

THE RELATIONSHIP BETWEEN TYPE OF CHILD CARE SETTING AND  
EXTERNALIZING BEHAVIORS IN KINDERGARTEN STUDENTS

BY

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### **Dedication**

I would like to dedicate the following dissertation to my parents. Thank you for working together as a team so that I was able to have the opportunity to spend my important childhood years in a loving home. This is something that I will cherish for the rest of my life. Because of this sacrifice, I got the opportunity to spend the last 2.5 years of my life studying child care in order to increase my knowledge and understanding of this topic.

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## CHILD CARE SETTING AND EXTERNALIZING BEHAVIOR

### **Abstract**

Past studies examining child care and externalizing behaviors have produced conflicting results. This study examined whether an association exists between type of child care that a child attended the year before kindergarten and externalizing problem behaviors as rated by the child's kindergarten teacher. Ordinary least-squares regression was used to examine variables that impact ratings of externalizing behavior by evaluating data from the Early Childhood Longitudinal Study, Kindergarten Class of 2010-2011 (ECLS-K:2011). The ECLS-K:2011 has up-to-date data that includes a nationally representative sample of children in the United States. Participants were 13,544 children. Additionally, SES and the total number of hours of weekly care were analyzed to see if they moderated the relationship between type of care and externalizing behaviors. Findings indicated that children who attended center care only exhibited more externalizing behaviors than children who attended other types or combinations of care. Children from lower SES families had significantly more externalizing behaviors than children from higher SES families. Findings also indicated that SES had less of an effect on externalizing behavior among children who attended relative and center care than children who attended center care only. The more hours a child spent in care each week, the greater their ratings of externalizing problem behaviors. Additionally, the effects of total hours on externalizing behaviors were lower for children who attended relative care only and relative and center care than those who attended center care only. Study implications for policymakers, parents, and researchers are discussed in depth. For instance, if parents wish to send their children to center care, they may want to incorporate an additional type of weekly care, which may act as a buffer to externalizing problem behaviors. Additionally, policymakers may want to facilitate greater access for child care other than center care only.

## Chapter One: Introduction

Since the mid-1960s, more and more women have been employed in jobs outside of the home. Possible reasons for this increase may be due to the desire to maintain or improve the family's standard of living, increased divorce rate, inflation, and rising costs of living (Clarke-Stewart, Gruber, & Fitzgerald, 1994; Early & Burchinal, 2001; Hayes, Palmer, & Zaslow, 1990; National Research Council and Institute for Medicine, 2000). Prior to the 1980s, child care was viewed as a poor family's problem. Currently, nonparental child care is a part of life for many American families (Hayes et al., 1990; Votruba-Drzal, Coley, & Chase-Lansdale, 2004). About 61% or 12.5 million United States children under the age of five are in child care on a regular basis. On average, these children spend about 33 hours per week in child care (Laughlin, 2013).

The majority of children in the United States receive nonparental care (care from an individual who is not the child's parent) before starting Kindergarten (NICHD, 2004). Types of child care include child care centers, relative care, and nonrelative care in a private home (Cryer & Burchinal, 1997). Therefore, every year, parents must make decisions regarding the type of care they will select for their children (Cryer & Burchinal, 1997; Kontos, Howes, Shinn, & Galinsky, 1995). Their choices reflect the information, resources, and types of child care that are available to the parents at the time of the decision (Meyers & Jordan, 2006).

Socioeconomic status (SES) refers to an individual or family's social standing or class (American Psychological Association, n.d). Factors contributing to the measurement of SES include parental education, parental occupation, and family income. SES plays a role when considering the choice of child care (Coley, Votruba-Drzal, Collins, & Miller, 2014). The most influential factor of the child care selection process is income (Coley et al., 2014; Early & Burchinal, 2001; Peyton, Jacobs, O'Brien, & Roy, 2001). Disadvantaged families usually have

fewer options than higher income families in choosing child care for their family (Shlay, Tran, Weinraub, & Harmon, 2005). Also, more educated mothers place more emphasis on learning, quality, and practicality of child care programs they select (Kim & Fram, 2009). Consequently, SES is considered when studying child care and its influences (American Psychological Association, n.d.).

### **Types of Child Care**

Most people refer to any nonparental child care as day care, but the types of care can be categorized more specifically. There are a number of different child care options from which families can choose, including child care centers, relative care, and nonrelative in a private home (Votruba-Drzal et al., 2004). Some child care centers such as center care chains and single-center operations are run for profit. Others are nonprofit and can be run by charitable organizations, churches, and employers. Still other child care centers, such as Head Start, receive government funding. In some cases, depending on child care needs, nursery school and pre-kindergarten classes can serve as part-time child care (Clarke-Stewart et al., 1994). Center care is usually designated as an educational setting and may take care of a few children up to several hundred (Clarke-Stewart et al., 1994). According to the 2011 United States Census Bureau, about 24% (4.8 million) of children under the age of five years old are cared for in centers annually (Laughlin, 2013).

The second category of child care is relative care. Less information is known about relative care than other types of nonparental child care. Relative care does not usually place an emphasis on education. Care and supervision for the child takes place while the relative caregiver accomplishes daily tasks in their home or community (Kisker, Hofferth, Phillips, & Farguhar, 1991). According to the 2011 United States Census Bureau, about 42% of children

under the age of five years old are cared for by relatives. Children who had regular weekly child care arrangements with a relative, who were cared for by a relative for any amount of time, at least once a week, were counted in this statistic (Laughlin, 2013).

The third category of child care is nonrelative care in a private home. Nonrelative care in a private home may take place in the child's home or the caregiver's home. This type of care can range from an informal agreement between friends to a formal written agreement with a licensed child care home provider. The number of children in this type of care setting may range from one child to about 12 (Clarke-Stewart et al., 1994; Coley et al., 2014; Zigler & Hall, 1988). Nonrelative care providers in a private home are usually more educated and have more formal training than relatives, but have less education and less formal training than center care providers (Dowsett, Huston, Imes, & Gennetian, 2008). According to the 2011 United States Census Bureau, about 11% of children under the age of five years old are cared for by nonrelatives in a private home. Children who were cared for on a regular basis by nonrelatives in a private home at least once a week were counted in this statistic (Laughlin, 2013).

### **Impact of Child Care Choice**

Experiences children have in nonparental care influence their social, physical, psychological, and educational development (Johansen, Leibowitz, & Waite, 1996). A child's development is impacted by the type of child care chosen and the quality of that care (Belsky, 2009), especially as it pertains to externalizing problem behaviors (NICHD, 2003a, 2006). Externalizing problem behaviors include verbal or physical aggression; poor control of temper; arguing; tantrums; acting-out; and disruptive, defiant, antisocial, oppositional, or hyperactive behaviors (Gresham & Elliott, 1990; Huston, Bobbitt, & Bentley, 2015; Whitcomb & Merrell, 2013). Some studies have made a connection between the use of child care and children's

behavioral problems (Belsky et al., 2007; Coley, Votruba-Drzal, Miller & Koury, 2013; Magnuson, Ruhm, & Waldfogel, 2007a; NICHD, 2002, 2003b, 2004), while others did not find a link (Borge, Rutter, Cote & Tremblay, 2004; Erel, Oberman, & Yirmiya, 2000), and still others found that child care reduced problem behaviors (Denham & Burton, 1996; Field, 1991; Votruba-Drzal, Maldonado-Carreño, Coley, Li-Grining, & Chase-Lansdale, 2010). Further, studies have demonstrated that early externalizing behaviors of children will be important predictors of their successful transition to kindergarten and their long term success in school (Entwisle & Alexander, 1993; Li-Grining, Votruba-Drzal, Maldonado-Carreño, & Haas, 2010).

