practices; 3) adds interactions between site and center use), multinomial logit models, descriptive statistics	Mother's education, mother's cognitive and language proficiency (PPVT score), maternal work status and earnings, parenting practices (HOME Inventory) maternal depression, mother's work and welfare experiences, local availability of child care slots, site effects, child's baseline cognitive, language and social scores, child age, provider education.	Children in center-based care over a two year period show higher cognitive effects and school readiness scores than children cared for by a friend or family member. This effect remains when controlling for mother's education, child's baseline cognitive proficiency, site effects, child's age, and mother's cognitive proficiency. Social development outcomes are not consistent. Maternal depression is related to increases in children's social problems, but not significantly with cognitive outcomes. Even after controlling for stability of care and quality variables, children in centers displayed continuing positive outcomes on Bracken total score and FACES composite, while children in home-based settings displayed increased social problems. Availability of local care and family-level factors did not predict type or quality of care selected, while mother's race and location (city), child's age, and mother's education and PPVT scores did slightly predict care selection.	Research takes place in only three counties; research is designed to look specifically at changes stemming from welfare reform, so long-term outcomes could be different from this sudden shift. There could be selection bias (although it is somewhat addressed); results may not be generalizable.
20. Mashburn, A. J., Pianta, R. C., Hamre, B. K., Downer, J. T., Barbarin, O. A., Bryant, D., Burchinal, M., Early, D. M., & Howes, C. (2008). Measures of classroom quality in prekindergarten and children's development of academic, language, and social skills. <i>Child Development</i> , 79 (3), 732-749.	The study examines "the extent to which children's development during pre-K programs was associated with each of three different approaches for evaluating quality of pre-K programs:" a) meeting the 9 NIEER-based standards of quality b) level of overall pre-K quality as measured by the ECERS-R c) quality of emotional and instructional classroom interactions, as measured by the CLASS (p. 735)	"The study involved a nested design that included approximately 4 children participating within each classroom and hierarchical linear modeling provided the conceptual framework for specifying two-level models that examined the associations between three forms of pre-K quality (NIEER benchmarks, overall quality of the classroom environment, and teacher-child interactions) and individual-level child outcomes (post-test scores, after controlling for pretest scores, child and family characteristics and state)" (pp. 739-40)	Covariates include the following: gender race, maternal education, poverty status, state, and pre-test scores	CLASS instructional support was found to be associated with higher language development and academic skills; Looking across the large number of infrastructure features examined, few significant relationships were uncovered and there was no relationship between the NIEER 9-item index of infrastructure and design features and child outcomes. Global quality was associated with higher oral and written language skills; Class size is 20 was related to improved letter naming skills; Teacher background (having a BA degree) was related with higher teacher-reported social competence; CLASS emotional support was related to higher levels of teacher-reported social competence and fewer behavior problems. The overall findings suggest that process features of quality matter more than structural features of quality for the development of academic, language and social skills outcomes for English-speaking pre-K students.	Several Limitations: 1. Study did not include two of the NIEER indicators of quality (whether teachers participated in 15+ hours of PD and whether there was a system of program monitoring in place) and these may directly improve the quality of children's experiences in the classroom 2. Limited generalizability to other 4 year old programs (i.e. not pre-k) 3. Using the total score from the ECERS-R as a measure of process quality even though half of the indicators are not related to teacher-child interactions 4. Children in the study might not fully represent the population in these public pre-k programs 5. Small effect sizes 6. Range of instructional quality was small 7. Study findings for 283 additional Spanish-speaking Pre-K students were summarized in the text with findings in the same direction of the main study findings, though with smaller effect sizes (not significantly different from zero) due to the smaller sample size and larger errors). Findings for this sample is not included in the tables, so the main findings may not be generalizable to non-English speaking preschoolers.

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21. McCartney, K. (1984). Effect of quality of day care environment on children's language development. <i>Developmental Psychology</i> , 20 (2), 244-260.	Does the quality of day care environment affect children's language development?	Stepwise and hierarchical multiple regressions, descriptive statistics, staff and parent questionnaires/interviews, center observation, child assessments. Effects of centers on groups of children were investigated to ensure the direction of any effects.	PPTV-r IQ, Preschool Language Assessment Instrument, Adaptive Language Inventory, communication task, family and child characteristics, parental attitudes, group care experience and background, types of communication/utterances from caregiver, time in care.	Day care environment quality has a significant effect on children's language development (it is as predictive as family background variables). Overall program quality was predictive of all four of the measures of intellectual and language development employed by the study (controlling for family background and current center care experience). Organizational factors impacted quality of caregiver conversation. Children from centers with more caregiver verbal interaction tested higher in language development than children in centers with more peer verbal interaction. Environmental factors such as parent involvement, variety of play equipment, and director experience and training also mattered. While formal teaching arrangements seemed to improve outcomes, controlling children's behavior did not (children did better when they could initiate conversations).	Findings from Bermuda might not be generalizable (differences in policies, families, types and durations of care, selection processes). Does not fully address what quality of the environment refers to (see discussion section); co-occurrence of good factors leads to statistical problems (difficult to interpret).
22. McCartney, K., Burchinal, M., Clarke-Stewart, A., Bub, K. L., Owen, M. T., Belsky, J. & The NICHD Early Child Care Research Network. (2010). Testing a series of causal propositions relating time in child care to children's externalizing behavior. <i>Developmental Psychology</i> , 46 (1), 1-17.	This study offers the following five propositions and tests them, examining whether there is evidence suggestive of a causal relationship between child care dosage and externalizing behavior: "The association between externalizing behavior and time spent in child care will be significant even when selection factors are controlled." (p. 2) "The association between time spent in child care during infancy and the early preschool years and children's externalizing behavior will be significant, even when child care hours in the later preschool years is controlled." (p. 3) "The association between externalizing behavior and time spent in child care will be significant even when earlier externalizing behavior is taken into account." (p. 3) "There will be a dose-response relation between externalizing behavior and time spent in child care." (p. 3) "The association between externalizing behavior and time spent in child care can be explained by specific child care processes." (p. 4)	The study uses the following analyses to test their key hypotheses: Longitudinal analyses using ANOVA (including mixed-model repeated measures ANOVA), ANCOVA, and fixed effects models. The study also reports correlations between key variables.	"All analyses included a common set of covariates: nine dummy variables representing the 10 data collection sites, child characteristics (gender and race/ethnicity), family characteristics (maternal education, a dummy variable indicating whether the mother had a partner in the household, income-needs ratio, a dummy variable indicating whether the family income was twice the poverty threshold, maternal depression, and a parenting composite), and child care characteristics (the observed quality of care and whether the setting was a center). Many of the family and child care characteristics were measured longitudinally (i.e., partner status, income-needs ratio, poverty status, maternal depression, parenting, and child care quality) and were treated as time-varying covariates in the longitudinal analyses" (p. 7) However, according to the specification considered, different measures of dosage/exposure to care and measures of quality were used as predictor variables or moderators.	While at least partial support was found for four of the five propositions tested in this study, the authors note that findings varied based on the specifications, and that results were equivocal. The study provides evidence suggesting that the relationship between hours spent in child care and externalizing behavior is not due to a child effect. Child care quality and proportion of time with a large group of peers were found to moderate the relationship between child care hours and externalizing behavior.	The study notes that more rigorous methods are needed to establish causality. The study found that center care did not moderate the effects of amount of time spent in child care and child outcomes.
23. McCartney, K., Scarr, S., Rocheleau, A., Phillips, D. et al. (1997). Teacher-child interaction and child-care auspices as predictors or social outcomes in infants, toddlers, and preschoolers. <i>Merrill-Palmer Quarterly</i> , 43 (3), 426-450.	"The goal of the present study was to examine associations between child-care quality and social outcomes for infants, toddlers, and preschoolers" (445). How do family characteristics and teacher-child interactions affect child social outcomes?	Selection bias indexes created; MANOVA; regressions; differences across states (including parental values measures in each state) and type of care setting were accounted for.	Child care history (age of child when mother returned to workforce, average hours per week in care during first year of life, total number of changes in child care arrangement); composites made of mother's, fathers' and combined parents' traditional values variables; mothers' education and per capita income standardized and summed to make family resource composite; work-family interference; income; teacher-child interaction.	There were few associations between child-teacher interactions and child social outcomes (only between those interactions and social bids made by toddlers and preschoolers). Higher work-family interference was associated with worse social outcomes (security problems in toddlers and preschoolers, dependency in preschoolers, and behavior problems for all three age groups). Mother's education was negatively associated with behavior problems in infants and preschoolers. Children in nonprofit centers had somewhat better outcomes on some measures. Number of care changes was associated with dependency and behavior problems in preschoolers (so care history over time was important). Ethnicity predicted behavior problems for toddlers and dependency in preschoolers (being White was associated with better outcomes), but ethnicity may be functioning as a demographic indicator. Some outcomes varied slightly by state or type of care in a state (between 1 and 3 of the ten items examined were affected in each state).	Study is large with a range of centers, but not nationally representative. Teacher-child interaction index had only moderate reliability.

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24. NICHD Early Child Care Research Network. (1998). Early child care and self-control, compliance, and problem behavior at twenty-four and thirty-six months. <i>Child Development</i> , 69 (4), 1145-1170.	How do care experiences in the first two years of life affect social-emotional child outcomes at 24 months? How do care experiences in the first three years of life affect the social-emotional child outcomes at 36 months? How do age of entry into care, care quality and extent affect social-emotional development in the first three years?	OLS regression analysis, factor analysis. Each variable was examined for external validity. Aggregate and time-lagged effects examined. Model I: selection effect variables Model II: selection variables plus gender and child temperament Model III: Extent to which child care variables (quality, quantity, entry age, group type) predicted child functioning Model IV: Extent to which family factors (attachment security, mothering), predicted child functioning Model V: Whether child care variables added to the prediction of child outcomes over the selection, child, and family variables	Child care quality, quantity, stability, group type, age of entry; measures of family background, mothering, child characteristics from the first three years of life.	Mothering was a stronger and more consistent predictor of child outcomes than care (care variables explained between 6% and 2.8% of outcome variance). Of child care variables, quality was the most consistent predictor of child outcomes, but it only explained a small amount of variance. Family characteristics appear to mediate care effects. The findings do not support earlier conclusions that "early, extensive, and continuous care was related to problematic child behavior" (1145). Almost no interactions between child care factors or between child care factors and family or child variables were significant. 24 months: Concurrent: More hours in care during the first two years was associated with less social competence and more behavior problems. Lower quality care was associated with more problem behavior and less social competence. Later entry was associated with more caregiver reported behavioral problems. Less stable care was associated with more mother-reported problem behavior but less noncompliance in care. More time in group-type care was associated with more compliance in the lab and less noncompliance in care. Economically and psychologically advantaged mothers rate their children as having easier temperaments, having fewer behavioral problems, and more social competence. Girls were characterized as more competent than boys by their mothers. Children who experienced more positive mothering, had less problem behavior and they, along with securely attached children, were more compliant during the clean-up task. Lagged: 2% to 16% of outcome variance explained on four of six constructs by first year predictors. Addition of second year predictors increased explained variance to 9% to 18%. In the first year, higher quality care predicted fewer problems in care and less care stability predicted more problems. Later entry age predicted more negative behaviors. Higher quality care at 24 months was associated with fewer behavior problems concurrently and less stable care was associated with less noncompliance in care. Less noncompliance was seen in care at 24 months when children were in group care with at least three other children. 36 months: Concurrent: Children who experienced high quality care during their first three years were more cooperative and compliant with their mothers in the clean-up task, had less negative interaction with the mother, were able to resist the forbidden toy, and had fewer problems in care. Children with more group-type experience were less negative, resisted the forbidden toy, and had fewer problems in care. Economically and psychologically advantaged mothers said their children (especially girls) were more socially competent. These children were less negative, resisted the forbidden toy, and had fewer problems in care. Children described by their parents as socially competent were less negative, more compliant, resisted the forbidden toy, and had fewer problems in care. Children described by their mothers as difficult infants had more problems and were less socially competent. Lagged: First year variables explain 1% to 18% of variance on five of six outcomes. Second year variables increase the explained variance to 4% to 18% and third year variables increase the explained variance to 6% to 23%. Higher quality care in the first year predicted fewer problems in care at 36 months; higher quality care in second year predicted more compliance with mother, less negative behavior, and more ability to resist the toy; higher quality care at 36 months was associated with less negativity, ability to resist the toy, and more mother reported social competence at age 3. Experience with groups in the first year predicted mother-reported problems at age 3, but group experiences in the second and third year were associated with fewer problems in care.	Children were not followed past 36 months. Sampling of poor quality care was extremely limited.
25. NICHD Early Child Care Research Network. (2000). The relation of child care to cognitive and language development. <i>Child Development</i> , 71, 960-980.	1. Do the cumulative quality, type, and amount of child care predict children's cognitive and language skills during the first 3 years of life? 2. If there are effects, what are the magnitudes of the effects? 3. How do children raised almost exclusively by their mothers compare with children who have experienced different levels of quality of child care? 4. Does child care in the first year or two of life have lasting associations with cognitive and language development at subsequent ages? 5. Are the relations of child care to cognitive and language outcomes different for children from different income levels, home environments, genders, or ethnic groups?	Hierarchical regressions ANCOVAs	"Two models included controls for site (location of child), maternal PPVT, gender, HOME total, and maternal stimulation" (970).	"Quality of child care was a reasonably consistent predictor of children's cognitive and language performance" (975). However, "quality and the other child care predictors accounted for only between 1.3% and 3.6% of the variance. But, the effect size analyses indicated that the differences between scores of children in the highest and lowest quartiles of quality generally ranged from 0.18 to 0.48" (976). "Children in centers performed at higher levels than children in in-home care...the longer children were in centers, beginning at age 6 months, the better they performed on cognitive and language measures, when the positive care giving ratings and frequency of caregiver child verbal interactions were comparable to quality in child care home settings" (976). "The most advantageous environment for cognitive and language development appears to be in a child care center with high levels of sensitive and linguistically stimulating care" (977).	Sample is not nationally representative, but is diverse. Language measures at 15 and 24 months rely on mother report.
26. NICHD Early Child Care Research Network. (2002). Child-Care Structure→ Process→ Outcome: Direct and indirect effects of child-care quality on young children's development. <i>Psychological Science</i> , 13 (3), 199-206.	Studies to date have examined associations between structural and process aspects of quality; process and child outcomes; and structural and child outcomes. But to date, no analyses have encompassed all three sets of variables. Of particular importance, no research to date has examined empirically the mediated path from structural features of quality through process quality to child outcomes. Purpose of the present study was to test this mediated path using structural equation modeling.	Structural equation modeling used to test mediated path from structural quality through process quality to child outcomes. Six models tested, each including either caregiver training or staff: child ratio and one of the three child outcomes (latent variables for cognitive competence and caregiver and mother's ratings of social competence). Each model also included maternal education and family income to needs (treated as exogenous variables), maternal care giving (a factor), and nonmaternal care giving (a latent variable).	Maternal education and income to needs ratio included as structural family measures. Process family measure included maternal care giving summary based on maternal sensitivity, total stimulation and support in the home, and nonauthoritarian beliefs about child rearing. These were examined as part of each model.	Three key findings: (1) Maternal care giving was a strong predictor of cognitive competence and a moderate predictor of social competence as rated by the caregiver. Maternal education and family income to needs showed smaller effects for cognitive competence and no significant effects for social competence. (2) Nonmaternal care giving was associated with both cognitive and socioemotional outcomes (with the latter as reported by the caregiver). (3) The indirect path from structural quality measures through process quality measures to child outcomes was significant in each of four models in which this was tested: looking separately at caregiver training and staff: child ratios in relation to the cognitive competence outcome and in relation to the social competence outcome (only the caregiver report version of this outcome).	

