The Child Care Ecology Inventory: A domain-specific measure of home-based child care quality to promote social competence for school readiness☆

Julie C. Rusby*, Laura Backen Jones, Ryann Crowley, Keith Smolkowski

Oregon Research Institute, United States

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ABSTRACT

This study investigates the reliability and validity of the Child Care Ecology Inventory (CCEI), a measure of the quality of family child care in the social domain. The CCEI focuses on research-based environmental features and caregiving practices for promoting positive social development in preschool-age children. A total of 198 family child care homes in the Northwest USA participated. Good scale reliabilities were found for the measures of the environment (*Enrichment* and *Organization*) and for caregivers' practices (*Monitoring, Positive Attention*, *Promoting Social Skills*, and *Teaching Rules*) and interrater reliability was adequate for research purposes. The CCEI was associated with other commonly used measures of child care quality that assessed similar environmental and caregiving constructs. Linear regression models were run to determine the features of family child care quality that were concurrently associated with observed child behavior. The child–caregiver ratio, *Environment Organization*, and caregivers' *Teaching Rules* were negatively associated with children's problem behavior (noncompliance and aggression). Caregivers' provision of *Planned Activities/Routines* and *Positive Attention* were associated with positive child behavior. Results indicate that different aspects of quality are related to different aspects of children's social interactions and behaviors.

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1. Introduction

An important core indicator of school readiness is social–emotional competence, which enables the development of positive relationships with peers and adults (National School Readiness Indicators Initiative, 2005). A number of social skills in young children have been identified as important to overall social competence, including cooperation and helpfulness, positive initiations and responses with peers and adults, and self-regulatory skills, which facilitate behaviors such as following directions and rules and inhibit behaviors such as aggression (Campbell, Lamb, & Hwang, 2000; Chandler, 1992; Ladd, Herald, & Kochel, 2006; Mashburn & Pianta, 2006). Children with social competency skills are more likely to participate in learning activities and to develop positive relationships with their teachers and other children. Using the National Institute of Child Health and Human Development Study of Early Child Care (NICHD SECC) data, Downer and Pianta

(2006) found that social competence at preschool-age was a significant predictor of academic functioning in first grade. Yet, a significant number of children still enter school with social difficulties that negatively impact their school experience. An estimated 10% of children entering kindergarten display aggressive behaviors somewhat frequently, 25% have difficulty making friends, and 13% have difficulty sustaining attention (Zill & West, 2001). Efforts to nurture children's social competence during the preschool years are essential for promoting children's learning and success in school.

One area worthy of attention is the quality of preschool and child care settings, especially home-based child care. Home-based child care is an underresourced and understudied care setting that serves approximately 3.7 million toddlers and preschool-age children in the United States, who spend an average of 26 h per week in care (Mulligan, Brimhall, West, & Chapman, 2005). Efforts to improve social outcomes for children in preschool and child care settings have focused on providing a quality early learning environment—one that is caring and enriching. In a comparison of center and home-based child care, more positive caregiving was found in home-based child care for infants and toddlers than in center-based care, but less positive caregiving was found in home-based settings for preschool children (National Institute of Child Health and Human Development Early Child Care Research Network [NICHD ECCRN], 2000). Understanding the links between

features of home-based child care and preschool-age children's social competencies related to school readiness is particularly needed. Given the sparse literature on home-based child care factors that promote positive social development, we include evidence from other care settings involving a group of preschool children (i.e., center-based care and preschool).

The evidence for the impact of child care quality on preschool-age children's social development is mixed. In a meta-analysis of studies on child care quality, higher-quality child care was significantly associated with greater social competence and fewer problem behaviors, yet these associations were quite small (Burchinal, Kainz, & Cai, 2011). The strength of effect sizes appears to vary greatly from one study to another, particularly for the effects on children's social outcomes. The child care quality literature is fraught with mixed results on children's social development. For example, in one study (NICHD ECCRN, 2003a), child care quality had significant effects on cognitive skill even when family factors were controlled, but no effect on social outcomes. As these children were followed into kindergarten, time spent in child care also was associated with problem behavior, even when controlling for child care quality and stability (NICHD ECCRN, 2003b). However, when these children were followed into third grade, neither time in child care nor its quality was associated with aggression trajectories (NICHD ECCRN, 2004). Contrary to the NICHD SECC findings, the Welfare, Children and Families study found that children who spent more time in high-quality child care had fewer externalizing behavior problems (Loeb, Fuller, Kagan, & Carrol, 2004). Burchinal et al. (2011) note that the small effect sizes between child care quality and children's social competence may be due in part to the measures of child care quality.