The rise in nonparental child care has sparked questions regarding the effects of out-of-home experiences on a child's well-being and development (Clarke-Stewart et al., 1994). Experiences children have in nonparental care influence their social, physical, psychological, and educational development (Johansen et al., 1996). Type and quality of care may affect the child's early language, mathematics, working memory, emotional regulation, problem behaviors, and peer relationships (Burchinal, Vernon-Feagans, Vitiello, Greenberg, & The Family Life Project Key Investigators, 2014). Despite the fact that a parent's choice of child care may be a key determinant in their child's school readiness and academic and behavioral success, not all families have access to care that will best enhance the healthy development of their children (Grogan, 2012; Zigler & Hall, 1988). Policymakers need pertinent information in order to better understand the influences of child care on child behavior as well as specific areas that impact the relationship between child care and child behavior so that beneficial programs can be made more accessible.

### **Current Study**

Today, data is inconsistent with respect to a relationship between early child care and problem behaviors. Limitations of past studies include examining only center care or primarily center care. Typically, relative care and nonrelative care in a private home and the combinations of the care settings were not examined. Additionally, the number of hours children attended care each week and the SES of the family are important factors that should be analyzed when looking at the association between type of care setting and externalizing behaviors.

The current study expanded the literature by examining these important factors. This study additionally provided up-to-date information using an updated dataset that is nationally representative of children in the United States. A goal of this study was to expand the existing child care literature by examining specific influences of child care—type of care, SES, amount of time spent in nonparental care the year before kindergarten, and externalizing behaviors at the end of kindergarten in one body of research. This may allow parents, educators, and policymakers to have more pertinent information concerning the implications of child care on the development of behavior problems. Therefore, the following hypotheses were addressed in the current study.

- (1) Children who attended center care only will have greater externalizing behaviors than children who attended other types or combinations of care.
- (2) The effect of center care on externalizing behavior will be greater among children from lower SES families.
- (3) The effect of center care on externalizing behavior will be greater among children who spend more time in care, as measured by hours.

## **Chapter Two: Literature Review**

This chapter reviews the literature about working mothers, father involvement in child care, child care options, types of child care, quality of child care, socioeconomic status, externalizing problem behaviors, and risk factors for developing externalizing problem behaviors. This literature review also provides a thorough discussion about the existing work on child care and its relation to externalizing problem behaviors.

### **Working Mothers**

There has been a dramatic increase since the mid-1960s of women employed in jobs outside of the home. Increased divorce rate, inflation, and rising costs have led women to go to work in order to maintain or improve the family's standard of living (Clarke-Stewart et al., 1994; Hayes et al., 1990). Also, the feminist movement made it more acceptable for women to work since many women wanted careers and new experiences in addition to helping their family economically. Prior to the 1980s, child care was viewed as a poor family's problem. Since then, it has become a part of life for the majority of American families (Hayes et al., 1990). By the end of the 1900s, women joined the labor force at exceptional rates. More women working caused a surge in the number of children needing to receive child care in the United States (Votruba-Drzal et al., 2004).

### **Father Involvement**

Past research regarding child care primarily studied maternal choices and nonmaternal child care. Language in books and research studies almost exclusively studied women and their choices for their children, therefore, omitting the importance of paternal influence. However, recent research from LaRossa (2016) suggested the culture of fatherhood, the conduct of fathers, and how they behave when they are fathering, has changed in recent years. An increasing

number of men are choosing to be hands-on caregivers and rate their caregiving role as being more important than their career. As of late, there has been an increase in father involvement as demonstrated by time-diary studies. Fathers are now caring for children more than ever before. From the late 20<sup>th</sup> century to present time, fathers are seen as a co-parent with mothers instead of just a helper or stand-in and play a bigger role in decision making regarding parenting their child (LaRossa, 2016). Large-scale survey data also suggests that the proportion of time fathers spend with their children has increased since the 1960s. Married fathers spend significantly more time today on routine and developmental child care activities than in the past. However, time fathers spend with children is still lower than mothers' child care time (Sayer, Bianchi, & Robinson, 2004).

Overall, the amount of father engagement depends on the structure of the family and household. Fathers are usually more involved when they live with their children; separations, such as incarceration, may inhibit father involvement (Hulbert, 2003). Since there is less research regarding a father's influence on children in general, there is less information regarding fathers' involvement in child care and their children's externalizing behaviors. Therefore, this study acknowledges the important role of fathers, but will report past research using feminized language in order to accurately represent past findings in the literature.

### **Child Care Options**

According to the 2011 United States Census Bureau, around 61% (12.5 million) of children under the age of five (20.4 million) in the United States are in child care on a regular basis. The number of hours spent in child care each week varies. Children who are under the age of five years old (considered as preschoolers by the U.S. Census Bureau) spend an average of 33 hours per week in child care. Children with employed mothers spend on average 15 hours

more in child care than children with mothers who were not working. Children with employed mothers spend about 36 hours per week in child care while children with nonemployed mothers spent 21 hours per week (Laughlin, 2013). There are a variety of child care options from which parents may choose including centers, relatives, and nonrelative care (Votruba-Drzal et al., 2004). The increase in children receiving nonparental child care has historically led to parents and psychologists wondering how these other environments will affect children's well-being and development (Clarke-Stewart et al., 1994). Today, data is inconsistent with respect to a relationship between early child care and problem behaviors. The inconsistent data raises questions for parents, educators, researchers, and policymakers regarding the implications of type of child care on children's problem behavior (Bacharach & Baumeister, 2003; Huston et al., 2015; Shpancer, 2006).

### **Types of Child Care**

Most children in the United States experience nonparental child care before attending school (NICHD, 2004). In the United States, parents are the main decision makers regarding the type of care their child will receive (Cryer & Burchinal, 1997). Therefore, many parents each year must select a type of child care arrangement for their child. Some parents have a definitive preference for the type of child care they choose, while other parents spend a great amount of time deciding the type of care for their child (Kontos et., 1995). Sometimes limiting the decision process are geography, supply, or economics (Cryer & Burchinal, 1997). Characteristics of the family, including maternal employment intensity and regularity, parental education, income, the presence of additional adults in the home, as well as receiving welfare are factors that help to predict the use and type of child care (Coley et al., 2014). Having information about the

different types of child care and how the types of child care influence a child's development is essential because each provides a specific set of experiences (NICHD, 2004).