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27. NICHD Early Child Care Research Network and Duncan. (2003). Does quality of child care affect child outcomes at age 4 1/2? <i>Developmental Psychology</i> , 39 (3), 451-469.	What are the causal effects of child care quality on child outcomes? What are the outcomes to the following five propositions? 1) "If child-care quality affects child outcomes, associations between child-care quality and child outcomes should be apparent even when child and family background factors are taken into account" (452); 2) "If child-care quality affects child outcomes, analyses should indicate specificity of associations between child-care quality and child outcomes: The quality of cognitive and language aspects of care should be related to cognitive and language outcomes; the quality of social aspects of care should be related to social outcomes; and the emotional quality of care should be related to emotional outcomes and attention regulation" (453); 3) "If child-care quality affects child outcomes, the quality of earlier care should be associated with child outcomes even when the quality of concurrent care is statistically controlled" (453); 4) "If child-care quality affects child outcomes, associations between quality of care and child outcome should remain when indices of the child's earlier ability are taken into account" (453); and 5) "If child-care quality affects child outcomes, associations between child-care quality and child outcomes should be stronger if children spend more time in the care setting; that is, there should be a dose-response relation between (the quantity of) child-care quality and outcomes" (453).	"The primary analyses were multiple regression analyses predicting each child outcome measure from each measure of child-care quality averaged across assessments made at 6, 15, 24, 36, and 54 months" (456).	Regressions controlled for "site, child's gender and ethnicity, mother's education and partner status (percentage of time with a partner, 6-54 months), mother's depression (average, 6-54 months), quality of parenting (average, 6-54 months), and family income (mean income-to-needs ratio, 6-54 months). Hours of child care (average per week, 3-54 months) and type of child care (percentage of time in center, 3-54 months; percentage of time in child-care home, 3-54 months) were also controlled. Additional analyses of subgroups were used to follow up specific research proposition" (456). Structural equation modeling to look at the indirect effects of child care quality.	1) "In the first analyses of the proposition, we used this extensive set of child, family, and child-care covariates in a series of regression analyses to predict child measures, investigating the unique contribution of child-care quality to these child outcomes at 54 months...The results of these analyses indicate that even with a wide range of child, family, and child-care factors statistically controlled, observed quality of care was significantly related to child outcomes, and the type of outcome that was most consistently predicted was children's cognitive performance. In this analysis, with a stringent set of controls, significant associations between overall ratings of child-care quality and child outcome measures were consistent with the proposition that higher quality care is causally related to better cognition, less impulsivity, and greater social competence in child care" (459). In the second set of analyses, we looked for interactions between the quality of care children received in child-care settings and the quality of parenting they received at home, in order to determine whether associations between child-care quality and child outcomes were evident only for children who had advantages at home" (460). Findings "suggested that the associations between quality of care and child outcomes were equivalent for children who received better parenting and children who received worse parenting" (460). 2) Domain associations were present for the cognitive domain only. 3) "Analyses showed that even with the quality of contemporaneous care controlled, some features of children's cognitive performance were related to some features of earlier care" (462). 4) There was some support for quality of care being related to child outcomes with earlier abilities taken into account; there is evidence of a causal link between child care quality and cognitive outcomes in the form of expressive language only. 5) No analyses showed support for a dose-response between quality of care and outcomes.	Sample is not nationally representative, outcomes past age 4.5 are not examined. Many of the variables controlled for are taken as an average across 6-54 months; this could mask the effects of certain variables at certain ages.
28. NICHD Early Child Care Research Network. (2006). Child-care effect sizes for the NICHD Study of Early Child Care and Youth Development. <i>American Psychologist</i> , 61 (2), 99-116.	This study examines the relationship, focusing on effect sizes, of quality, type, and quantity of care and child outcomes.	Regression analyses were conducted to test the relationship between two continuous variables and to produce "r" effect sizes; analyses of variance (ANOVAs) were conducted to compare extreme group means and to produce "d" effect sizes. The adjusted means for children in the bottom and top quartiles were compared through analyses of covariance (ANCOVAs).	Covariates include the following: "10 sites, mother's education, ethnicity, partner in household, income to needs ratio, mother's adjustment, home quality, child gender, cumulative rating of quality of care, percentage of time in center care, and hours in child care"	"Evidence from this study suggests that quality, quantity and type of care make distinctive and independent contributions to the prediction of children's development." "Higher quality child care was related to advanced cognitive, language and preacademic outcomes at every age and better socio-emotional and peer outcomes at some ages. More child care hours predicted more behavior problems and conflict, according to care providers. More center care time was related to higher cognitive and language scores and more problem and fewer prosocial behaviors, according to care providers." Effect sizes for models examining quality as a predictor of child outcomes are small to moderate and are in line with those found in related studies.	It is difficult to control for family selection bias. Parenting was found to be the strongest predictor of child care quality, which makes it difficult to understand the independent effect of quality on child outcomes. Low quality care and very low quality parenting are underrepresented in the sample.
29. NICHD Early Child Care Research Network & Duncan, G. (2003). Modeling the impacts of child care quality on children's preschool cognitive development. <i>Child Development</i> , 74 (5), 1454-1475.	Previous studies, including similar studies using data from the NICHD Study of Early Child Care, have found that child care quality predicts cognitive and academic skills. This study examines whether child care type and quality are able to predict cognitive and academic skills at 54 months, when using multiple statistical modeling methods and a large set of parent and family context measures to adjust for family selection bias.	The study uses the following analyses to test their key questions: The study uses a level model "relating age 54-month cognitive development to a child's past history of child care quality and characteristics of the family, child and child care experiences." The study also uses change and residualized change analyses to "relate the change in a child's development between two distinct points in early childhood to the family and child care experiences between the 24- and 54-month assessments."	Covariates include the following: ORCE quality 6-24 months ORCE quality 36-54 months mother care as primary care source 6-24 months mother care as primary care source 36-54 months missing quality variables mean hours of care/week 3-24 months Mean hours of care/week 27-54 months proportion center care 3-24 months proportion center care 27-54 months Models included one or more combinations of the following, added in steps by model: (gender, ethnicity, maternal education), (income/poverty thresholds, partner in household, 6-month parenting, maternal depressive symptoms, maternal vocabulary), (child temperament, maternal personality, maternal child-rearing attitudes, maternal separation anxiety, and 1-month maternal attitudes about benefits of work)	The study showed consistent evidence that observed child care quality is modestly, but consistently, predictive of cognitive and achievement outcomes in early childhood. Amount of time in center-based care at ages 3 and 4 had the most strongly consistent associations with achievement and cognitive outcomes across all models. Children with low initial cognitive scores (MDI) appeared to benefit more from quality care. This study (which uses a variety of models to control for family selection bias) finds more modest associations than many previous studies cited (with effect sizes ranging from .04 to .08)	"The fact that being in center care, independent of quality, has a consistent positive relation to cognitive outcomes suggests that there may be features in the structure and organization of child care centers, and the typically stronger educational qualifications of center-based providers, that are important influences not captured in the ORCE" (1472).

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Specifications for Entering information in Table	Summarize study questions as presented by authors	Describe data analyses including type of analysis (HLM, log-linear, regression analysis, etc.)	Note whether covariates included in analyses are demographic variables or go beyond demographic variables to include measures such as parental psychological well-being; parenting. Not whether variables are covariates, interaction variables, or variables for simultaneous regressions analysis.	Provide brief summary of overall study findings	
30. Owen, M. T., Klauski, J. F., Mata-Otero, A., Caughy, M. O. (2008). Relationship-focused child care practices: Quality of care and child outcomes for children in poverty. <i>Early Education and Development</i> , 19 (2), 302-329.	The study focuses on three primary study goals/questions: to observe differences in centers with explicit program practice enabling and emphasizing closeness and continuity of care with those that do not; to study whether children in RFC centers will exhibit better social adaptive behavior, closer relationships with providers, and fewer behavior problems than children in non-RFC centers; and whether there were differential changes over time in relation to child care type among a subset of children who remained in their centers for at least one and a half years.	The study uses the following analyses to test the three key questions: ANOVA and ANCOVA analyses	Covariates include the following: caregiver-child relations parent-caregiver relations (parent report) parent-caregiver relations (caregiver report) family-to-income needs ratio maternal education	Children in RFC centers experienced higher quality, more positive caregiving than children in non-RFC centers on several measures. "The most positive caregiver-child relationships were reported for Latino children in non-RFC centers and the least positive were reported for African American children in non-RFC centers." "More positive caregiver-parent relationships were reported in RFC centers than in non-RFC centers for African American children, but not for Latino children. Better parent-caregiver relationships were reported by caregivers of Latino children in non-RFC centers than in the RFC centers." (p. 317) The study had inconsistent findings regarding the interaction between type of center and child outcomes, and findings seemed to be moderated by race/ethnicity. "Latino children from non-RFC centers scored significantly higher than Latino children from RFC centers." (p. 315) "Latino children in RFC centers were rated by their parents as having more internalizing and externalizing behavior problems than Latino children in non-RFC centers (and than African American children). A similar pattern was not found for African Americans." "Children's socially adaptive compliant behavior as reported by parents was significantly higher in the RFC group than the non-RFC group." (p. 315) This was an unmoderated main effect. "Caregivers gave higher ratings for children's socially adaptive behavior on both the Comply scale and the Express scale for Latino non-RFC children. African American children did not differ from one another in caregiver ratings of socially adaptive behavior by type of center." (p. 315) Similar (unexpected and inconsistent) patterns were found for over-time analyses.	The study examines differences in child care quality and caregiver practices between RFC and non-RFC centers, but it does not measure actual amount or level of continuous care experienced by children over the course of the study period. The sample sizes for the study were small, particularly when describing within subgroup and center patterns, and over time relationships. The authors posit that child and caregiver characteristics may play a role in how child care is experienced and quality is received, independent of program features.
31. Peisner-Feinberg, E. S., & Burchinal, M. R. (1997). Relations between preschool children's child-care experiences and concurrent development: The cost, quality, and outcomes study. <i>Merrill-Palmer Quarterly</i> , 43, 451-477.	The study was designed to "explore the relations between the quality of child-care experiences and preschool children's cognitive and socioemotional development in typical community child-care centers" (452). "test whether child and family characteristics moderate the relation between child-care quality and preschool children's outcomes with a large sample of community child-care centers and children from diverse family backgrounds" (453). Hypotheses: 1. Better quality care is related to better child outcomes, even after adjusting for family and child characteristics 2. Background factors have moderating influences on child care quality for children with more risk factors	Inferential hierarchical linear models analysis	Covariates include demographic variables such as maternal education, gender, and ethnicity.	"Overall, there is a positive relation between child-care center quality and preschool children's developmental outcomes across the whole variety of domains that were studied" (472). "Expectations regarding the moderating influences of family background were only partially supported. In some cases, our beliefs were confirmed that the outcomes of children from less advantaged backgrounds are more susceptible to the influences of child care quality. We found no evidence for the hypothesis that children from more advantaged backgrounds are buffered from the potentially harmful effects of poor quality care by the influences of the family...In some cases, the positive effects of higher quality care are even stronger for children at greater risk, quality of care affects the developmental outcomes of children from all backgrounds" (472).	Two of the four regions represent higher income and resulted in generally higher quality of care. Larger proportion in higher quality care due to longitudinal nature of study. Sample included proportionally fewer centers at lower end of quality spectrum.
32. Peisner-Feinberg, E. S., Burchinal, M. R., Clifford, R. M., Culkin, M. L., Howes, C., Kagan, S. L., & Yazejian, N. (2001). The relation of preschool child-care quality to children's cognitive and social developmental trajectories through second grade. <i>Child Development</i> , 72 (5), 1534-1553.	This study examined the relation between center-based child care quality during the preschool years and children's cognitive and social development through second grade. It also examined whether family characteristics moderate the relation between quality and child outcomes. Two aspects of quality were examined to consider the possibility of differential relations between these and the child outcomes: classroom practices and teacher-child closeness. Measures of kindergarten and second grade classroom quality made it possible to examine the role of quality during the preschool years, in kindergarten and second grade.	Hierarchical longitudinal analyses examining both individual and group growth curves for each of the six child outcomes separately (PPVT-R, WJ-R letter-word, WJ-R problem solving, CBI cognitive/attention, sociability and behavior problems). Analyses controlled for state (NC, CO, CT, CA). Three sets of predictors: (1) background variables: mother's education, age of entry into child care, gender, ethnicity, child age and age squared and interactions of child age with other background variables. (2) Observed classroom practices (classroom practices composite) and teacher-child closeness (STRS) at preschool and interaction of child age with each of these. (3) Interactions of mother's education with the two quality measures; of age of entry into child care with quality measures; ethnicity with quality measures; gender with quality measures In addition, hierarchical regressions predicted second grade outcomes, adding in first background variables, then child care quality measures from preschool, interactions of background characteristics and preschool quality found in previous round of analyses to be statistically significant, then quality measures from kindergarten and finally quality measures from second grade.	Preliminary analyses identified family selection factors to be used in subsequent analyses. Family background variables found to be associated with measures of quality included maternal education, child gender, ethnicity, and age of entry into child care. Income was highly correlated with maternal education and there was missing data on income for a portion of the sample, so this was not included as a family selection variable.	Children from more advantaged families were more likely to enter child care later and to be in child care of higher quality during the preschool years. Longitudinal analyses: (1) PPVT-R: The pattern of change over time was significantly related to family background characteristics and child care quality. Controlling for background characteristics, children whose preschool classrooms had higher quality classroom practices tended to have higher language scores, but the magnitude of the association declined over time. Children whose teachers described closer relationships with them also tended to have higher language scores, and the magnitude of the relationship did not decline over time. Child and family characteristics did not moderate these relationships. (2) Children's WJ-R letter-word identification scores were significantly related to family background characteristics, but not to child care quality. (3) Children's WJ-R problem solving scores were significantly related to background characteristics, child care quality, and interactions. Children tended to have slightly higher scores when they had experienced higher quality classroom practices and closer relationships with teachers. An interaction of classroom practices and maternal education indicated that higher quality classroom practices had a stronger association with math scores among children whose mothers had lower education. (4) The pattern of change in cognitive/attentional skills was related to background characteristics and child care variables. Controlling for background characteristics, children tended to have stronger cognitive/attentional skills when the teachers described closer relationships with them, but the association declined in strength over time. (5) The pattern of change over time on behavior problems was related to background variables, child care quality variables, and interactions of these. Children with closer relationships with teachers had fewer behavior problems through second grade. The strength of this association declined over time, but did so less for children of mothers with less education. (6) Individual patterns of change on sociability were related to the child care quality block. Scores on sociability were higher for children whose teachers reported closer relationships, but this relationship declined in strength over time and the prediction was no longer significant at second grade. Looking specifically at outcomes in second grade net of background characteristics, k and second grade quality, preschool practices predicted math skills and preschool teacher-child closeness predicted fewer behavior problems, though an interaction for this latter pattern indicated that the relationship was stronger for children of mothers with less education. In addition, teacher-child closeness in kindergarten predicted second grade sociability, and closeness in second grade predicted all three teacher reported outcomes (cognitive/attention, sociability and behavior problems) net of all other variables.	