One difficulty in examining the associations between child care quality and children's social development is the lack of a precise definition of quality. The measures used in these child care quality studies vary; many studies use global measures of quality and some use measures of the child–caregiver relationship. Unfortunately, *quality of child care* has become an umbrella term without a clear, empirically supported definition. Divergent research results regarding the impact of child care quality are likely attributed to the use of different measures of quality and to the inadequacies in measurements (Hagekull & Bohlin, 1995; Lamb & Ahnert, 2006). A current challenge in the child care field is the lack of adequate and efficient measures of child care quality.

1.1. The need for a domain-specific measure of quality for promoting social competence

Measuring specific aspects of the child care environment will improve our understanding of how child care affects child development (NICHD ECCRN, 2003a), yet in a review, Friedman and Amadeo (1999) conclude that we do not yet know all the aspects of the child care environment that are related to developmental outcomes. The measures included in their review are the predominant measures that are still being used, more than a decade later. Despite what we know about the importance of children's social development for school readiness, Hyson et al. (2011) found that measures focused solely on child care features that strengthen children's social development are lacking. Available measures are more global (e.g., Family Child Care Environmental Rating Scale-Revised [FCCERS-R]; Harms, Cryer, & Clifford, 2007), with the social domain being only a small aspect measured. The review also notes that we lack instruments that measure ways in which child care settings can support the development of positive peer relationships. Having reliable and valid measures of child care quality for promoting the social skills that are critical for children's school readiness and healthy development could be of practical value for

assisting child care providers in evaluating and enhancing their services.

1.2. The need for valid measures of quality that are relevant to home-based child care

There are even fewer measures of child care quality designed for home-based child care settings, particularly those focused on supporting children in social development. A listing of 11 instruments is provided in a review of quality measures for home-based child care settings by Goodson and Layzer (2010). No measures listed include measurement of both supporting social development and child–child interactions. Of the two that do measure supporting social development, one is focused on relative care rather than home-based child care that is provided to a group of children by a nonrelative (Child Care Assessment Tool for Relatives [CCAT-R]; Porter, Rice, & Rivera, 2006), and the other is a global measure of quality with some items in the social domain (Quality of Early Childhood Care Settings: Caregiver Rating Scale [QUEST]; Goodson, Layzer, & Layzer, 2005). What is currently being measured well is caregiver responsiveness, warmth, and emotional support for children in home-based child care with the Child Care HOME Inventory (CC-HOME; Bradley, Caldwell, & Corwyn, 2003), Caregiver Interaction Scale (CIS; Arnett, 1989), and the Observational Record of the Caregiving Environment (ORCE; NICHD ECCRN, 2000). In summary, there is a lack of valid measures that focus on the quality of home-based child care for promoting social development, including the facilitation of peer interaction skills that are critical for school readiness.

Caregivers in home-based settings are diverse with respect to their demographic characteristics, education, and motivations to provide care in the home (Morrissey, 2007). The social domain is an area in which home-based child care providers have reported a desire for more training, specifically in behavior management, supporting children's social development, and dealing with challenging behavior (Bailey & Osborne, 1994; Mueller & Orimoto, 1995; Rusby, 2002). Having an assessment that focuses on this domain could be used as a consultation tool to provide data-based feedback to child care providers who have goals in this area.

Children may benefit from the smaller group sizes found in home-based child care compared to center-based child care. With the smaller numbers of children in child care homes, there is a potential opportunity for more interactions to take place between the caregiver and children. The research, however, is mixed in this area. Some studies show lower caregiver involvement in family child care, whereas others show greater caregiver involvement with children (Kontos, 1992). Less warmth and sensitivity, less organization, and fewer positive interactions with children and parents were found in home-based child care than center-based child care (Bigras et al., 2010). These process quality variables were also related to the child–caregiver ratio and caregiver training in early childhood education. Conversely, Groeneveld, Vermeer, van IJzendoorn, and Linting (2010) found higher caregiver warmth and lower noise levels in home-based child care compared to center-based child care. Although group sizes are typically smaller in home-based child care, a unique challenge for providers of home-based child care is that they most commonly provide care by themselves. Thus, they have no support and assistance from a coworker (Rusby, 2002) and therefore are less likely to lead structured teaching activities compared to providers of center-based care (Fuller, Kagan, Loeb, & Chang, 2004). The mixed results across studies demonstrate a need for further research on caregiver practices in home-based settings.

Home-based child care providers have reported additional challenges: (a) arranging the environment to suit the different needs of a child care and the caregivers' family home, and (b) meeting