When comparing reasons why mothers chose a particular type of child care for their child, one study used data from 7,000 families from the National Household Education Survey conducted by the National Center for Education Statistics. This study found that parents of infants and toddlers who want a small group size were significantly more likely ( $p < .001$ ) to choose nonrelative child care providers in a private home over center-based and relative care (Early & Burchinal, 2001). Another study conducted by Pence and Goelman (1987) examined differences between parents who select different forms of care for their children. The sample of participants was selected from a longitudinal study, The Victoria Day Care Research Project. Families were required to have a child in child care for at least 25 hours a week for at least the last six months. The researchers found that center care parents were influenced by the program being offered while parents selecting nonrelative care in a private home based their selection more on caregiver characteristics. Families who chose nonrelative care in a private home reported closer personal relationships with their child's caregivers than center care users. Parents were more likely to send their children to home-based care rather than center-based care if they had concerns about the negative effects of child care on their children's emotional development. Parents who selected home-based care were significantly less likely to complain about negative peer influences than center care parents. While the Pence and Goelman study was conducted more than 30 years ago, there has been little to no additional research examining parents' concerns about their children's emotional development in relation to child care.

Across the board, it is agreed upon that the rearing of children should be done in such a way to optimize healthy development (Brazelton & Greenspan, 2000; Halfon, McLearn, &

Schuster, 2002; Hayes et al., 1990). What is not agreed upon is what type of care is most appropriate for children of differing ages, in differing economic and cultural conditions (Hayes et al., 1990). Providers can include a relative, a neighbor, a nanny, or a teacher. With differences in child care settings and child care providers, come differences in quality of child care. Some settings can have minimal standards of safety and not be very stimulating. Other settings may provide the child with developmental stimulation, frequent and adoring adult attention, enriching educational experiences, and a chance to play with other children in a safe and attractive environment (Clarke-Stewart et al., 1994). It is hypothesized by the current researcher, that with differences in type of child care and providers come differences in quality. While this is hypothesized, there is limited research about differences in quality and what these differences mean for child outcomes.

According to the 2011 United States Census Bureau, children under the age of 5 years old were more likely than older children to be taken care of by a relative (42% or 8.6 million) than by a nonrelative (33% or 6.7 million). Twelve percent of these children were regularly cared for by both, while 39 percent had no regular child care arrangement. Of the families that reported no regular child care arrangement (7.9 million), 83% lived with a parent who was not employed. The unemployed parent most likely took care of the child during the day. Children from families with an employed parent who reported no regular child care arrangement most likely had an unstable arrangement during work hours or families may have had difficulty in identifying regular use (Laughlin, 2013). The following sections will detail each of the types of child care.

**Child care centers.** A child care center can care for a few children up to more than 300 (Clarke-Stewart et al., 1994). As mentioned above, according to the 2011 United States Census Bureau, about 24% (4.8 million) children under the age of five years old are cared for in center

care facilities. Day care centers are used the most (mostly full time care, 13.4% or 2.7 million), next nursery or preschool (part time care, 6% or 1.2 million), and lastly, Head Start (government funded school readiness program for low income families, 5.6% or 1.1 million) (Laughlin, 2013). Centers are usually designed as educational settings, may be large, and may have many toys and materials for children to use. Centers provide more cognitive stimulation and not as much television viewing as other types of care. Child care centers provide educational materials and work to provide learning experiences based on the age of the child (Clarke-Stewart et al., 1994). Children in centers spend more time doing structured activities that are adult-directed than children in relative or non-relative in a private home care (Kisker et al., 1991). Additionally, children in center care spend more time interacting with peers (Clarke-Stewart et al., 1994; Dowsett et al., 2008) which may allow them to develop social skills with peers. On the other hand, peer interactions may also negatively influence the child as well. For example, interactions with peers who engage in challenging behavior provide the child the opportunity to learn aggressive behaviors from a peer (Dowsett et al., 2008). Center-based care also provides children with fewer language interactions with adults and given that there are typically more children in the classroom than other types of care, individual needs of a particular child may go unnoticed if the center does not have an appropriate adult/child ratio (Zigler & Hall, 1988).

Child care centers are relatively reliable and are held publicly accountable. However, their quality can vary greatly. This may be linked to state or county requirements for licensing (Clarke-Stewart et al., 1994). Requirements of center care vary by local, state, or national accreditation organizations (Child Care Resources Inc., n.d.). It is recommended by the National Health and Safety Performance Standards that centers hire licensed or certified staff to work directly with children. In order to acquire licensure to work with preschool children, care

providers must demonstrate their capabilities and prove their competencies in working with children and families. These individuals must have previous experience working with children and certification in pediatric first aid. Additionally, these care providers must be trained in early-childhood education or child development from an accredited institution (Lombardi, 2003). Many teachers have attended college and received a bachelors or associates degree and some staff has training in child development (Clarke-Stewart et al., 1994; Lombardi, 2003). Centers typically have more educated and trained providers than caregivers in other child care settings (Dowsett et al., 2008).

An organization that promotes high-quality learning for children birth through eight years old is the National Association for the Education of Young Children (NAEYC). This association connects high-quality learning to early childhood practice, policy, and research. NAEYC across the country is the gold standard for early childhood programs. Centers that are accredited are said to deliver the highest quality early care and education. There are over 7,000 programs that have NAEYC accreditation. NAEYC provides professional development for child caregivers. NAEYC also influences local, state, and federal early childhood legislation and advocates for policies that provide equal access to high-quality learning to all children, including children living in poverty, multilingual children, children of color, and children with disabilities (National Association for the Education of Young Children, n.d).

While there are different organizations that provide child care accreditation, it is much more common for child care to be regulated through state licensing. In order to gain the license, the child care program must meet requirements the state has established in order to promote the health and safety of the children that will be provided care. Each state has their own requirements. For example, in New York, any child care program that plans to work with three

or more children for more than three hours a day on a regular basis must obtain a license or registration (Office of Children and Family Services, 2016a).

The most common nonparental care setting for preschoolers is center-based care. Preschoolers (3-5 years old) are placed in center-based care much more often than infants (0-1 year old) and toddlers (1-3 years old) (Coley et al., 2014; Early & Burchinal, 2001). Children in center care are often organized according to age, with the majority of children being in the three- to four-year-old age group. Normally, the minimal supervision is two or more adults in the classroom, but this number depends on the number and age of children for which care is being provided (Clarke-Stewart et al., 1994; Kisker et al., 1991). The younger the children being cared for in center care, the lower the care provider ratio and the lower the number of children allowed in the group. For example, in New York State, when there is a group of three year olds being cared for, there must be one teacher for every seven children, with a maximum of 18 children in the group. For four year olds, there is a 1:8 teacher to child ratio with a maximum of 21 children in the group. For five year olds, there must be at least one teacher for every nine children with a maximum of 24 children in the room (Office of Children and Family Service, 2016b).