All.d		Overall Analytic Approach and Findings			
Publication Information	Study Questions	Analytic Approach	Covariates	Overall Findings	Comments/Methodological Issues
Specifications for Entering information in Table	Summarize study questions as presented by authors	Describe data analyses including type of analysis (HLM, log-linear, regression analysis, etc.)	Note whether covariates included in analyses are demographic variables or go beyond demographic variables to include measures such as parental psychological well-being; parenting. Not whether variables are covariates, interaction variables, or variables for simultaneous regressions analysis.	Provide brief summary of overall study findings	
33. Poe, M. D., Burchinal, M. R., & Roberts, J. E. (2004). Early language and the development of children's reading skills. <i>Journal of School Psychology, 42</i> , 315-332.	Purpose of the study is to "examine the extent to which language skills, phonological knowledge, and print processing skills at entry to school and kindergarten predict reading skills in second grade" Hypothesis 1: Early family and child care environments would be related to reading indirectly through language Hypothesis 2: Language is related to early reading indirectly through phonological knowledge.	Longitudinal regression	Child's gender, maternal IQ, and maternal education were covariates.	"Family and child care environments were indirectly related to reading skills through enhancing language skills and phonemic awareness" (327). "Quality of family and child care environments were related to language and phonemic awareness, and language and phonemic awareness were related to reading" (328). Direct association between language and reading at pre-kindergarten and second grade. Overall quality of home environment "combined with a measure of book-reading strategies showed an indirect effect on reading" (329).	Small sample size. Complex models. Assessment of phonological awareness is not as comprehensive of an assessment as using in many studies.
34. Schlieker, E., White, D. R., & Jacobs, E. (1991). The role of day care quality in the prediction of children's vocabulary. <i>Canadian Journal of Behavioral Science, 23</i> (1), 12-24.	How does day care quality affect the vocabulary comprehension of children? Does the relationship between day care quality and vocabulary comprehension differ as a function of family structure?	Hierarchical multiple regression analyses; two-step analysis (to see if adding information on day care quality improves prediction of vocabulary scores beyond SES alone). First step is global SES rating, second step is day care quality (0 for low quality, 1 for high quality).	SES; family structure; family characteristics (parent age, education, occupation prestige).	SES and day care quality are related to vocabulary comprehension. Home characteristics accounted for more of the variance in PPVT-R scores than day care quality, although quality was significant. Family structure and SES were associated with day care quality (two parent families choose high quality day care). Day care quality mattered more for single mother households. Children from one parent families have lower PPVT-R scores than children from two parent families. SES is significantly correlated with PPVT-R and day care quality. SES alone accounted for 29% of explained variance in vocabulary scores, SES and center quality together accounted for 36% (7% more than SES alone). Single mothers were significantly younger, less well educated, had fewer children, and had less prestigious SES; the multivariate combination was significantly different as a function of marital status. In one parent families, home characteristics account for 38% of the variation in PPVT-R scores while adding day care quality accounts for an additional 19%. In two parent families, home background characteristics accounted for 33% of PPVT-R score variation and adding day care quality only accounted for 4% more.	Number of minors in the home was skewed and was therefore eliminated from the multiple regressions. Difficult to interpret correlation (not always causal findings). Study conducted in Canada and may not be applicable to US centers.
35. Tran & Weinraub. (2006). Child care effects in context: Quality, stability, and multiplicity in nonmaternal child care arrangements during the first 15 months of life. <i>Developmental Psychology, (42)</i> 3, 566-582.	Two sets of analyses were performed to address the study questions. The first set of analyses describes the prevalence of changes in arrangements and multiple concurrent arrangements over the first 15 months of life and the type of arrangements utilized. The second set of analyses addresses five main questions: (1) Do the effects of quality, stability, and multiplicity predict attachment security, cognitive development, language comprehension, and language production at 15 months?; (2) Do different types of arrangement changes and multiple child care differentially affect children's development?; (3) Does high quality and/or increasing quality of care act as a protective factor against unstable care and multiple arrangement usage?; (4) Does the combination of low quality or decreasing or constant quality of care and unstable care or multiple arrangement usage function to increase the risk of poorer child outcomes?; and (5) what are the interactive effects of maternal sensitivity in combination with child care quality, stability, and multiplicity?" (p. 572)	Descriptive statistics for stability and multiplicity. Logistic regression used in prediction of attachment security from quality, stability and multiplicity. OLS regression used in prediction of cognitive development (Bayley), language production and language comprehension (from CDI). Hierarchical approach used in which main effects and interactions were tested over and above the main effects of the covariates. Main effects were quality at 6 months, quality at 15 months, average quality, quality slope, stability, multiplicity, and stability/multiplicity variants. Interaction terms were stability/multiplicity by each of the four quality predictors; for attachment security: maternal sensitivity X quality, stability, multiplicity	Two sets of covariates: selection covariates, intended to control for selection effects for child care quality, stability and multiplicity, and family and child variables. Selection variables: income to needs, HOME, and maternal sensitivity. Family and child variables: child gender, temperament, maternal education, and maternal separation anxiety.	Descriptive findings re stability and multiplicity: 61% of families did not change primary child care arrangement at any of four time points (6, 9, 12 and 15 months). 39% made at least one change between consecutive time points. Regarding changes in location of care: there were 53 changes from within to out of home care and 58 changes were from out of home to out of home. Regarding changes in who was caring for the child, there were 35 within family changes, 49 family to nonfamily changes, and 59 nonfamily to nonfamily changes. Regarding multiplicity: 54% of infants used only one arrangement per month during period from 6 to 15 months; 27% used multiple arrangements for 1-2 months, and remainder used multiple arrangements for 3-4 months. Effects of quality, stability and multiplicity. (1) Security of attachment: None of the main effects of quality, stability and multiplicity or interaction terms predicted security of attachment. (2) Language comprehension: Quality at 15 months and average quality were significant predictors of language comprehension. Two of the multiplicity measures also predicted language comprehension: family multiple care and mix of family and nonrelative multiple care (3) Bayley: Quality slope was a significant predictor of cognitive performance. Interactions: "When quality of care was low or moderate, there was a negative relationship between multiplicity and language performance. That is, more multiple arrangements were associated with lower comprehension scores on the CDI in child care situations of low or moderate quality." (p. 574). However when care was of high quality, use of multiple arrangements was associated with higher language comprehension. Similar pattern seen for language production.	
36. Vandell, D.L., Belsky, J., Burchinal, M., Steinberg, L., Vandergrift, N. & NICHD Early Child Care Research Network. (forthcoming). Do effects of early child care extend to age 15 years? Results from the NICHD Study of Early Child Care and Youth Development: Age 15.	1.) Do early child care quality, type and quantity affect adolescent functioning outcomes at age 15? 2.) Do cognitive and social functioning at school entry mediate the effects of child care on adolescent outcomes at age 15? 3.) Do child gender and family risk levels moderate the association between child care and adolescent functioning?	The study uses Structural Equation Modeling (SEM) with full information maximum likelihood (FIML) to test key hypotheses. FIML allows the inclusion of the entire sample (n=1364 in the analyses to help control for problems associated with missing data)	Early childhood covariates include: maternal education, child gender, race and ethnicity, proportion of preschool years with mother reporting husband/partner present; income to needs ratio, maternal Peabody Picture Vocabulary Test-Revised (Dunn & Dunn, 1981) when child was age 3, maternal psychological adjustment when child was aged 6 months, maternal depressive symptoms, and early parenting quality. Middle childhood covariates include: proportion of middle childhood with husband/partner present; income-to-needs ratio, maternal depressive symptoms, parenting quality, mean middle childhood classroom quality score. Adolescent family covariates collected when children were age 15 include: presence of a husband or partner, income-to-needs ratio, maternal depressive symptoms, and observed parenting quality composite.	The study finds that child care quality and child care quantity are related to adolescent functioning at age 15, with similar effect sizes to those found at younger ages. Specifically, higher quality care was found to predict higher cognitive-achievement scores at age 15 and more hours of nonrelative care was found to predict increased risk-taking and impulsivity at age 15. These relationships were partially (and modestly) mediated by effects of early childcare on externalizing behaviors at younger ages. The study uses multi-group SEM analyses and Likelihood-Ratio tests to see whether familial risk level and gender moderate the effects of child care experiences on youth outcomes and finds no evidence supporting the "low resources" hypothesis or specific gender associations. Child care type, including exposure to center care, was not found to be related to improved cognitive-achievement outcomes or behavioral outcomes for adolescents.	Comparisons of the age 15 sample participants and nonparticipants found that: nonparticipants were: "more likely to be male (56% vs. 50%) and to have lower scores at 4 and 1/2 years on a test of math skills (97.8 vs. 102.5); and their mothers were less educated (13.4 years vs. 14.3 years) and provided lower quality parenting (-.25 standardized parenting score vs. -.02 standardized parenting score)." (page 9)

All.d	Overall Analytic Approach and Findings				
Publication Information	Study Questions	Analytic Approach	Covariates	Overall Findings	Comments/Methodological Issues
Specifications for Entering information in Table	Summarize study questions as presented by authors	Describe data analyses including type of analysis (HLM, log-linear, regression analysis, etc.)	Note whether covariates included in analyses are demographic variables or go beyond demographic variables to include measures such as parental psychological well-being; parenting. Not whether variables are covariates, interaction variables, or variables for simultaneous regressions analysis.	Provide brief summary of overall study findings	
37. Vernon-Feagans, L., Emanuel, D. C., & Blood, I. (1997). The effect of otitis media and quality daycare on children's language development. <i>Journal of Applied Developmental Psychology, 18</i> , 395-409.	Does quality of child care moderate the effects of otitis media (whether chronic) on children's language development? Hypothesis that children with chronic OM who attended low quality care would have lowest language scores.	Two (chronic vs. nonchronic OM) by two (low vs. high quality) analysis of variance conducted for each outcome (expressive language, receptive language, hearing status)	Not reported	Children with chronic otitis media in low quality centers had poorer expressive language skills than children with nonchronic OM. Re hearing, the chronic otitis media group had a mild hearing loss.	
38. Volling, B. L. & Feagans, L. V. (1995). Infant day care and children's social competence. <i>Infant Behavior and Development, 18</i> , 177-188.	Can the limitations of earlier research be addressed by examining the individual differences in preschoolers' social competence? Do individual differences in family social status, family environment, child care experience, quality of care, and toddler temperament account for individual differences in preschoolers' social competencies with peers and caregivers? How do day care experience and quality predict social behavior? Does child care quality have a moderating effect in predicting the social outcomes for temperamentally vulnerable children? Does day care experience continue to predict children's social behavior after controlling for day care quality?	Several multiple-regression models to test independent contributions of day care experience and day care quality in predicting social competence. Multiple regression models to examine the moderating effect of child care quality in predicting social competence temperamentally vulnerable children.	Family social status; day care experience (age of entry into care, number of hours in care); child age; day care quality.	Temperamentally vulnerable (socially fearful) children had more nonsocial play and have less positive interactions with peers in low-quality care, but had less nonsocial play and more positive peer interaction in high-quality care (enrollment in high quality care may protect temperamentally vulnerable children from negative social outcomes: quality is a moderator of interactions for socially vulnerable children). More socially fearful children had more negative peer interactions. Older children were more likely to have in more positive peer interactions and less positive caregiver interactions. Children from higher income homes interacted more positively with caregivers and children of more educated mothers had less nonsocial activity. More nonsocial play was seen with larger group sizes, fewer caregivers, and larger child-adult ratios. Children had more positive peer interaction if their mothers reported more family conflict. Children had less friendly peer interactions but more positive caregiver interactions if the family stressed independence. Day care quality was an independent predictor of social behavior, while day care experience was not. Child-adult ratio predicted nonsocial play and positive interactions with adults (even controlling for child age, age of entry, hours in care). Mothers' reports of social fearfulness interacted with quality of care in predicting positive peer play. Mothers' reports of social fearfulness interacted with quality to predict nonsocial play. Social fearfulness and quality did not interact to predict negative or aggressive peer interactions. For children in a range of social fearfulness, there is no difference in behavioral outcomes from care quality, but differences emerge out of this central range.	Child's temperament was reported by the mother. Sample was very homogeneous/not representative. Sample was very small. Care quality not measured in terms of process.
39. Votruba-Drzal, E., Coley, R. L., & Chase-Lansdale, P. L. (2004). Child care and low-income children's development: Direct and moderated effects. <i>Child Development, 71</i> (1), 296-312.	(1) To describe the type, extent, and quality of child care used by low income families in urban settings in multiple regions of the country; (2) To examine in a low income sample of young children whether type, extent and/or quality are related to children's change in development over time; (3) To examine whether the associations between child care quality and children's development vary according to characteristics of the child (e.g., gender), characteristics of the family (e.g., cognitive stimulation in the home), and/or characteristics of care (e.g., hours per week in child care).	Ordinary least squares regressions controlling for Wave 1 measures of children's development used to examine relationship between child care characteristics and children's cognitive and socioemotional outcomes. Child care characteristics considered were quality, hours, and whether care was in a center. Regressions for each child outcome also included child characteristics (age, gender, race/ethnicity), mother characteristics (age, education, employment), and household characteristics (single mother, care giving burden, income to needs ratio, cognitive stimulation in the home). In further analyses, child gender and the quality of the home learning environment were considered as moderators.	Ordinary least square regressions included child characteristics, maternal characteristics and household characteristics in the model.	Cognitive outcomes: The only child care variable significantly related to the child cognitive outcomes was hours per week in care, with a modest increase in children's math skills with more hours per week in care: "Specifically, a standard deviation increase in the hours children spent in care each week was related to nearly one fifth of a standard deviation increase in children's quantitative skills over time" (303). The quality and type of care variables did not predict cognitive outcomes. Social outcomes: Child care variables were more consistently related to children's social and emotional outcomes. "Specifically, a standard deviation increase in the child care quality composite was linked to just less than one fifth of a standard deviation reduction in internalizing behavior problems and one fifth of a standard deviation reduction externalizing behavior problems in the borderline or clinical range. Child care quality was also associated with increases in children's positive behaviors, such that a standard deviation increase in the child care quality was related to just more than one tenth of a standard deviation increase in positive behaviors" (303). Number of hours per week in care reduced the likelihood that the total behavior problems score placed a child in the borderline or clinical range; however the magnitude of this association was relatively small. In these analyses, type of care controlling for quality did not predict cognitive or social and emotional outcomes. Quality of child care interacted with home environment for specific variables: High quality child care was particularly beneficial for letter-word identification when children came from homes with higher levels of cognitive stimulation. Re serious externalizing behavior problems: high quality child care is protective for all children. However low quality care is particularly detrimental on this outcome when combined with low levels of cognitive stimulation in the home. Interactions between child care quality and type: were also examined and found to be nonsignificant Re gender (p. 308): "low-quality child care appeared particularly detrimental for boys' serious internalizing behavior problems, whereas high-quality child care was more protective for boys than girls when it came to serious externalizing behavior problems."	Note that some of the children in the sample attended the same child care settings. Also note that more than half of the sample was in home based child care settings.