**Relative care.** According to the 2011 United States Census Bureau, about 42% of children under the age of five years old are cared for by relatives. Examining specifically nonparental caregivers, grandparent care is used the most (23.7%), as well as other relatives (7.4%) (Laughlin, 2013). Less is known about relative care than other forms of child care. For instance, the grandparents of the child may provide relative care which is usually informal and does not place a focus on education (Kisker et al., 1991). Relatives providing care usually have the lowest level of education and training compared to center and nonrelative in a private home care (Dowsett et al., 2008). When child care is conducted in the relative provider's home, there

may be other children of varying ages; these children may or may not be related. Children being taken care of in home-based relative care may engage in a lot of free play in a *home-like* setting (Kisker et al., 1991; Pilarz & Hill, 2014). Children in relative care have fewer interactions (both positive and negative) with peers. These children have more experience interacting with adults (both positively and negatively). They also spend more time being occupied and less time in transition than children in other types of child care. Children may spend more time being occupied due to having more adult interaction since there are generally fewer children cared for concurrently. Children who are taken care of by relatives spend less time transitioning between activities during the day, possibly due to the fact that there may be fewer structured activities planned for the day than in other types of care. Additionally, children who are cared for by relatives spend more time watching television than children in others types of care (Dowsett et al., 2008).

Relative care is more likely to be used by parents who highly value child care flexibility. For example, relatives will take care of their child even when they are sick (Early & Burchinal, 2001). One of the main reasons parents make this their child care selection is due to being able to trust their relatives (Kontos et al., 1995). Minority families, families with low incomes, and mothers with less education and fewer children are populations that were most likely to use more hours of relative care (NICHD, 2004).

**Nonrelatives in a private home.** Usually this child care arrangement is informal and short term. The number of children receiving care may range from one to six in a family day-care home and about six to twelve in a group day-care home. Home care providers usually work alone, but about 40% have partners or helpers. This type of care is usually less costly and located close to the child's home, making it easily accessible for parents (Clarke-Stewart et al.,

1994; Coley et al., 2014; Zigler & Hall, 1988). Mothers may have more control over what happens to their children and when pick up and drop off times are in home care than center care since they can give more instructions to a home care provider than they could give to a center care provider (Clarke-Stewart et al., 1994; Zigler & Hall, 1988).

Child care homes usually accept a wide range of ages and give children the opportunity to interact with children of varying ages (Clarke-Stewart et al., 1994). Children in home-based settings spend more time in child-initiated activities than children in center care (Kisker et al., 1991). Home care often has less space and materials than center-based care, but they typically have fewer children there, allowing for children to receive more individual adult attention. When children receive care in a private home, they are usually being cared for by an individual who is like a *mother figure* in a familiar and comfortable home-like setting (Clarke-Stewart et al., 1994; Zigler & Hall 1988). The child care provider may or may not be trained in early childhood education. Child care providers who work in homes that are regulated by the state have more education and training than nonrelative providers working in a nonregulated private home (Clarke-Stewart et al., 1994; Raikes, Raikes, & Wilcox, 2005). When comparing center care and relative care providers, nonrelative care providers in a private home are usually more educated and have more formal training than relatives, but less education and less formal training than center care providers (Dowsett et al., 2008). According to the 2011 United States Census Bureau, about 11% of children under the age of five years old are cared for by nonrelatives in a private home. Of those, 3.7% receive nonrelative care in their own home (Laughlin, 2013).

Families that have several children are more likely to send their children to informal home-based care rather than more expensive center-based care (Huston, Chang, & Gennetian, 2002; Johansen et al., 1996; Liang, Fuller, & Singer, 2000). Mothers who choose nonrelative

child care in a private home typically select this care based on the fact that they knew the child care provider or they trusted the child care provider (Kontos et al., 1995; Meyers & Jordan, 2006).

### **Quality of Child Care**

A child's development is not only impacted by the type of child care chosen, but also the quality of that care (Belsky, 2009). Many studies examine quality by measuring group size, educational levels of child care providers, and provider/child ratios (Johansen et al., 1996). Quality can also be examined by measuring the sensitivity and responsibility of the caregiver as well as cognitive and language stimulation provided to the children (NICHD, 2006). Numerous studies have found factors such as lower staff-child ratios (Coley, Chase-Lansdale, & Li-Grining, 2001; Leach, Barnes, Malmberg, Sylva, & Stein, 2008; Phillips, Howes, & Whitebook, 1992), higher education levels of staff (Burchinal, Cryer, Clifford, & Howes, 2002; Coley et al., 2001; Fuller, Kagan, Loeb, Chang, 2004; Phillips et al., 1992), low staff turnover (Phillips et al., 1992), high levels of sensitive teacher-child interactions (Abner, Gordon, Kaestner, & Korenman, 2013; Burchinal et al., 2002; Coley et al., 2001; Fuller et al., 2004; Leach et al., 2008; Peisner-Feinberg, Burchinal, & Clifford, 2001), and effective behavior management (Coley et al., 2001) to be related to higher quality child care. A study conducted by Peisner-Feinberg et al. (2001) that examined 733 children longitudinally found that early relationships between these children and their child care caregivers were the strongest longitudinal predictors of children's social skills. Another study that examined 114 Californian children suggested that sensitive and responsive care mediates the association between characteristics of the child care caregiver and children's social-emotional outcomes (Tsao, 2015). The quality of care may depend on the type of child care selected, but there are variations of quality within the type of care. Findings

suggest there is more importance placed on the caregivers' ability to form a positive relationship within the group of children, as opposed to their ability to attend to children only on an individual basis. Therefore, caregiver sensitivity and responsiveness toward the group strongly influences children's outcomes (Tsao, 2015).

The quality of child care that a family uses for their child is influenced by a variety of family factors. Families with more income, two-parent households, more maternal education, and being in the White racial group predicts the tendency to use higher quality care (NICHD, 2006). Mothers who worked more hours per week tend to select lower-quality providers (Fuller et al., 2004). Using a sample of 238 low-income children receiving nonparental care in Boston, Chicago, and San Antonio, Li-Grining and Coley (2006) examined the quality of the various types of child care the children were receiving. The quality of care was observed using the Early Childhood Environment Rating Scale- Revised (ECERS-R), the Family Daycare Rating Scale (FDCRS), and the Arnett Scale of Provider Sensitivity. The researchers found that child care centers and nonrelative care in a private home were found to have higher overall developmental quality than relative care. Across the different types of care, Head Start centers received an overall quality rating of *good*, while other centers, nonrelative care in a private home, and relative care outside of the child's home was rated on average as *minimal* quality. Relative care inside of the child's home was rated the lowest in quality in the *inadequate* range. The ECERS-R and FDCRS ratings of *good*, *minimal*, and *inadequate* were measured by ratings of a number of subitems that could be rated with a score from one to seven. A total score and subscale scores were computed. Analyses considered continuous scores. A score less than three indicated care that is *inadequate*, a score of three or four indicated *minimal*, and a score of five or more indicated care of *good* developmental quality.