Analyses and Findings Focusing Specifically on Quality Thresholds, Dosage and Features									
Publication Information	Do Analyses Consider Thresholds of Quality in Relation to Child Outcomes?	Findings Relating Quality Thresholds to Child Outcome	Do Analyses Consider Dosage of Exposure in Relation to Child Outcomes?	Findings Relating Dosage of Exposure and Child Outcomes	Do Analyses Consider Relationship of Specific Quality Features and Child Outcomes?	Findings Relating Specific Quality Features to Child Outcomes	Are Quality Thresholds, Dosage and/or Features Considered Jointly?	Findings Involving Joint Consideration of Quality Thresholds, Dosage and/or Features	Methodological Issues/Comments Pertaining to Threshold, Dosage, or Quality Features
All e									
Specifications for Entering Information in Table	Thresholds of quality involve identifying a range considered high quality (or low, medium quality). Note ranges delineated and how determined. Describe how study examined child outcomes in relation to threshold.	Include summary statement if available	Dosage involves child's extent of current or historical participation or extent of exposure to particular content. Note if analyses re dosage are for participation overall or for participation at specific levels of quality (may involve participation in a program with particular quality standards).	Include summary statement if available	For our purposes, specific quality features will involve any measures of quality that go beyond summary or total scores, including teacher/caregiver qualifications, group size/ratio, space and materials, interactions.	Make note of alignment of specific quality features and specific child outcomes. For example are measures of quality of language stimulation related to child outcomes in the area of language development and/or other outcomes.	Note both analyses in which one set of variables is controlled to more fully isolate another, and analyses in which the intent is to examine outcomes for children exposed simultaneously to a specific level and amount of quality etc.	Include summary statement if available	
1. Blau, D. M. (1999). The Effect of child care characteristics on child development. <i>The Journal of Human Resources</i> , 34(4), 786-822.	Not examined.	Not examined.	Data includes information on child care arrangements at three points in early childhood (0,1,2 years).	No specific dosages examined. Dosage findings are "small, but precise." most other findings are statistically insignificant. Time-lagged results maintain small and inconsistent findings of quality on child outcomes.	Quality is defined as developmentally appropriate child-provider interactions, environment, curriculum, and materials. Teacher training is also considered as a quality feature.	Children's interactions with teachers and peers in child care settings are important to mental and behavioral development. Training is associated with fewer behavioral problems, better PIAT-Math, and PPVT scores. Smaller group size during preschool have positive effects on child outcomes. Child-staff ratios and specialized training have "inconsistent effects" (814). Child care coefficients are jointly associated with three of the four outcomes, but individually statistically insignificant.	Not examined.	Not examined.	The effects of only a few quality markers are examined (group size, child-adult ratio, and provider training); does not address other possible attributes of quality. Information on the costs and benefits of changing inputs is needed. Production function includes quantity and quality of child care inputs.
2. Broberg, A. G., Wesels, H., Lamb, M. E., & Hawang, C. P. (1997). Effects of day care on the development of cognitive abilities in 8-year-olds: A longitudinal study. <i>Developmental Psychology</i> , 33(1), 62-69.	Not examined.	N/A.	Dosage is defined as age and timing of child care. Children's child care attendance and type is assessed at 16, 28, and 40 months.	Children in public center-based care at 16 and 28 months had the best verbal outcomes at age 8 (103 months). Children in center care in early childhood had the best mathematical outcomes at age 8; mathematical scores among children who attended center-based care at 16 and 28 months were higher than those of children in parental care and mathematical scores of children who had been in center-based care at 40 months were higher than those of children who had been in both parental and family day care.	Not examined.	N/A.	Not examined.	N/A.	Children in center-based care performed better on verbal and mathematical outcomes at age 8 than did children in home or family day care, regardless of dosage.
3. Burchinal, M. R. & Cryer, D. (2003). Diversity, child care quality, and developmental outcomes. <i>Early Childhood Research Quarterly</i> , 18, 401-426.	CCQ: Not examined. SECC: a 1 SD increase in quality rating	CCQ: Not examined. SECC: A one-standard deviation increase in quality was associated with an increase of 2.03 point on the language, 4.85 on the school readiness, and 0.87pro-social scales and a decrease of 1.94 points on the behavior problems scale	Not examined.	Not examined.	Not examined.	Not examined.	Not examined.	Not examined.	Dosage effects were not examined, but children must be enrolled in the program for the following year in order to be eligible.
4. Burchinal, M. et al. (2000). Children's social and cognitive development and child care quality: Testing for differential associations related to poverty, gender, or ethnicity. <i>Applied Developmental Science</i> , 4(3), 149-165.	Ranges on ECERS: Poor quality: 1.0-2.9 Medium quality: 3.0-4.9 High quality: 5.0-7.0	Children attending medium quality centers were less likely to have behavior problem scores in the problematic range than children in poor or high quality centers. Children in low quality care had the lowest mean verbal scores followed by those in medium quality care and then those in higher quality care. Significant interaction with ethnicity indicated that although quality of child care was related to language skills for all children, it was more strongly related for children from ethnic backgrounds. This was particularly true of children experiencing low-quality care when compared to medium or high quality. Among children of color, the language scores for children experiencing low quality care were substantially lower than for children experiencing medium or high quality care. On letter-word identification children in poor quality care had significantly lower reading scores than did children in medium or high quality care. On math (problem solving), children in low quality care had significantly lower scores than those in high quality care. The authors point to differences especially between low quality care and the other levels. "Children experiencing poor-quality child care on average displayed more behavior problems, fewer language skills, and lower levels of academic skills than did children in medium- or high-quality care" (p. 160). "Children in poor-quality care scored almost a full standard deviation below children in high-quality care on a standardized language measures and almost a third of a standard deviation lower on standardized reading and math tests" (p. 163).	Not examined.	Not examined.	Not examined.	Not examined.	Not examined.	Not examined.	Quality was measured only on global scale (ECERS). Dosage effects were not examined, but authors mention that early-intervention programs (full-time care from infancy) produce better cognitive and language outcomes than high-quality community child care (public preschool: less than 1 year, HS: 9 months a year for 1-2 years).

Analyses and Findings Focusing Specifically on Quality Thresholds, Dosage and Features									
Publication Information	Do Analyses Consider Thresholds of Quality in Relation to Child Outcomes?	Findings Relating Quality Thresholds to Child Outcome	Do Analyses Consider Dosage of Exposure in Relation to Child Outcomes?	Findings Relating Dosage of Exposure and Child Outcomes	Do Analyses Consider Relationship of Specific Quality Features and Child Outcomes?	Findings Relating Specific Quality Features to Child Outcomes	Are Quality Thresholds, Dosage and/or Features Considered Jointly?	Findings Involving Joint Consideration of Quality Thresholds, Dosage and/or Features	Methodological Issues/Comments Pertaining to Threshold, Dosage, or Quality Features
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Specifications for Entering Information in Table	Thresholds of quality involve identifying a range considered high quality (or low, medium quality). Note ranges delineated and how determined. Describe how study examined child outcomes in relation to threshold.	Include summary statement if available	Dosage involves child's extent of current or historical participation or extent of exposure to particular content. Note if analyses re dosage are for participation overall or for participation at specific levels of quality (may involve participation in a program with particular quality standards).	Include summary statement if available	For our purposes, specific quality features will involve any measures of quality that go beyond summary or total scores, including teacher/caregiver qualifications, group size/ratio, space and materials, interactions.	Make note of alignment of specific quality features and specific child outcomes. For example are measures of quality of language stimulation related to child outcomes in the area of language development and/or other outcomes.	Note both analyses in which one set of variables is controlled to more fully isolate another, and analyses in which the intent is to examine outcomes for children exposed simultaneously to a specific level and amount of quality etc.	Include summary statement if available	
5. Burchinal, M. R., Roberts, J. E., Nabors, L. A., & Bryant, D. M. (1996). Quality of center child care and infant cognitive and language development. <i>Child Development</i> , 67, 606-620.	The article indicates some thresholds on the ITERS (listed below), but the article does not use these thresholds in the analyses. 1=adequate 3=minimal 5=good 7=excellent	Higher quality on the ITERS was related to better cognitive development, receptive language and communication skills. Infants in poorer quality centers were more likely to show poorer cognitive development	Not examined.	Not examined.	Yes	Infants in classrooms with better child-adult ratios showed more advanced receptive language and communication skill. Infants in classrooms with better educated teachers showed higher levels of expressive language.	Not examined.	Not examined.	Nothing specific, see methodology box on previous page.
6. Burchinal, M., Vandergrift, N., Planta, R., & Mashburn, A. (2010). Threshold analysis of association between child care quality and child outcomes for low-income children in pre-kindergarten programs. <i>Early Childhood Research Quarterly</i> .	Yes, thresholds of quality are identified. Analyses examined whether quality predicted to child outcomes in the ranges defined as higher and lower quality, and whether the slope of the association differed in the two ranges. Different ranges of quality were defined for Emotional Support and Instructional Quality. It is important to note that this is an earlier version of the CLASS and that the components of Emotional Support and Instructional Quality are different in the newer version. CLASS Emotional Support dimension: Low quality is a score of 1-4.99 (53% of classrooms fell in this range) High quality is a score of 5-7 (47% of classrooms fell in this range) CLASS Instructional Quality dimension: Low quality is a score of 1-3.24 (87% of classrooms) High quality is a score of 3.25-7 (13% of classrooms)	Findings point to a linear relationship across the full range of quality and child outcomes for some child outcomes, but between quality and child outcomes only in the high range (or defined as higher and lower quality, and whether the slope of the association differed in the two ranges. Different ranges of quality were defined for Emotional Support and Instructional Quality. It is important to note that this is an earlier version of the CLASS and that the components of Emotional Support and Instructional Quality are different in the newer version. + High quality on emotional support was defined as 5-7 on the CLASS Emotional Support summary score (note that this is an earlier version of the CLASS than the revised version currently used, and that different dimensions are included in this summary). Emotional support predicted child outcomes only in the high quality range. The relationship between quality and child outcomes was significantly stronger in the high quality range than in the low to medium quality range in terms of the Emotional Support summary. + High quality instruction was defined as a score of 3.25 or higher on CLASS Instructional Quality summary. Instructional Quality predicted reading and math scores only in the higher range of quality. However, Instructional Quality was associated with expressive language across the full quality range. The magnitude of the association between quality and child outcomes was significantly stronger for reading, math and expressive language in the higher quality than lower quality range for Instructional Quality. This study did not find levels of quality above which gains in child outcomes were no longer observed. But it did find minimal thresholds of quality at which improvements in child outcomes started to be detected. These levels of quality differed for Emotional Support and Instructional Quality. Gains on reading and math outcomes only occurred above Instructional Quality of 3.25. Gains on social competence and decreases in behavior problems occurred only above 5 in Emotional Support. For one outcome, however, improvements occurred across the full quality range. This was the case for Expressive Language. Black children were more likely than white children to be in low-quality classrooms based on Emotional Support and Instructional Quality ratings	Not examined.	Not examined.	Yes	This study did not find levels of quality above which gains in child outcomes were no longer observed. But it did find minimal thresholds of quality at which improvements in child outcomes started to be detected. These levels of quality differed for Emotional Support and Instructional Quality. Gains on reading and math outcomes only occurred above Instructional Quality of 3.25. Gains on social competence and decreases in behavior problems occurred only above 5 in Emotional Support. For one outcome, however, improvements occurred across the full quality range. This was the case for Expressive Language. See thresholds column for more detailed summary of findings.	Not examined.	Not examined.	None.
7. Dearing, E., McCartney, K., & Taylor, B. A. (2009). Does higher quality early child care promote low-income children's math and reading achievement in middle childhood? <i>Child Development</i> , 80(5), 1329-1349.	In this study, quality of care was observed with items from the ORCE when each child was 6, 15, 24, 36, and 54 months of age. At each age, the item scores were averaged and a composite of the quality scores was created and the median determined. High quality: above the median on the quality score composite generated with all of the quality measures done at that time point. (A score of 3.0 or higher on the ORCE is usually interpreted as high quality; children determined as above the median with this approach were in care that had scores of 3.0 or higher on nearly all individual ORCE items).	Children in three or more spells of high-quality care had no association between income-to-needs and outcomes on broad math, broad reading, and letter-word identification outcomes. Even one spell of higher-quality care had statistically significant impacts on the math scores of low-income children. Each additional episode of high-quality care was associated with a 5% of a standard deviation increase in math achievement for children at 200% of the poverty level and each episode in high quality care was associated with a 7% of a standard deviation increase in applied problem scores for children at 194% of the poverty level and a 6% of a standard deviation increase in letter-word identification for children at 185% of the poverty level. The region of significance covered values on income-to-needs of 3.08 and below for math scores (at 308% of the poverty level and below, low-income children saw a benefit of one episode of high-quality care on math achievement). There was no corresponding region of significance for reading scores although income-to-needs was still less associated with reading outcomes for low-income children in high quality care.	Number of spells in high or low quality care is considered. A dummy variable representing higher quality care (above the median of the quality score composite) was created for each time point when quality was measured. Then the dummy variables were summed to determine the number of spells during which a child was in high quality care.	Spells in high-quality care moderated the association between sociocontextual risk factors and academic outcomes in early childhood.	Not examined.	N/A	Dosage of high-quality care is considered.	Children in three or more spells of high-quality care had no association between income-to-needs and outcomes on broad math, broad reading, and letter-word identification outcomes. Even one spell of higher-quality care had statistically significant impacts on the math scores of low-income children. Each additional episode of high-quality care was associated with a 5% of a standard deviation increase in math achievement for children at 200% of the poverty level and each episode in high-quality care was associated with a 7% of a standard deviation increase in applied problem scores for children at 194% of the poverty level and a 6% of a standard deviation increase in letter-word identification for children at 185% of the poverty level.	Study specifically defines dosage amounts and creates thresholds using the median of the scores collected as the threshold.

Analyses and Findings Focusing Specifically on Quality Thresholds, Dosage and Features									
Publication Information	Do Analyses Consider Thresholds of Quality in Relation to Child Outcomes?	Findings Relating Quality Thresholds to Child Outcome	Do Analyses Consider Dosage of Exposure in Relation to Child Outcomes?	Findings Relating Dosage of Exposure and Child Outcomes	Do Analyses Consider Relationship of Specific Quality Features and Child Outcomes?	Findings Relating Specific Quality Features to Child Outcomes	Are Quality Thresholds, Dosage and/or Features Considered Jointly?	Findings Involving Joint Consideration of Quality Thresholds, Dosage and/or Features	Methodological Issues/Comments Pertaining to Threshold, Dosage, or Quality Features
Specifications for Entering Information in Table	Thresholds of quality involve identifying a range considered high quality (or low, medium quality). Note ranges delineated and how determined. Describe how study examined child outcomes in relation to threshold.	Include summary statement if available	Dosage involves child's extent of current or historical participation or extent of exposure to particular content. Note if analyses re dosage are for participation overall or for participation at specific levels of quality (may involve participation in a program with particular quality standards).	Include summary statement if available	For our purposes, specific quality features will involve any measures of quality that go beyond summary or total scores, including teacher/caregiver qualifications, group size/ratio, space and materials, interactions.	Make note of alignment of specific quality features and specific child outcomes. For example, are measures of quality of language stimulation related to child outcomes in the area of language development and/or other outcomes.	Note both analyses in which one set of variables is controlled to more fully isolate another, and analyses in which the intent is to examine outcomes for children exposed simultaneously to a specific level and amount of quality etc.	Include summary statement if available	
8. Deater-Deckard, K., Pinkerton, R., & Scarr, S. (1996). Child care quality and children's behavioral adjustment: A four-year longitudinal study. <i>Journal of Child Psychology and Psychiatry</i> , 37(8), 937-948.	Not examined.	N/A	Not examined.	N/A	Child-adult ratios; caregiver education and training.	Children with caregivers with more early childhood education training had lower conduct problems. Mother's ratings of social withdrawal was associated with child-adult ratios in care.	Not examined.	N/A	Quality was measured and used in analysis but no thresholds were defined. All care was "full time," but full time was not defined.
9. Early et al., (2007). Teachers' education, classroom quality, and young children's academic skills: results from seven studies of preschool programs. <i>Child Development</i> , 78(2), 558-580.	Having a bachelor's degree vs. not could be considered a threshold.	Detailed summary is provided in "Features of quality" column. No systematic relationship was found between having a bachelor's degree and children's outcomes across the seven studies.	Not reported	Not reported	Child outcomes are examined in relation to teacher's highest degree, highest education among those with a degree in early childhood or child development, and early childhood or child development major among teachers with a bachelor's degree.	<u>Dosage:</u> None of the seven studies found an association between highest degree and receptive language, controlling for previous skills and other demographic variables and only a few reported associations between degree and prereading or math. In GECS and NCEdL, prereading scores were significantly albeit modestly higher when the teacher had a bachelor's degree. GECS also found an association between the particular degree and prereading. NCEdL and PCRIR found an overall association between education level and prereading scores. Five of the seven studies found no association between highest degree and whether the teacher had a bachelor's degree and early math skills. NCEdL found that children whose teachers had a bachelor's degree had slightly higher math scores. However in NCEdL, children whose teachers did not have a bachelor's degree scored higher on early math skills. <u>Highest education among those with an EC/CD major:</u> Of five studies that could address this, four found no associations with child outcomes. In NCEdL, highest degree among teachers with a major in EC/CD was associated with higher scores on prereading. <u>EC/CD major, among teachers with a bachelor's:</u> Six studies could examine this. Evidence of an association with child outcomes was found in only one and for only one outcome. In FACES, there was a significant association between major and children's PPVT-R scores.	Not reported	Not reported	
10. Gallagher, P. A., & Lambert, R. G. (2006). Classroom quality, concentration of children with special needs, and child outcomes in Head Start. <i>Exceptional Children</i> , 73(1), 31-52.	Confidence interval: Low quality classrooms= below confidence interval High quality classrooms=above confidence interval (Note: Moderate quality classrooms (those falling within the 95% confidence interval) were excluded from the study design.)	Teachers in higher quality classrooms were more likely to rate students as having more disruptive behaviors than teachers in low quality classrooms. Children in higher quality classrooms scored higher on Print Concepts and Story Retelling. "When the interaction of classroom quality and the percentage of children with special needs was examined, children in high-quality classrooms and no children with special needs scored higher on all teacher rating variables, except for disruptive behaviors, on which they scored significantly lower.... Children in high-quality classrooms that had more than 20% children with special needs were reported by their parents as having more behavior problems."	Not examined.	Not examined.	The study examines the relationship between class size, child-to-adult ratio and child outcomes.	"No associations were found between any of the outcome variables and class size, child-to-adult ratio."	The study examined classroom size and child staff ratio in models that compared differences in average scores between low and high quality classrooms.	The study found no associations between classroom size and child-staff ratio in models that were comparing for differences in average scores between low and high quality classrooms.	
11. Herrera, M. O. et al. (2005). Learning contexts for young children in Chile: Process quality assessment in preschool centers. <i>International Journal of Early Years Education</i> , 13(1), 13-27.	Ranges on ITERS, ECERS, and SACERS: Low quality= less than 3 Medium quality=3-4.9 High quality= 5 or higher	Preschool quality explained 5% of the variance in child outcomes in preschool and 8% of the variance in child outcomes when the children were in second grade. No specific comparisons across groups were described. 68% of ITERS scores, 12% of ECERS scores, and 75% of SACERS scores were low quality. 8% of ITERS scores, 13% of ECERS scores, and 1.2% of SACERS scores were high quality.	Not examined.	Not examined.	Individual item scores are considered (see Table 4 for details): Lowest item scores are around learning opportunities, creative activities, and having the option to choose play. Highest item scores are around basic needs of care including greeting/departing routines, having a place to eat and having furniture to store possessions.	The study found that private centers and schools have better quality than private centers and schools.	Not examined.	Not examined.	Outcomes of quality features listed, but not connected to child outcomes. Dosage not considered.

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12. Hill, J. L., Brooks-Gunn, J., & Waldfogel, J. (2003). Sustained effects of high participation in an early intervention for low-birth-weight premature infants. <i>Developmental Psychology</i> , 39(4), 730-744.	Not examined.	Not examined.	Yes. The focus of this study was dosage of participation in child care. Dosage thresholds were created based on the number of days children attended center-based child care when child care was available during 2 years. Two dosage levels were created and examined: more than 350 days attended (43% of sample) and more than 400 days attended (18% of sample). (500 was the maximum number of days). 87 children were categorized as low-dosage (between 100 and 300 days). Children with less than 100 days attendance were dropped to account for possible outside factors like moving out of the area. Attendance in the 300-350 day range was used for comparison only and was not independently evaluated. All participants in the treatment group were offered 50 weeks per year of full-day care.	At age 8, having attended over 400 days of the high-quality center care program was associated with a 7 to 10 point increase on the Wechsler Intelligence Scale for Children Full and Verbal scales; heavier low-birth weight children experienced an increase of about 14 points from over 400 days of attendance while lighter low-birth weight children experienced an increase of about 8 points for the same amount of attendance. These patterns of outcomes by dosage (with heavier low-birth weight children experiencing greater effect sizes than lighter low-birth weight children) were consistent across most measurements. At age 8 there were also positive effects for both heavier and lighter low-birth-weight babies who attended over 350 days of center care, but the results were not as large as those associated with over 400 days of attendance. Treatment effects for the low-dosage group were lower than the treatment effects for the high-dosage groups. If the low-dosage group participants had switched to attending at least 300 days, their outcomes would have been higher on 10 measures. All effects for both groups and both attendance dosages were "substantially higher than corresponding ITT effects" (730).	Not examined.	Not examined.	Not examined.	Not examined.	Treatment and control group means were higher for heavier LBW children on all measures in the 350-day dosage analysis, but the 400-day dosage heavier LBW children had lower treatment group means on all but one measure than the lighter LBW children and all the comparison group means were lower at this dosage. The authors believe this finding suggests that "the LBW children who attended CDCG for more than 400 days were a particularly select group" (740). Child care is described as uniformly high-quality, but no direct measures of quality are reported.
13. Howes, C. (1997). Children's experiences in center-based child care as a function of teacher background and adult:child ratio. <i>Merrill-Palmer Quarterly</i> , 43(3), 404-425.	Not examined.	Not examined.	Not examined.	Not examined.	Yes, this article specifically focuses on ratio and teacher background in relation to child outcomes.	CCQ: "Children in classrooms with teachers who had at least an AA degree in ECE had higher PPVT-R scores than children in classrooms with teachers who only had high school backgrounds. Children in classrooms in compliance with ratios recommended by professional organizations had higher pre-reading scores than children in classrooms out of compliance." (p.415) "Q6: "Children with teachers with at least a BA degree in ECE were observed to have higher percentages of responsive involvement scores than all other teachers. Children with teachers with CDA training received the highest frequency of positive initiations than did children in other classrooms. Children in classrooms with teachers who had at least a BA degree in ECE or with teachers who had CDA training had higher frequencies of language play and positive management than did children in classrooms with teachers with high school backgrounds." (p.421) "Children in classrooms with teachers who had at least a BA in ECE engaged in the most complex play with objects. Children in classrooms with teachers who had at least a BA in ECE or CDA training engaged in the most complex play with peers." (p.422)	Not examined	Not examined	Not examined.
14. Howes, C., Burchinal, M., Pianta, R., Bryan, D., Early, D., Clifford, R., & Barbarin, O. (2008). Ready to learn? Children's pre-academic achievement in pre-kindergarten programs. <i>Early Childhood Research Quarterly</i> , 23, 27-50.	Not examined.	Not examined.	The study examines whether the early childhood program was a full-day pre-K (measured as offering services at least 20 hours per week), as opposed to part-day.	The study found that attendance in full-day length pre-K (defined as 20 or more hours per week) was not found to be associated with improved child outcomes.	The study examines the relationship between structural characteristics of quality, including child:adult ratio, teacher education in years, proportion of teachers with a B.A. The study also examined exposure to oral language activities, teaching and interactions, instructional climate and emotional climate in relation to child outcomes.	More exposure to oral language activities was found to be modestly related to larger gains in language and literacy. HLM analyses using the fall score as a covariate with the spring score as the dependent variable found additional associations that reached statistical significance (not found in the HLM gain score analyses): ECERS-R Teaching and Interactions Scale was associated with more expressive and receptive language; CLASS Instructional Climate Scale was associated with identifying letters, and math skills; CLASS Emotional Climate Scale was associated with math skills and behavior problems.	In some of the models, full-day length was examined jointly with the quality composite; specific aspects of quality, and/or structural characteristics of quality.	The study found that attendance in full-day length pre-K (defined as 20 or more hours per week) was not found to be associated with improved child outcomes, even after controlling for different aspects of program quality.	The variable for "full-day program" is based on the program schedule as opposed to the amount of time spent in the program by children. There are also limitations in the "Snapshot" based "proportion of exposure to a certain type/subject of learning activity" measure.
15. Howes, C., Phillips, D.A., Whitebook, M. (1992). Thresholds of quality: Implications for the social development of children in center-based care. <i>Child Development</i> , 63, 449-460.	Yes, thresholds were developed using the appropriate caregiving and developmentally appropriate activity categories that were derived from the ECERS and ITERS. (p.454) Inadequate= 1-2.9 Barely Adequate= 3-3.9 Good= 4-4.9 Very Good= 5 and above	"Children classified as securely attached were more likely than children classified as avoidant or ambivalent to be enrolled in classrooms rated as good or very good in appropriate caregiving." (p.454) There was not a significant relationship between security and developmentally appropriate activities. "Children classified as both adult and peer oriented were more likely to be enrolled in classrooms rated higher in developmentally appropriate activities than children classified as solitary." (p.455) There was not a significant relationship between social orientation and appropriate caregiving.	Not examined.	Not examined.	Yes.	When 5 or more children were cared for in an infant classroom by 1 adult and 9 or more children in toddler and preschool classrooms, at least 50% of the children were rated as in settings inadequate in caregiving and activities. Low ratios led to a likelihood of good or very good caregiving and activities. Group size has a curvilinear relationship with developmentally appropriate activities in preschool. No association between group size and appropriate caregiving.	Not examined.	Not examined.	Not examined.