The quality of centers providing care to low, middle, and high income families varies. According to Phillips, Voran, Kisker, Howes, and Whitebrook (1994), at times, the centers that serve the extremes (very low-income and very high income children) have better quality than centers that serve middle-income families. Upper income children are more likely to be cared for by more educated, trained, and sensitive teachers. Children from middle-income families receive the poorest quality of care due to financial disadvantages. Middle-class families do not have the disposable income to send their children to high-quality care nor do they have access to public subsidies. Low-income children's care, although variable, is predominantly adequate. Public subsidies allow these children to attend government programs, such as Head Start, that usually provide a good level of quality (Phillips et al., 1994; Raikes et al., 2005).

More recent public spending has allowed for positive, but modest effects on equalizing parents' access to care (Meyers & Jordan, 2006). Knowing about available child-care subsidies is linked to a greater probability of enrolling one's child in center care (Hirshberg, Shih-Cheng Huang, & Fuller, 2005). Still, a better understanding of a family's access to child care subsidies will help to educate researchers and policymakers as to the association between family's income and their use of nonparental child care (Tang, Coley, & Votruba-Drzal, 2012).

**Relationship between quality of care and externalizing behaviors.** NICHD studies (2003a, 2006) have found that higher quality of care leads to lower levels of externalizing behavior as reported by parent and child care caregivers of 4.5-year old children, and fewer externalizing problems as reported by the children's kindergarten teacher. Caregivers rated children who attended higher quality care as having better social skills at both 24 months and 54 months. Quality was defined by the caregiver-child interaction and was measured by using a four-point rating of sensitivity to child's nondistress signals, stimulation of cognitive

development, positive regard for child, emotional detachment, flatness of affect, intrusiveness, and detachment. Although higher quality care was associated with lower levels of externalizing behavior problems, this same study also found that the more time spent in nonmaternal care, particularly center-based care, across the first 4.5 years of life care increased behavior problems reported by the parent, caregiver, and kindergarten teacher.

Similarly, McCartney et al. (2010) analyzed 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. These researchers found the more time spent in child care, the more externalizing behaviors were observed by caregivers. The results were modest but statistically significant after adjusting for mother's education, partner status, quality of parenting, symptoms of depression, poverty level, gender, and race/ethnicity. Additionally, children who were cared for under low quality conditions exhibited more externalizing behaviors than children receiving care in high quality conditions. The influence of child care hours was moderated by the quality of the care. The influence of the number of hours was smaller for children receiving higher quality care and larger for children receiving lower quality care. This suggests that quality may protect children from some adverse effects of receiving long hours of nonparental care.

### **Socioeconomic Status**

Socioeconomic status (SES) is another factor that impacts a child's development and is to be considered when studying child care and problem behaviors. A child's SES refers to an individual or family's social standing or class. It is usually measured by examining education, income, and occupation (American Psychological Association, n.d.). SES also indicates one's access to desired resources such as goods, money, power, friends, healthcare, leisure time, and

educational opportunities. Accessing these resources allows individuals or groups to thrive in the social world (Oakes, n.d.). High SES parents are more able to provide their children beneficial goods, services, experiences, social connections, and parental interactions compared to what low SES parents may provide (Brooks-Gunn & Duncan, 1997). Higher educated parents place more emphasis on imparting skills, knowledge, and experience in their children as well as spending more time with them (Willingham, 2012). This in turn may result in a lower risk of developmental problems (Brooks-Gunn & Duncan, 1997). Low SES families have less money and resources available, which in turn, can affect children's development. For instance, parents in low SES households are less able to buy books, computers, and other developmentally-stimulating materials for their children. Research demonstrates a link between SES and health, as well as cognitive and socioemotional outcomes in children. The associations between SES and these outcomes start before birth and continue into adulthood (Bradley & Corwyn, 2002).

### **Externalizing Problem Behavior**

When researching the outcomes of types of child care, researchers and policymakers must consider externalizing problem behaviors due to their potential impact on children's functioning. As mentioned above, externalizing problem behaviors include a variety of acting-out behaviors. They regularly occur during social interactions with peers or adults. Externalizing problem behaviors may be difficult to overlook and can be annoying, disruptive, and, at times, dangerous. These inappropriate behaviors can be troubling for parents and teachers (Gresham & Elliott, 1990; Huston et al., 2015; Whitcomb & Merrell, 2013).

Early childhood presents children with emotional and behavioral challenges. Children need to learn how to regulate their emotions, how to inhibit impulsive or aggressive behaviors, and how to begin communicating with other children and adults (Raver, 2002). It is typical and

expected for most children to have certain levels of problem behaviors, such as noncompliance, temper loss, and aggression during early childhood. These behaviors are considered to be normative misbehaviors (Wakschlag et al., 2007). Even up to the age of three and four years old, many children still throw tantrums every day (Potegal, Kosorok, & Davidson, 2003).

Aggression, destructive behaviors, and other externalizing behaviors are often used by toddlers to solve conflicts with other children. A number of researchers (e.g., Bongers, Koot, Van der Ende, & Verhulst, 2004; Coie & Dodge, 1998; Moffitt, 1993; Owens & Shaw, 2003) found that as a toddler develops cognitively and has an increase in emotional regulation skills, these externalizing behaviors often decrease or diminish over the preschool and school age period. A small number of toddlers, about five to seven percent, do not eventually outgrow the defiant behaviors and exhibit persistent externalizing behaviors into kindergarten and throughout their lives (Moffitt, 1993).

Externalizing behaviors beyond normative levels may develop during early childhood and can lead to peer problems, negative interactions with parents and teachers, delinquency, and other negative social and behavioral problems (Coie & Dodge, 1998; Keiley, Lofthouse, Bates, Dodge, & Pettit, 2003). Longitudinal studies found that changes in family environment, such as a divorce, a family illness, or a move, are likely to accompany either the onset of behavior problems or their remission (Campbell, 1995, 2002). Problem behaviors may inhibit a child from acquiring age-appropriate skills (Campbell, 2002) which may induce antisocial behavior in adolescence (Zahn-Waxler, Usher, Suomi, & Cole, 2005) and adulthood (Levenston, 2002). Behavioral problems early in life often precede antisocial psychopathological problems in children, adolescents, and adults (Fanti & Henrich, 2010). For example, the earlier the concerns of externalizing behaviors, for instance at four to five years old, the greater the likelihood of

higher severity problem behaviors at six to seven years of age (Zahn-Waxler et al., 2005).

Children who had lower cognitive abilities as infants were more likely to develop externalizing behaviors later on in life (Fanti & Henrich, 2010). Fanti and Henrich (2010) found that continuous, moderate, and chronic externalizing problem behaviors are linked to deviant behaviors later in life. The duration of externalizing problems over the lifetime and not the intensity of the externalizing problems leads to deviant behavior later in life.

Many studies show that children from lower SES families are more likely to exhibit externalizing behaviors than children from families with higher SES (e.g., Achenbach, Howell, Quay, & Conners, 1991; Dodge, Pettit, Bates, & Valente, 1995; Webster-Stratton & Hammond, 1998). Using a sample of 585 children assessed in kindergarten through 8<sup>th</sup> grade, Keiley et al. (2003) used a confirmatory factor model to analyze mother-and teacher-reported symptoms on the Achenbach checklists. It was found that children from lower SES families were rated by their mothers and teachers as having more externalizing problem behaviors than children from higher SES families. It could be the case that there is more stress in families of lower SES, partly due to economic stressors (Conger et al., 1992), which is linked to the development of externalizing problem behaviors (Deater-Deckard, Dodge, Bates, & Pettit, 1998).