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16. Hubbs-Tait, A.M. Culp, Huey, R. Culp, Starost & Hare. (2002). Relation of Head Start attendance to children's cognitive and social outcomes: Moderation by family risk. <i>Early Childhood Research Quarterly</i> , 17, 539-558.	Not reported	Not reported	Introduction notes that Head Start and other large scale programs for children from low income families have had modest effects on school readiness. Hypotheses for why relationship might be modest include confound of family risk factors and attendance in Head Start, or moderation of effects according to family risk; moderation by neighborhood, community or school risk factors; and variable program quality. "We reasoned that the effectiveness of Head Start like that of other intervention programs would also be influenced by the degree of participation by program participants (Gomby, Culross, & Behrman, 1999; Olds et al., 1999; Wagner & Clayton, 1999). We operationalized degree of participation as child attendance" (p. 540). Dosage measured by teacher recording of daily attendance during interval from day program opened in fall through day of assessment on PPVT-R (days attended during this interval/total days open this interval).	Hierarchical regression considered the impact of cumulative risk and attendance on three child outcomes (PPVT-R, following verbal instructions, and rating of sociability). Main effect evaluated before interaction. Analyses controlled for mothers' PPVT-R scores. Low, medium and high risk groups identified using + and - 1 s.d. on risk measure to identify high and low risk groups. Significant moderation in analyses looking at child's PPVT-R. For high risk children, the greater the attendance the higher the PPVT-R score, whereas for low risk children, the relationship approached 0. For child sociability there was no evidence of moderation. No matter how low or high the risk level of the family, the more child attended Head Start, the higher the sociability rating. The only variable that predicted the child's following instructions was cumulative risk. The specific risk factors that moderated the relationship between risk and attendance re child's PPVT-R scores were intrusiveness, low cognitive stimulation, and to a lesser extent, low income. The only risk factors that predicted child following instructions was income. In sum, dosage operationalized as	Not reported	Not reported	Not reported	"...these results suggest, first, that future research investigations should keep records of attendance data to insure that all children enrolled in Head Start studies are in fact receiving equivalent interventions. Second these results suggest that policy makers interested in the effectiveness of Head Start should be aware that variations in attendance are related to children's outcomes. Without information on how frequently children actually attended, evaluations of Head Start effectiveness are incomplete." (p. 555)	
17. Kontos, S., Wilcox-Herzog, A. (1997). Influences on children's competence in early childhood classrooms. <i>Early Childhood Research Quarterly</i> , 12, 247-262.	Not examined. See note.	Not examined.	Two of the three programs were half-day, one was full-day	Not examined.	Teacher behavior/interactions and activity settings are considered, but not considered markers of quality.	The type of teacher interaction, specifically more teacher involvement rather than simply presence, along with more engagement in high yield activities and time spent in the presence of peers, predicted higher cognitive and social competence. High yield activities were those that required cognitive effort, concentration, and perseverance: "Thus, art, constructive play, and 'structured materials' are classified as high yield, manipulatives as moderate yield, and gross motor play and games (informal and with rules) as low yield" (252).	Not examined.	Not examined.	Methodology does not consider possible effects of certain variables it raises (dosage differences between centers were not explored, and center variability was low). Features and relative levels of features are discussed, but thresholds are not established. Dosage is mentioned but not used in analysis. Quality thresholds were not established, but the study examined the effects of more or less of
18. Lamdin, D. J. (1996). Evidence of student attendance as an independent variable in education production functions. <i>The Journal of Educational Research</i> , 89(3), 155-162.	Not examined.	Not examined.	The study examines the relationship between % attendance and standardized test performance at the school level.	The study found that school-level attendance is related to % students at the school level performing above the national median scores on the mathematics, reading and combined math and reading sections of the California Achievement Test (CAT).	The study examines teacher/pupil ratio in relation to CAT scores.	When examining the relationship between teacher-pupil ratio in relation to achievement, in selected models, the study found a marginal effect in the negative direction. This seemingly counterintuitive finding (that schools with more teachers per student is jointly related to lower school-level achievement test scores) has been figured in some other studies and could possibly be attributed to a policy effect, whereby more disadvantaged schools are strategically allotted additional resources, including human capital.	The study includes analyses in which student attendance and teacher/pupil ratio are entered jointly as independent variables with CAT scores as the dependent variables. The article does not discuss the rationale for entering these variables in the models jointly, but I believe they did this to more fully isolate the independent effects of each variable (attendance and the "school input variables").	The study found that even after controlling for student attendance, teacher-pupil ratio was found to be modestly related to lower achievement levels.	"The influence of attendance on student performance may or may not differ substantially by school or teacher." (p. 162) The study uses aggregated school-level measures of teacher-pupil ratio, student attendance and student performance. The model may be missing a number of variables that contribute to achievement test scores, such as innate motivation, teacher ability and parental involvement.
19. Loeb, S. et al. (2004). Child care in poor communities: Early learning effects of type, quality, and stability. <i>Child Development</i> , 75(1), 47-65.	Not examined.	Not examined.	Child care type and setting were established in each wave. Outcomes were compared for children in different types of care and children who changed types of care between waves.	Developmental effects and school readiness were strongest for children in center-based care in both waves in comparison to children in kith and kin care (even after controlling for age, ethnicity, and family variables). Center care in both waves increases Bracken total score by .6 SD, school readiness composite score by .4 SD, FACES book mechanics, comprehension, and book familiarity subscales by .3, .4, and .5 SD respectively. Children who moved into center care between waves as compared to children in kith and kin care had higher FACES scores (.4 to .5 SD) and higher Bracken scores.	Quality features examined: Home practices (reading, books, outings), provider CIS scores, provider education.	Higher CIS scores around provider sensitivity and responsiveness in center and home-based settings predicted FACES and CBCL outcomes (children in settings with higher CIS scores had better reading skills and fewer social problems). Children in settings with more educated providers had better Bracken total scores and school readiness composite scores. Center effects remained strong even with home variables controlled for.	Dosage (whether children were in center based care at waves 1 and/or 2) of quality features was examined, but they were not used to control for one another.	The study found that there is evidence that higher quality care (features) is more present in centers and children in centers over time (dosage) have better outcomes (see quality and dosage findings).	No specific thresholds are established. Research is needed on how provider education is expressed in quality that promotes children's cognitive development.
20. Mashburn, A. J., Pianta, R. C., Hamre, B. K., Downer, J. T., Barbarin, O. A., Bryant, D., Burchinal, M., Early, D. M., & Howes, C. (2008). Measures of classroom quality in prekindergarten and children's development of academic, language, and social skills. <i>Child Development</i> , 79(3), 732-749.	Thresholds of quality are defined for 9 structural variables. These are from NIEER's benchmarks for program quality for pre-k programs (Barnett et al, 2004 and 2005): 1. Lead teacher has BA 2. Lead teacher has training in ECE and CD 3. Assistant teacher has a CDA 4. Class size is less than or equal to 20 5. A comprehensive curriculum is used 6. Child to teacher ratio is 10:1 or better 7. At least 1 meal is served each day 8. Program offers vision, hearing, health/screening or referral services 9. At least 1 family support service is provided While the study describes ranges on the CLASS and ECERS in terms of quality ranges (e.g., CLASS: 1-2 = low, 3-5 = mid, 6-7 = high), these quality ranges are not used in analyses. Summary of results regarding quality thresholds is therefore limited to findings regarding the structural variables for which high quality is defined by NIEER. A contrast of findings for the structural variables and process quality variables is summarized under quality features.	None of the recommended NIEER minimum quality standards were found to be positively associated with language and academic skills; in contrast, two unexpected negative relationships were found, with children in program serving meals having lower PPVT scores and children in classrooms with 20 or fewer students scoring lower on letter naming. In addition, no associations were found between the nine-item index based on the NIEER quality standards and children's language and academic skills or development of social skills. Out of the 20 relationships examined, the study found only one positive association between a single NIEER recommended standard and children's development of social skills with teacher having a BA degree being positively associated with children's development of teacher-rated social competence skills.	Not examined	Not examined	The study examined teachers' instructional and emotional support and interactions in relation to children's language, academic and social outcomes. The study also examined the relationship between a number of "infrastructure and design" features of classrooms (whether the program met 9 standards for structural quality as presented by NIEER, including teacher education and background; class size; use of comprehensive curriculum, child-to-teacher ratio; program services) and children's language, academic and social outcomes.	Overall quality, as measured by the ECERS-R, was positively associated with a single outcome, oral and written language skills. Higher instructional quality, as measured using the CLASS, was related positively to all measures of academic and language skills examined. Emotional quality, as measured using the CLASS, was associated with both measures of social skills development examined, including higher social competence and lower problem behaviors. "Findings indicate that...none of the minimum standards recommended by NIEER, or the nine-item NIEER quality index, were consistently associated with measures of academic, language and social development during pre-K, among a large sample of 4-year-old children who attended state-funded programs." (p. 742) "The measure of pre-K quality that was most consistently and strongly associated with children's development was dimensions of teacher-child interactions that children directly experienced in classrooms." (p. 743)	Not examined.	Not examined.	The authors note that the finding that teachers' education may be related to social competence should be interpreted cautiously and may not show evidence of causality because social competence was a teacher-rated measure. The study authors hypothesize that it is possible that if the study had been conducted in states where less resources had been invested in developing stringent standards of quality, there may have been more variation in the structural characteristics in the sample of programs, making it easier to see whether these features matter. The authors also posit that the NIEER quality benchmarks were measured as dichotomous variables, and that it is possible that different measures or even similarly designed benchmarks with different cut-points might have yielded different results.

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Analyses and Findings Focusing Specifically on Quality Thresholds, Dosage and Features									
Publication Information	Do Analyses Consider Thresholds of Quality in Relation to Child Outcomes?	Findings Relating Quality Thresholds to Child Outcome	Do Analyses Consider Dosage of Exposure in Relation to Child Outcomes?	Findings Relating Dosage of Exposure and Child Outcomes	Do Analyses Consider Relationship of Specific Quality Features and Child Outcomes?	Findings Relating Specific Quality Features to Child Outcomes	Are Quality Thresholds, Dosage and/or Features Considered Jointly?	Findings Involving Joint Consideration of Quality Thresholds, Dosage and/or Features	Methodological Issues/Comments Pertaining to Threshold, Dosage, or Quality Features
Specifications for Entering Information in Table	Thresholds of quality involve identifying a range considered high quality (or low, medium quality). Note ranges delineated and how determined. Describe how study examined child outcomes in relation to threshold.	Include summary statement if available	Dosage involves child's extent of current or historical participation or extent of exposure to particular content. Note if analyses re dosage are for participation overall or for participation at specific levels of quality (may involve participation in a program with particular quality standards).	Include summary statement if available	For our purposes, specific quality features will involve any measures of quality that go beyond summary or total scores, including teacher/caregiver qualifications, group size/ratio, space and materials, interactions.	Make note of alignment of specific quality features and specific child outcomes. For example are measures of quality of language stimulation related to child outcomes in the area of language development and/or other outcomes.	Note both analyses in which one set of variables is controlled to more fully isolate another, and analyses in which the intent is to examine outcomes for children exposed simultaneously to a specific level and amount of quality etc.	Include summary statement if available	No clear definition of "quality." Threshold, dosage, and quality features were not specifically defined or examined. Amount of verbal interaction was investigated, but specific thresholds are not established.
21. McCartney, K. (1984). Effect of quality of day care environment on children's language development. <i>Developmental Psychology</i> , 20(2), 244-260.	Not examined.	Not examined	Not examined. Age of entry into current day care arrangement and time in previous care arrangements was noted, but dosage was not specifically examined.	Previous care was found to be stable for most children and average age of entry into current care was 19 months, so no differences were examined.	Verbal interaction with caregivers was used as a marker of program quality.	Higher instructional quality, from the CLASS, was related positively to all measures of academic and language skills.	Not examined.	Not examined.	No clear definition of "quality." Threshold, dosage, and quality features were not specifically defined or examined. Amount of verbal interaction was investigated, but specific thresholds are not established.
22. McCartney, K., Burchinal, M., Clarke-Stewart, A., Bub, K., L. Owen, M. T., Belsky, J., & The NICHD Early Child Care Research Network. (2010). Testing a series of causal propositions relating time in child care to children's externalizing behavior. <i>Developmental Psychology</i> , 46(1), 1-17.	Not examined	Not examined	The study examines whether amount of time in child care is related to externalizing behavior, through multiple models. "All analyses...included a group of four time-in-child-care variables: mean child care hours when in care, child care hours squared, proportion of time in care, and the interaction between child care hours when in care and proportion of time in care. Child care hours squared was included to assess possible curvilinear associations, and the interaction of child care hours by proportion of time in care was included in an attempt to further disaggregate child care hours from chronicity of care." (p. 6)	Proposition 1: "...there is an effect of child care hours on externalizing behavior at all levels of quality. The association is multiplicative such that the child care hours effect is smallest in high-quality care and largest in low-quality care." (p. 10) Proposition 2: "...number of hours spent in early child care predicted externalizing scores, controlling for concurrent child care hours as well as selection factors...Results indicated child care hours in either the first 2 years or the third year did not eliminate the effect of preschool hours on externalizing scores at 54 months." (p. 10) Proposition 3: "child care hours and proportion of time in care...predicted 54-month externalizing scores even with 24-month externalizing behavior included as a control variable." (p. 11) Using a fixed-effects analysis to model changes in externalizing behavior scores from 24 to 54 months, results "indicated that the block of time in-care variables between 24 and 54 months was not associated with changes in externalizing scores between 24 and 54 months." (p. 11) However, an association was found between number of hours in care between 36months and 54 months and changes in externalizing behavior scores between 36 months and 54 months, so evidence here was mixed. Proposition 4: In the repeated-measures analysis,...neither the main effects of the increases in hours variables, decreases in hours variables, nor the interactions with age increases were found to be significantly associated with externalizing behavior scores. Proposition 5: "children who spent a greater proportion of time with a large group of peers had higher externalizing scores than other children, and this difference was greater for children who spent more hours in child care." (p. 12)	The study examines the relationship between child care quality and the proportion of time spent with a large group of peers. The paper defined large group of peers based on guidelines for caregiver-child ratio published by the American Academy of Pediatrics and the American Public Health Association in 2002. Based on these guidelines, continuous variables were created, representing how much time was spent with large groups, and classified by age group: greater than 4 for age 1-24 months; greater than 5 for 25-36 months; and greater than 8 for 37-54 months.	The study found that "the number of hours spent in child care was more strongly related to externalizing behavior...when children spent a greater proportion of time with a large group of peers.	Not examined.	Not examined.	For some of the within-group analyses, such as the group of children (n=30) with fewer than 10 hours per care per week over a 36 month period, the sample sizes were small and made it difficult to conduct analyses or to find effects. "The magnitude of associations between child care hours and externalizing behavior was modest." (p. 1)
23. McCartney, K., Scarr, S., Rochelleau, A., Phillips, D. et al. (1997). Teacher-child interaction and child-care auspices as predictors or social outcomes in infants, toddlers, and preschoolers. <i>Monist-Plumer Quarterly</i> , 42(3), 426-450.	Not examined.	N/A	Dosage as number of care settings attended during early childhood.	Care history over time was important: the number of care changes was associated with dependency and behavior problems in preschoolers.	Teacher-child interaction in the center settings.	There were no associations between child-teacher interactions and child social outcomes, except between those interactions and social bids made by toddlers and preschoolers.	Not examined.	N/A	Quality is measured, but specific thresholds are not established. Dosage is considered in the number of care arrangements over time, but time spent in each arrangement is not considered.
24. NICHD Early Child Care Research Network. (1996). Early child care and self-control, compliance, and problem behavior at twenty-four and thirty-six months. <i>Child Development</i> , 69(4), 1145-1170.	Not examined.	N/A	Age of entry and hours in care are considered.	At 24 months: More hours in care during the first two years was associated with less social competence and more behavior problems. Later entry was associated with more caregiver reported behavioral problems.	Not examined.	N/A	Not examined.	N/A	Thresholds: Quality is included, but specific thresholds are not specified. Dosage: Age of entry and hours in care are included, but specific amounts/ages or thresholds are not specified. Features: All measures of quality are composites of specific features, but they are not examined separately.