### **Other Risk and Protective Factors**

The exhibition of externalizing behaviors in youth has been on the rise (Knox, King, Hanna, Logan, & Ghaziuddin, 2000). Thus, a better understanding regarding the specific psychosocial influences that contribute to the development of these externalizing problem behaviors is warranted (Piko, Fitzpatrick, & Wright, 2005). There are child factors and family factors that increase and decrease the probability of externalizing problem behaviors. Child risk factors that contribute to externalizing problem behaviors include low academic achievement and

suicidal ideation (Piko et al., 2005), as well as child temperamental resistance to control, and peer rejection (Keiley et al., 2003). Males are also more likely to exhibit externalizing behaviors than females (Keiley et al., 2003). Family risk factors that contribute to externalizing problem behaviors include family conflict (Formoso, Gonzales, & Aiken, 2000), physical abuse by a parent, domestic violence in the home (Piko et al., 2005), harsh parental punishment, and low SES (Keiley et al., 2003). Additionally, lower levels of parental warmth, higher levels of parental hostility, and lower levels of behavioral control are linked to higher levels of externalizing behavior (McKee, Colletti, Rakow, Jones, & Forehand, 2008). Conversely, the protective factors that contribute to the reduced probability of externalizing problem behaviors include child temperamental adaptability (Keiley et al., 2003), having a positive outlook on school, parental monitoring, and maternal, paternal, and peer attachments (Formoso et al., 2000).

As indicated by an intervention implemented by Denham and Burton (1996), child care may be a place to aid children who are at-risk of externalizing problem behaviors. These researchers implemented an intervention for at-risk four year olds in seven center care classrooms. The sample of children included a wide range of cultural, ethnic, socioeconomic, and linguistic backgrounds. Of the 130 children in the sample, 69 were identified as being at-risk. The children's social emotional status was rated by observation and a teacher questionnaire at the beginning and end of the 32-week intervention. Children who participated in the intervention were found to exhibit decreased negative emotions, such as anger and hostility, and had increased peer skill involvement over the weeks. Thus, specific interventions may be introduced in center care that may combat against externalizing behaviors.

### **Types of Child Care and Socioeconomic Status**

Families of all economic backgrounds are limited to child care programs that will accommodate work schedules, convenience of locations, and the various ages of siblings (Grogan, 2012). Care arrangements vary by a family's income and socioeconomic status (Meyers & Jordan, 2006). Middle and high SES children are least likely to be cared for exclusively by their parents (Early & Burchinal, 2001). More specifically, children from families that have incomes at least twice the poverty line are more likely to experience nonparental care than children from families that have incomes that are below or close to the poverty threshold, possibly due to the fact that parents who have higher SES work more hours (NICHD, 1997), have more expendable income for child care, and/or believe child care attendance will benefit their child's academic and social development.

Families of all SES may choose center-based care for their children, including well-off families who pay for care themselves or poor families who may be receiving subsidies for child care. For most ethnic and age groups, families who are not poor are more likely to use center-based care than near-poor families and poor families. Parents who highly value caregiver training are more likely to use center-based care (Early & Burchinal, 2001). Mothers who value and want there to be educational features in their child's care are most likely to choose a child care center (Johansen et al., 1996). The groups who were more likely to send their children for longer hours in child care centers include single mothers, mothers with more education who held less traditional beliefs about parenting, as well as families with higher incomes who had fewer children in the household (NICHD, 2004).

**Income.** Income is the most important factor that influences the child care selection process (Coley et al., 2014; Early & Burchinal, 2001; Peyton et al., 2001). For example, using

the Early Childhood Longitudinal Study-Birth Cohort, Coley et al. (2014) found that family resources such as higher income levels and higher education levels predicted the use of center care. This may be due to the fact that centers place a greater emphasis on education and structured learning. Parents choose the type of care by weighing the costs and benefits of the various care arrangements and on the personal needs of the family (Zigler & Hall, 1988).

*Lower SES children's care.* When families with lower incomes seek child care, they place more of an emphasis on the affordability of care as well as if their child can attend when they are sick than families with higher incomes. Low-income families are more burdened by child care costs and may have less flexible work schedules. This makes finding an accommodating child care placement important. Lower income families gravitate toward selecting care by a relative or an informal home-based care arrangement more than other groups (Sandstrom & Chaudry, 2012). Peyton et al. (2001) found that families with low income were almost four times more likely to choose care based on practicality and moderate income families were about twice as likely to choose care based on practicality than high income families. Low and moderate income families are more likely to select a type of child care based on having a preference for a particular choice rather than on quality.

Disadvantaged families usually have fewer options than higher income families in choosing child care for their family (Shlay et al., 2005). Children who come from disadvantaged families are consistently less likely to attend early education programs than children of nondisadvantaged families (Bainbridge, Meyers, Tanako, & Waldfogel, 2005; NICHD, 2006). Research using data from the Early Childhood Longitudinal Study proposed that children from low-income families may be affected differently by nonparental care compared to advantaged families. For instance, low-income groups experience few negative social behavioral effects

from more than thirty hours in center care. In contrast, those from higher income families display more negative behaviors the more hours they spend in center care each week. However, little is known regarding the number of hours of care that influences unfavorable outcomes (Loeb et al., 2007).

Tang et al. (2012) focused their study on economically disadvantaged populations in contrast to previous studies conducted on child care selection. Qualitative interviews with low-income families reported that the type of care a family preferred was not always the type of care that was selected for their child. This was due to logistic constraints of child care such as hours of care, transportation, cost, and constraints based on rules of specific types of care, such as age of entry. Their research also concluded that factors such as the language and culture of the caregiver and the number of children being cared for in the care setting influenced low-income families' child care selections. A recommendation from Tang et al. (2012) was that future research should explore low-income families' barriers to using their preferred child care setting.

Although there has been an increase in the number of low-income children receiving nonparental care, there is limited research regarding their specific needs and experiences (Li-Grining & Coley, 2006), especially regarding care in home settings (Howes et al., 1995; Loeb, Fuller, Kagan, & Carrol, 2004). The growth in federal care vouchers provided to low-income and working class families has increased the demand for center and nonrelative care in private homes (Blau, 2001). Many child care studies base their research on samples of mostly middle- and upper-income families (Howes et al., 1995; Votruba-Drzal et al., 2004) with only a small subset of low-income families (Loeb et al., 2004). Even the NICHD Study of Early Child Care participants were not predominantly from high-risk families (Loeb et al., 2004; NICHD, 2003a).

More needs to be known about how low-income parents choose types of child care and how their choices affect their children's development (Hirshberg et al., 2005).

*Higher SES children's care.* A family's SES helps to predict what type of child care they will choose for their child (Kim & Fram, 2009). Higher SES families are more likely to select center care than any other care, perhaps due to a greater emphasis on choosing high quality child care that has an educational focus and highly trained staff (Coley et al., 2014; Fuller, Holloway, & Liang, 1996; Grogan, 2012; NICHD 2004, 2006). Researchers found that higher-income families (Bainbridge et al., 2005, using data from the October Current Population Survey) and higher-income families that are more educated (Coley et al., 2014, using data from the Early Childhood Longitudinal Study, Birth Cohort) were more likely to use center care arrangements. In corroboration, Hirshberg et al. (2005) found that parents with higher educational attainment, who worked longer hours and earned more money, are more likely to choose center care for their children (Kim & Fram, 2009). Mothers who are more educated are most selective when selecting a type of child care for their children. They tend to place an emphasis on learning, quality, and practicality of the child care program (Kim & Fram, 2009). Infants of mothers with higher incomes are usually placed in child care at earlier ages than infants of mothers who do not have as high of an income. This may be due to the fact that mothers who had stronger beliefs in the benefits of their employment placed children in care at earlier ages (NICHD, 1997).

Mothers who work few hours and mothers of high-income families place a main focus on the quality of the child care rather than practical concerns such as cost or location. Relative care is least likely to be used by mothers who choose care based on quality (Peyton et al., 2001). Higher income families choose nonrelative home care and child center care more frequently than low-income families who choose relative care more frequently (Coley et al., 2014; Early &

Burchinal, 2001; Peyton et al., 2001). Well-educated mothers used relative care significantly less than their less-educated counterparts. However, income did not significantly influence a choice for nonrelative care in a private home (NICHD, 2004). Additionally, for parents with higher school attainment and household earnings with young children, from birth to age five, were more likely to choose nonparental care for at least ten hours per week (Hirshberg et al., 2005).

### **Types of Child Care and Race/Ethnicity**

A family's choice of child care may vary by their race and ethnicity. In addition, environmental constraints influence the selection of type of child care differently for ethnic-minority mothers than their White counterparts (Tang et al., 2012). Race, ethnicity, and SES are closely intertwined. Children of color are four times more likely to be born into a poor or low SES family than their White counterparts. Black, Latino, and Native American children who are under the age of five are three times more likely to live in a household with very little income than their White peers (Ross, 2011). Early and Burchinal (2001) found that Black children are more likely to be in nonparental care than other ethnic groups. Black preschoolers are more likely to be in center care than White or Hispanic children (Early & Burchinal, 2001; Tang et al., 2012). Additionally, Early and Burchinal (2001) found that middle and high SES Black infants and near low, middle, and high SES Black preschoolers attend child care more than 40 hours per week. Black and Hispanic parents value child care that allows sick children to attend more than White parents (Early & Burchinal, 2001). Parents in racially-segregated communities may place more trust in care arrangements that are recommended to them through social networks. However, these recommendations may limit their options and segregate their children (Meyers & Jordan, 2006). Even though parents have similar concerns about child care quality, such as

safety, the parents' locations, race/ethnicity, and cultural values and expectations will change their specific desires for child care. Depending on these family factors, the specific meaning of quality will be different for each group (Kim & Fram, 2009).

Tang et al. (2012) found that race and ethnicity are significant predictors of care settings. Their study suggested that Black mothers were more likely to use center care than Latina mothers. However, the differences between races disappeared once environmental context was taken into account. This finding demonstrates that availability and accessibility of child care in a family's area has more priority than the mother's culturally-based child care preference. NICHD (2004) found that the only type of care that ethnicity significantly predicted was relative care. Children who are non-White spent more time in relative care than White children. European American's who are non-Hispanic are more likely to choose center care than relative care. The opposite is true for Hispanic and immigrant families who are more likely to choose relative care than center care (Fuller et al., 1996; Huston et al., 2002; Liang et al., 2000). Uttal (1997) found that Hispanic parents preferred Hispanic caregivers. This preference was due to a greater trust in the care to provide warm caregiving and methods of discipline similar to their own practices and to have their child exposed to Spanish language and cultural practices. Early and Burchinal (2001) also found that regardless of poverty status, Black infants and toddlers are more likely to be placed in relative-care than White or Hispanic infants and toddlers. This may be due to having a greater kinship network.

### **Types of Child Care and Externalizing Behavior**

**Negative impact of child care on externalizing behaviors.** Researchers and policymakers have worried that pervasive use of child care during the early years may be a risk factor for an increase in problem behaviors even though child care experiences have not been

linked to clinical levels of problems (McCartney et al., 2010). Some studies have made a connection between the use of child care and increased children's behavior problems (Belsky et al., 2007; Coley et al., 2013; Magnuson et al., 2007a; NICHD, 2002, 2003b, 2004). Studies have demonstrated that the more time a child spent in any nonmaternal child care from birth to 4.5 years, the more externalizing problems and conflict they had with adults at 4.5 years old as reported by mothers, caregivers, and teachers. Caregivers and teachers of children who spent a greater percentage of care hours in center care rated the children as having more behavior problems and less self-control than students who had not experienced center care (e.g., Belsky et al., 2007; Coley et al., 2013; Magnuson et al., 2007a; NICHD, 2002, 2003a, 2004). One of these studies (Belsky et al., 2007) examined 1,364 children and found that children with more exposure to center care had more teacher-reported externalizing problems through the sixth grade. Coley et al. (2013) also found that center care has been linked to heightened behavior problems in kindergarten. Magnuson et al. (2007a), using the ECLS-K dataset, found that children who attended center care had an increase in classroom behavior problems unless their center care was in the same building where they attended kindergarten. This finding may be due to higher quality care programs being held in public schools. In another study (Averdijk, Besemer, Eisner, Bijleveld, & Ribeaud, 2011), children who spent more time in child care had three times the amount of elevated aggression than children who attended child care less frequently. Additionally, researchers found a link between child care and problem behavior in group-based child care, not individual child care. This may be due to having to share caregiver attention or children learning and imitating problem behaviors from peers. Center care is the type of care most associated with large peer groups, which might influence behavior problems. Components of a care setting, such as the environment or caregivers, may impact whether or not

a care setting models less prosocial and more aggressive interactions. This increased exposure may be integrated into the child's behaviors (McCartney et al., 2010; Morrissey, 2010).

Some studies have used a nationally representative sample--the Early Childhood Longitudinal Study, Kindergarten Class of 1998-1999 (ECLS-K). These analyses found that children who had attended child care centers received teacher reports of higher externalizing behaviors and lower self-control while in kindergarten than children who attended other types of care (Dmitrieva, Steinberg, & Belsky, 2007; Loeb et al., 2007; Magnuson, Ruhm, & Waldfogel, 2007b). More time spent in center care has been related to more conflicted relationships with teachers and mothers (NICHD, 2005). Using observations from the NICHD Study of Early Child Care and Youth Development, Dowsett et al. (2008) examined studies using national samples that showed that children with more center care experiences are later rated as having more behavioral problems by caregivers and elementary teachers than those who had not experienced center care. They also found that unless a child care setting is set up to promote positive interactions, children may learn to act aggressively in social interactions with peers. A limitation of this study is that the observational data did not provide details on how caregivers in different settings taught social skills, which would be beneficial in understanding what children are taught about social interactions with peers and adults in the various types of child care. The earlier in life a child enters child care and the more hours they spend there may increase their contact with peer behaviors, possibly increasing negative behavioral responses.