Analyses and Findings Focusing Specifically on Quality Thresholds, Dosage and Features									
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Specifications for Entering Information in Table	Thresholds of quality involve identifying a range considered high quality (or low, medium quality). Note ranges delineated and how determined. Describe how study examined child outcomes in relation to threshold.	Include summary statement if available	Dosage involves child's extent of current or historical participation or extent of exposure to particular content. Note if analyses re dosage are for participation overall or for participation at specific levels of quality (may involve participation in a program with particular quality standards).	Include summary statement if available	For our purposes, specific quality features will involve any measures of quality that go beyond summary or total scores, including teacher/caregiver qualifications, group size/ratio, space and materials, interactions.	Make note of alignment of specific quality features and specific child outcomes. For example are measures of quality of language stimulation related to child outcomes in the area of language development and/or other outcomes.	Note both analyses in which one set of variables is controlled to more fully isolate another, and analyses in which the intent is to examine outcomes for children exposed simultaneously to a specific level and amount of quality etc.	Include summary statement if available	
25. NICHD Early Child Care Research Network. (2000). The relation of child care to cognitive and language development. <i>Child Development, 71</i> , 969-980.	Quartile splits: "Four groups differing in levels of quality were created by performing a quartile split on whichever cumulative quality measure was the best predictor of child outcomes at a given age." For 15 and 24 months this was the language stimulation variable and for 36 months it was the positive caregiving variable. Children who were in maternal care only created a 5th grouping. Low quality Low/Average quality High/Average quality High Quality	Largest discrepancy in quality was between the high and low group. Effect sizes ranged from 0.18 to 0.48. Performance on the verbal comprehension battery at 36-months and the expressive language battery at 24-months had the greatest effect sizes. Children in full-time maternal care had similar scores to children in child care. But, "Children in exclusive maternal care performed less well than the children in medium-high and high-quality care on vocabulary production and they performed better than children in low quality care on sentence complexity." 974	The study examined current and historical participation in child care by type. Quantity included average number of hours per week of regular, nonmaternal care the child received up to the age point that was the focus of each analysis.	More hours in care was associated with lower observer positive caregiver ratings and less frequent language stimulation. 971 Cumulative hours in child care did not contribute to the prediction of children's cognitive or language development in any analysis.	Type of care was the only feature included.	Emotional quality, from CLASS, was associated with social skills development, including higher social competence and lower problem behaviors.	Yes, all three are considered. Cumulative quality is defined as the average quality rating up to the age point being examined. Cumulative type ratings were also calculated. Cumulative quantity of care was average number of hours of care per week up to the age point being examined.	The study found the following: "Analyses did not suggest that the relations of child care quality, type, or amount to cognitive and language outcomes different by family income, home environment, gender, or ethnic group." (p. 975) Quality of care is positively related to most language and cognitive outcomes. "More hours in care was associated with lower observer positive caregiver ratings and less frequent language stimulation." (p. 974) Cumulative hours in child care did not contribute to the prediction of children's cognitive or language development in any analysis. Type of care predicts child outcomes.	"Analytic approach used for this paper precludes out addressing questions of stability, age of entry, and hours of care separately because of confounding of these variables in this sample." (p. 977) "The language stimulation observed in child care and used as a measure of the quality of child care could be due to bi-directional effects." (p. 977)
26. NICHD Early Child Care Research Network. (2002). Child-Care Structure → Process → Outcome: Direct and indirect effects of child-care quality on young children's development. <i>Psychological Science, 13</i> (3), 199-206.	Not examined	Not examined	Not examined		Indirect paths from structure to process to child outcomes examined separately for caregiver training and ratio and separately for child cognitive and social competence (as reported by caregivers).		Not examined.	Not examined.	Authors note that maternal caregiving was based on data collected at multiple time points, while nonmaternal caregiving was based on data collected at one time point (54 months). There is no consideration here of thresholds of quality or of dosage of exposure to child care.
27. NICHD Early Child Care Research Network and Duncan. (2003). Does quality of child care affect child outcomes at age 4-1/2? <i>Developmental Psychology, 39</i> (3), 451-469.	Not examined.	Not examined	Study tests to see if the effects of child care quality on child outcomes are stronger if children spend more time in the care setting. Also, if child care quality affects child outcomes, then earlier care should still be related to child outcomes even when concurrent care is controlled for.	There is some evidence that earlier care affects child outcomes (in form of expressive language, a cognitive outcome) when concurrent care is controlled for. There is no evidence that child outcomes are stronger when children enter care earlier: more exposure to high quality care at 36 and 54 months did not lead to better performance and exposure to low-quality care did not detriment development. Overall, there is little evidence of a dose-effect of child care quality on child outcomes.	Quality features (care giving quality, language stimulation, watching TV, positive physical contact, positive talk, positive interaction with other children, stimulating physical materials) were examined to see if domain-specific quality affected domain specific outcomes (proposition 2).	High quality interactions that children experience in class is the direct mechanism through which pre-k programs transmit academic, language and social competencies to children. (p.26)	Dosage and quality: Analysis was conducted to see if child outcomes were stronger when dosage with a level of quality care was experienced (see proposition 5).	Regardless of the level of quality, dosage does not appear to have an effect. Early high quality care does not lead to better development and early low quality care does not seem to harm development (when concurrent care is controlled for).	Specific quality thresholds are not examined.
28. NICHD Early Child Care Research Network. (2006). Child care effect sizes for the NICHD Study of Early Child Care and Youth Development. <i>American Psychologist, 61</i> (2), 99-116.	Quartile splits: The study created extreme groups of child care quality, quantity and type to estimate "d" effect sizes, using quartile splits. The top and bottom quartiles were compared. Low quality=bottom quartile High quality=top quartile	Comparative high-low quality findings were similar to findings that were based on examinations of linear relationships using continuous variables of quality. This provided "further evidence that the association between quality care and child outcomes is linear." The findings suggest that attendance in high quality care settings is modestly related to higher cognitive scores, fewer behavior problems, improved social skills, improved school readiness, and language outcomes.	The study examined the relationship between mean hours per week in any nonmaternal care from birth through age of the assessment and child outcomes. Amount of center care: The study compares outcomes for children who had no center care experience at 15, 24 and 36 months with those who were reported to have attended center care for 33% of the time by age 54 months. More time in center care is modestly associated with better language and cognitive outcomes, more caregiver-reported behavior problems at 36 and 54 months, lower social skills at age 24 months and 36 months and better memory skills and more positive peer interactions at age 54 months.	Child care quantity is modestly associated with more social skills at 24 months, but higher levels of caregiver ratings of problem behaviors at 36 and 54 months, and more caregiver-child conflict at 54 months.	Not examined.	Not examined.	The study finds that child-care quality, type and quantity each have independent, though modest, associations with child cognitive, achievement and behavioral outcomes. Models were run which jointly consider the effects of child care quality and amount/type of child care.	"Evidence from this study suggests that quality, quantity and type of care make distinctive and independent contributions to the prediction of children's development."	

Analyses and Findings Focusing Specifically on Quality Thresholds, Dosage and Features									
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Specifications for Entering Information in Table	Thresholds of quality involve identifying a range considered high quality (or low, medium quality). Note ranges delineated and how determined. Describe how study examined child outcomes in relation to threshold.	Include summary statement if available	Dosage involves child's extent of current or historical participation or extent of exposure to particular content. Note if analyses re dosage are for participation overall or for participation at specific levels of quality (may involve participation in a program with particular quality standards).	Include summary statement if available	For our purposes, specific quality features will involve any measures of quality that go beyond summary or total scores, including teacher/caregiver qualifications, group size/ratio, space and materials, interactions.	Make note of alignment of specific quality features and specific child outcomes. For example are measures of quality of language stimulation related to child outcomes in the area of language development and/or other outcomes.	Note both analyses in which one set of variables is controlled to more fully isolate another, and analyses in which the intent is to examine outcomes for children exposed simultaneously to a specific level and amount of quality etc.	Include summary statement if available	
29. NICHD Early Child Care Research Network & Duncan, G. (2003). Modeling the impacts of child care quality on children's preschool cognitive development. <i>Child Development, 74</i> (5), 1454-1475.	Comparison of means: To test for nonlinear relationships, level, change and residualized change models were run in which child care quality was categorized and means were compared across groups.	"Although all analyses indicated that children in the highest quality care scored higher than children in the lowest quality care, there was no consistent pattern of evidence regarding thresholds at either low- or high-quality levels. In part, this resulted from lack of sample observations of children in very low quality settings." (p. 1466)	The study examined the relationship between the proportion of time spent in center care and cognitive development.	The study found that proportion of time spent in center care between ages 27 and 54 months is consistently and positively correlated with cognitive and achievement scores, but that proportion of time spent in center care at earlier ages (ages 3-24 months) is not correlated with cognitive and achievement scores. The study also finds that mean hours of care per week is not correlated with cognitive and achievement outcomes, after controlling for variables.	The study looks at staff-to-child ratio, group size and caregiver education and training in relation to child outcomes.	Caregiver education was consistently related to 54-month achievement outcomes. Group size showed consistent, modest associations with 54-month cognitive development in the change models, but not in the level model. Ratio was not consistently associated with child outcomes. Simple change models produced the largest and most significant models for these regulatable features of quality, while for the ORCE-based quality measures, they produced the smallest, and least consistently significant coefficients.	All models controlled for hours of care per week, including the model examining regulatable features of quality in relation to child outcomes. Table 5, where these relationships are presented, does not present the coefficients on the variables that were not the key explanatory variables of interest.	Not examined.	Few children in the sample were in low-quality settings. Although not presented in the main models, the study did examine whether there are nonlinear relations between quality and child outcomes.
30. Owen, M. T., Klauaski, J. F., Mata-Otero, A., Caughy, M. O. (2008). Relationship-focused child care practices: Quality of care and child outcomes for children in poverty. <i>Early Education and Development, 19</i> (2), 302-329.	Not examined	Not examined	The study examined whether longer duration in the center was associated with improved outcomes over time; and whether differences were moderated by program type (RFC and non-RFC) or child's race/ethnicity.	The study found significant improvements over time in social and cognitive outcomes for children in RFC and non-RFC centers. There did not seem to be systematic evidence of improved outcomes for RFC centers.	The study examines whether social and cognitive outcomes differ for children attending RFC and non-RFC centers.	The study found a few outcomes to be associated with RFC centers, including child compliance, but these differences were sometimes moderated by race, with stronger effects found for African American children. No consistent benefits were found for RFC center children in cognitive school readiness, child behavior problems or receptive language. Child-caregiver ratio was not included in any of the regression analyses because it was not found to be significantly correlated with the child outcomes.	Not examined.	Not examined.	While there was clear evidence that caregiver practices and caregiver-child interactions differed in RFC centers as compared to non-RFC centers, it was not clear that RFC centers resulted in greater continuity of care by a specific caregiver during the course of a program year or over time. Longitudinal analyses are based on a self-selected sample of children who remained in RFC or non-RFC centers for at least a year and a half. This analytic sample included only about half of the original sample children and no comparisons were made with children who transferred centers or who attended programs for shorter periods of time.
31. Peisner-Feinberg, E. S., & Burchinal, M. R. (1997). Relations between preschool children's child-care experiences and concurrent development: The cost, quality, and outcomes study. <i>Merrill-Palmer Quarterly, 43</i> , 451-477.	Ranges on the ECERS: Low quality=1.0-2.9 Mediocore quality=3.0-4.9 Good quality=5.0-7.0 The quality variable also included a rating of teacher-child closeness.	Children in more advantaged families were more likely to experience higher quality care and somewhat more likely to have better relationships with teachers. Higher quality classrooms with less conflicted relationships were associated with higher maternal ed and income. Quality was significantly related to ethnicity, but not gender. Children in higher quality classrooms with closer teacher-child relationships had better language scores and no family characteristics moderated these associations. After adjusting for family characteristics, pre-reading scores are significantly related to child care quality as were cognitive/attention skills.	Not examined.	Not examined.	Not examined.	Not examined.	Not examined.	Not examined.	"Overall impact of [sampling] strategies is that our sample was likely to result in overestimates of child-care quality and underestimates of the association between child-care quality and children's outcomes due to restricted variability." (p. 475)
32. Peisner-Feinberg, E. S., Burchinal, M. R., Clifford, R. M., Culkin, M. L., Howes, C., Kagan, S. L., & Yazejian, N. (2003). The relation of preschool child-care quality to children's cognitive and social developmental trajectories through second grade. <i>Child Development, 72</i> (5), 1534-1553.	Ranges on the ECERS: Poor quality=1.0-2.9 Mediocore quality=3.0-4.9 Good quality=5.0-7.0	"Our results indicate that child care quality continues to predict children's development during the elementary school years for a variety of cognitive and socioemotional outcomes. Furthermore, our initial examinations of the data showed no evidence of nonlinear relations between child care quality and children's outcomes, indicating that there is not a specific threshold at which quality begins to have a positive effect. Rather, the linear relations that were found indicate that better quality child care is related to better outcomes for children across the spectrum of quality, so that the more quality is increased the better off children are." (p. 1551).	Not examined.	Not examined.	This study examines differential patterns of prediction from observed classroom practices (a composite score based on the ECERS along with other measures) and from teacher report of teacher-child closeness.	The block of child care quality variables during preschool predicted PPVT-R scores, math skills, cognitive/attentional skills, sociability and behavior problems. Within the block, classroom practices predicted PPVT-R and math skills (and there was an interaction with maternal education for math skills such that the relationship was stronger for children of mothers with less education). Teacher child closeness predicted PPVT-R, math skills, cognitive attentional skills, sociability and behavior problems (while the relationship of quality with behavior problems decreased over time, the relationship between these decreased less for children of mothers with lower education. Looking specifically at outcomes in second grade net of background characteristics, k and second grade quality, preschool practices predicted math skills and preschool teacher-child closeness predicted fewer behavior problems, though an interaction for this latter pattern indicated that the relationship was stronger for children of mothers with less education. In addition, teacher-child closeness in kindergarten predicted second grade sociability, and closeness in second grade predicted all three teacher reported outcomes (cognitive/attention, sociability and behavior problems) net of all other variables.	While the "threshold" ranges are noted in providing an overview of the ECERS, analyses use summary scores of classroom practices and teacher-child closeness, and relationships that are reported describe linear relations (prediction to child outcomes from linear increases in these measures). The discussion section notes that preliminary analyses were conducted to examine whether there were nonlinear relations between child care quality and child outcomes. However the results section does not present these preliminary analyses in any detail; they are only described in the discussion section.	Not examined.	
33. Poe, M. D., Burchinal, M. R., & Roberts, J. E. (2006). Early language and the development of children's reading skills. <i>Journal of School Psychology, 42</i> , 315-332.	Not examined.	Not examined.	Not examined.	Not examined.	No features of quality are described, but these features and findings related to them are discussed in the article.	Children who experienced more enriched literacy environments during early childhood started school with better language skills, and better language skills predicted better reading skills in second grade when children were expected to read for comprehension as well as for decoding." 329	Not examined.	Not examined.	Thresholds are not given, but the authors note findings about children in higher quality care—unsure of the definition of "high quality care." "Children who experienced higher quality child care started school with better vocabularies, and therefore, had better reading skills because vocabulary at entry to school was related directly or indirectly to reading." (p. 328)

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Publication Information	Do Analyses Consider Thresholds of Quality in Relation to Child Outcomes?	Findings Relating Quality Thresholds to Child Outcome	Do Analyses Consider Dosage of Exposure in Relation to Child Outcomes?	Findings Relating Dosage of Exposure and Child Outcomes	Do Analyses Consider Relationship of Specific Quality Features and Child Outcomes?	Findings Relating Specific Quality Features to Child Outcomes	Are Quality Thresholds, Dosage and/or Features Considered Jointly?	Findings Involving Joint Consideration of Quality Thresholds, Dosage and/or Features	Methodological Issues/Comments Pertaining to Threshold, Dosage, or Quality Features
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Specifications for Entering Information in Table	Thresholds of quality involve identifying a range considered high quality (or low, medium quality). Note ranges delineated and how determined. Describe how study examined child outcomes in relation to threshold.	Include summary statement if available	Dosage involves child's extent of current or historical participation or extent of exposure to particular content. Note if analyses re dosage are for participation overall or for participation at specific levels of quality (may involve participation in a program with particular quality standards).	Include summary statement if available	For our purposes, specific quality features will involve any measures of quality that go beyond summary or total scores, including teacher/caregiver qualifications, group size/ratio, space and materials, interactions.	Make note of alignment of specific quality features and specific child outcomes. For example are measures of quality of language stimulation related to child outcomes in the area of language development and/or other outcomes.	Note both analyses in which one set of variables is controlled to more fully isolate another, and analyses in which the intent is to examine outcomes for children exposed simultaneously to a specific level and amount of quality etc.	Include summary statement if available	
34. Schlieker, E., White, D. R., & Jacobs, E. (1991). The role of day care quality in the prediction of children's vocabulary. <i>Canadian Journal of Behavioral Science, 23</i> (1), 12-24.	Ranges on the ECERS. Low= summary scores of 93 to 131 High quality-summary scores of 190-239 A single score in the middle range was eliminated from analyses.	Day care quality explained 7% of PPVT-R score variation. While it only explained an additional 4% of the variance for children from two parent families, it explained 19% of the variance for children from one parent families.	All children were in full-time care (35 hours a week) and had been in the center for at least one previous year.	Not examined (all children had the same dosage).	Not examined.	Not examined.	Not examined.	Not examined.	Study looks at vocabulary comprehension at age 4 only--no other outcomes or data points (i.e. not longitudinal) are examined. Dosage and features are not examined.
35. Tran & Weinraub. (2006). Child care effects in context: Quality, stability, and multiplicity in nonmaternal child care arrangements during the first 15 months of life. <i>Developmental Psychology, 42</i> (3), 566-582.	For specific analyses, quality, which was a continuous variable, was transformed into a categorical variable in which low and high quality corresponded to the lowest and highest quartiles of quality and moderate quality corresponded to the remaining quartiles.	When care was of high quality, use of multiple arrangements for 3-4 months (contrasted with 2 or 0) was associated with higher language comprehension. When care was of low to moderate quality, use of multiple arrangements for 3-4 months was associated with lower language comprehension scores. The pattern was similar for language production.	Stability of care: Changes in child care arrangement between 6 and 9 months, 9 and 12 months, 12 and 15 months documented from no arrangement change to up to 3 arrangement changes. In addition, changes were also described in terms of who was caring for child and where child was cared for. Regarding who, changes were described in terms of within family changes, out of family changes, within family to out of family. Regarding where, changes were described in terms of within home to out of home (child's home to other home, child's home to family day care, child's home to center), and out of home to out of home (other home to family day care, other home to center, family day care to center). Multiplicity of care: Summary of number of months between 6 and 15 (out of a possible four: 6, 9, 12 and 15) in which child had been in two nonmaternal care arrangements simultaneously.	Number of changes did not predict language comprehension, language production or cognitive performance. However more specific forms of instability were related to outcomes. Infants who changed from care by a family member to care by a nonfamily member, and care in the home to care outside of the home were somewhat more likely to show poorer language comprehension, but patterns only approached significance. Greater use of multiple child care arrangements by family members was associated with stronger language comprehension, but greater use of a mix of family and nonfamily caregivers was associated with weaker language comprehension. See summary of findings re dosage and quality considered jointly.	Care by family vs. non family member; care in home vs. care outside of the home	Infants who changed from care by a family member to care by a nonfamily member, and care in the home to care outside of the home were somewhat more likely to show poorer language comprehension, but patterns only approached significance. Greater use of multiple child care arrangements by family members was associated with stronger language comprehension, but greater use of a mix of family and nonfamily caregivers was associated with weaker language comprehension.	Average quality over time (averaging quality composite at 6 and 15 months) as well as quality slope were considered.	Language comprehension was predicted by quality average. In addition, increasing quality over time predicted cognitive performance. Small effect sizes. Quality at 6 months did not predict outcomes while concurrent quality at 15 months did predict language comprehension. "Although the use of multiple arrangements was associated with lower language comprehension and production scores when combined with low-to-moderate primary child care quality, the use of multiple arrangements in combination with high-quality primary child care predicted higher language performance scores." (p. 579). Unexpected and baffling finding that when no multiple arrangements, lower language comprehension and production scores when quality was high.	
36. Vandell, D.L., Belsky, J., Burchinal, M., Steinberg, L., Vandergrift, N. & NICHD Early Child Care Research Network. (forthcoming). Do effects of early child care extend to age 15 years? Results from the NICHD Study of Early Child Care and Youth Development: Age 15.	Quality categories on the ORCE ¹ : Low: <2.75 Moderately low: 2.75 to <3 High: 3.3-4 Tested additional dichotomous cut-points using ORCE values between 2.5 and 3.1 Nonlinear relationships were also tested using "predicted values from -2.0 to +2.0 SD around the quality mean of 2.90"	"The two group spline model with a knot at the mean...indicated that quality was significantly related to achievement at the higher quality range...was not significantly related in the lower quality range...and that the difference in the magnitude of the association was "marginally different." (page 21) "Other analyses that looked at other ORCE values between 2.5 and 3.1 to define higher or lower quality groups did not yield substantially different findings, suggesting that our data may not be able to identify a single cut-point for defining thresholds. These follow-up analyses indicate that the quadratic approach provided the most parsimonious description of the nonlinear association between child care quality and cognitive/academic outcomes." (page 21)	"The study examines child care hours" in relation to adolescent functioning outcomes at age 15. Hours categories: Low:<10 hours Moderately Low: 10 to <30 hours Moderately High: 30 to 40 hours High: >40 hours	Experiencing more hours of non-relative child care in the first 4 and 1/2 years of life predicts more risk-taking behaviors and impulsivity in adolescence. The study also examined the relationship between proportion of time in center care and adolescent outcomes and found no relationship between exposure to center care and adolescents' academic achievement or behavior problems.	Not examined	Not examined.	Not examined.	Not examined.	
37. Vernon-Feagans, L., Emanuel, D. C., & Blood, I. (1997). The effect of otitis media and quality day care on children's language development. <i>Journal of Applied Developmental Psychology, 18</i> , 395-409.	Not reported	Not reported	Not reported	Not reported	Hospital based child care center had worst adult: child ratio (at 1:8). In contrast, community run university based infant toddler program had 1:2 and community based for profit center had 1:3. The hospital child care center was labeled as low quality. The two other centers were labeled as high quality.	Children with chronic otitis media who were in low quality care showed poorer expressive language development than children with nonchronic otitis media.	Not reported	Not reported	Number of classrooms is not noted.
38. Volling, B. L. & Feagans, L. V. (1995). Infant day care and children's social competence. <i>Infant Behavior and Development, 18</i> , 177-188.	Not examined.	N/A (see findings for information on findings by quality, but no thresholds designated).	Age of entry and hours per week of care.	Correlations between observational measures and child, child care, and family characteristics showed that children in day care for more hours per week had less solitary play and slightly more positive peer interactions but children entering care at later ages (later in the first year) were less likely to have negative peer interactions. Older children were more likely to have more positive peer interactions and less positive caregiver interactions.	All measures of quality are of features (group size, number of caregivers, child-adult ratio).	More nonsocial play was seen with larger group sizes, fewer caregivers, and larger child-adult ratios.	Not examined.	N/A	Most children were enrolled for dosage/attendance of more than 20 hours per week.

Analyses and Findings Focusing Specifically on Quality Thresholds, Dosage and Features									
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Specifications for Entering Information in Table	Thresholds of quality involve identifying a range considered high quality (or low, medium quality). Note ranges delineated and how determined. Describe how study examined child outcomes in relation to threshold.	Include summary statement if available	Dosage involves child's extent of current or historical participation or extent of exposure to particular content. Note if analyses re dosage are for participation overall or for participation at specific levels of quality (may involve participation in a program with particular quality standards).	Include summary statement if available	For our purposes, specific quality features will involve any measures of quality that go beyond summary or total scores, including teacher/caregiver qualifications, group size/ratio, space and materials, interactions.	Make note of alignment of specific quality features and specific child outcomes. For example are measures of quality of language stimulation related to child outcomes in the area of language development and/or other outcomes.	Note both analyses in which one set of variables is controlled to more fully isolate another, and analyses in which the intent is to examine outcomes for children exposed simultaneously to a specific level and amount of quality etc.	Include summary statement if available	
39. Votruba-Drzal, E., Coley, R. L., & Chase-Lansdale, P. L. (2004). Child care and low-income children's development: Direct and moderated effects. <i>Child Development, 71</i> (1), 296-312.	Not examined. See note in last column.	Not examined	The study examined dosage effects, with dosage operationalized as number of hours per week in child care as reported by mother. Children in the sample participated in child care for just under 34 hours per week on average (with 34% participating for less than 30 hours per week, 43% between 31 and 45 hours per week, and 33% for more than 45 hours per week).	The study found that more hours per week in care was associated with higher scores on the problem solving measure (quantitative skills). In addition, number of hours per week in care reduced the likelihood that the total behavior problems score placed child in borderline or clinical range; however the magnitude of this association was relatively small. These analyses controlled for quality and type of care.	Type of care operationalized as center or home based care.	In analyses that control for quality and hours per week in care, type of care did not predict to either cognitive or social and emotional outcomes.	Extent of care, operationalized as hours per week, predicted child quantitative skills and the likelihood that total behavior problems fell in the borderline or clinical range, controlling for type and quality of care.	Interaction of hours and quality not related to child letter-word recognition or problem solving. However the interaction was significant for internalizing, externalizing and total behavior problems as well as likelihood that child fell in borderline or clinical range on externalizing behavior problems. <u>Children in high quality care but not those in low quality care show a steep decline in internalizing as well as externalizing behavior problems as hours in care increase. In addition, increased hours spent in low quality care were found to be associated with increases in externalizing behavior problems. p. 307. These results suggest that extensive hours of care in high-quality arrangements may be protective for children's socioemotional functioning, whereas long hours of care in low-quality settings may be particularly detrimental for children's rates of externalizing behavior problems.</u>	These analyses involve consideration of child care characteristics at only one point in time. The authors note it is best to think of these analyses as snapshots. Inadequate care is described as ECERS-R/FDCKRS scores of less than 3, minimal care as greater than or equal to three and less than 5, and good care as 5 or higher. However analyses looked at quality as a continuous variable.