Children in first grade who had spent more hours of care before entering kindergarten were rated by teachers to have higher externalizing behaviors and more conflict than children who had received fewer hours of care upon entry to school (NICHD, 2002, 2003a, 2005).

Claessens (2012) found that if a student received any center care during the kindergarten year, it

resulted in higher levels of externalizing behaviors and lower levels of self-control at the end of kindergarten. McCartney et al. (2010) found that spending more hours in care at 24 and 54 months of age was related to high externalizing behavior as reported by caregivers, even when family, child selection, and child care variables were controlled as rated by caregivers.

Relationships formed in child care influence child behavior. Pianta, Hamre, and Stuhlman (2003) noted that during infancy and toddlerhood, the relationships children form with caregivers contribute significantly to their social, emotional, and cognitive development. These relationships affect their adjustment to school, academic achievement, and prosocial and antisocial relationships with peers. Children further develop their social skills by interacting with other peers. Exposure to peers and caregivers may influence a child's behaviors through modeling and other social interactions. Behavior occurring in child care settings has been found to be *contagious*, where children can learn and imitate problem behaviors of their peers. Also, with other peers present in care, children have to share their caregivers' attention. Children may display externalizing problem behaviors in order to gain attention from their caregiver. Still, teachers' presence has resulted in less aggressive imitation. This finding suggests the important role of caregiver-to-child ratio and group dynamics (Goldstein, Arnold, Rosenberg, Stowe, & Ortiz, 2001).

Examining a culturally diverse urban sample from Switzerland, Averdijk et al. (2011) found a link between all types of group-based nonparental child care, but not individual child care, and problem behavior. This study defined individual child care to include care where the child was taken care of alone by non-cohabitating family members, neighbors or acquaintances, and nonrelatives in a private home. Group-based care included child care centers and schools (not during the school day, only after-school hours).

Spending long hours in care with a large group of peers was found to be more strongly related to externalizing behaviors (Belsky et al., 2007). Caregivers working with a smaller number of children are able to practice better behavior management skills than when working with a large number of children (McCartney et al., 2010). Since most centers care for a large number of children, it may be tricky to separate the effects of large group care and center care. Children who spent about 30 hours on average in child care had greater externalizing problem behaviors than children in part-time care (10 or less hours) as rated by teachers (Belsky et al., 2007). Loeb et al. (2007) had similar findings--those children who spent more than 30 hours a week in center care had worse behavior according to teachers than children who were in part time center care. In addition, they found that the younger a child starts in center care, the greater the negative behavioral outcomes. McCartney et al. (2010) argued that when children spend more long hours in child care, the greater the chance they have to learn externalizing behaviors from peers by modeling.

**No link between child care and externalizing behaviors.** Not all studies concur with the aforementioned findings (Dowsett et al., 2008). Some studies found no link between experiencing child care and externalizing behaviors (Borge et al., 2004; Erel et al., 2000). Erel et al. (2000) conducted a series of meta-analyses of findings from 59 studies in order to examine the impact between maternal versus nonmaternal care on children's behaviors. Children in the various studies were separated into groups by age--less than or equal to two years old, 25 months to four years old, and greater than four years old. Child development outcomes were measured utilizing seven indices: attachment classification, attachment behaviors, mother-child interactions, adjustment/well-being, social interaction with peers, social interaction with nonparental adults, and cognitive development. Race and ethnicity was not examined in the

study. SES could not be examined as a potential mediator given the lack of data provided. The original plan was to examine SES as a potential moderator, but it was omitted due to the lack of SES information provided in the original studies. The researchers did not differentiate the type of nonmaternal care. Findings suggested that children who receive nonparental care do not differ from children receiving parental care in any of the indices. Differences may appear if the focus of the research is broadened to include different types and quality of care. The researchers were not able to conclude that nonparental care does not impact on children. However, most of their analyses suggested that that nonparental child care does not significantly affect child development.

In concurrence, other studies found no relation between center care and ratings of problem behavior, especially with low-income families. McCartney et al. (2010) found that more child care hours at 36 months were not related to higher externalizing behaviors. Bacharach and Baumeister (2003) indicated that there is no conclusive determination as to whether there is a relationship between prekindergarten care arrangements and risk of clinical behavior disorders in kindergarten children. This may be due to the fact that generalizing across studies that use different sample types, different research designs, and have differences in the way they operationally define child care arrangements and behavior problems lead to different findings.

**Positive impact of child care on externalizing behaviors.** Disputing the aforementioned findings, other studies found that child care reduced problem behaviors (Denham & Burton, 1996; Field, 1991; Votruba-Drzal et al., 2010). Borge et al. (2004) analyzed data from a cross-sectional maternal questionnaire that included a representative sample of 3,341 Canadian two and three year olds. The researchers examined between-group comparisons. They found

that aggression was significantly more common in children in maternal care (especially for high-risk families) than children who attended group center care. Borge et al. made note that although it lacks plausibility, there may be a rating bias for mothers who take care of their children without using nonparental care. These mothers have a greater opportunity to see their child engaging aggressively than mothers whose children spend many hours a week in care. The researchers originally hypothesized that low SES mothers may over-rate aggression as compared to more advantaged mothers, but this hypothesis was not supported.

Field (1991) used two longitudinal data sets to examine both attendance in stable high-quality child care programs and grade school behavior and performance. Field's first findings included a positive link between children having experienced a stable, full-time center care during infancy through school age and their number of friends in school. The more time spent in center care, the more positive the parents rated their children's emotional well-being. There was a negative relationship found between more time spent in center care and aggression. The second study's population was sixth graders who had spent varying amounts of time (months) in stable full-time center care at a variety of quality centers. Children who spent more time in center care were rated by teachers as having higher well-being. One study suggests that children who attend center care have higher social competence than children attending home-based child care (Clarke-Stewart et al., 1994).

### **Types of Center Care, Externalizing Behavior, and Socioeconomic Status**

Burchinal, Roberts, Zeisel, Hennon, and Hooper (2006) found that quality child care programs acted as a protective factor against problem behaviors for less advantaged children from Kindergarten until third grade. For low income or low-SES children, additional time spent in center care has been demonstrated to be helpful (Votruba-Drzal et al., 2004) or neutral (Loeb

et al., 2007) for developing their socioemotional skills and behavior. Researchers who utilized the ECLS-K dataset in order to examine low SES children in care and externalizing behaviors found contradictory results. Magnuson et al. (2007a), using the ECLS-K, found that children of parents with low education (mother or father did not complete high school) or in poverty, or children in families who are welfare recipients who attended center care had higher levels of externalizing behaviors in kindergarten and in first grade than more advantaged children. Using the ECLS-K, Loeb et al. (2007) found that low-income children who spent at least 30 hours a week in center care did not have additional problem behaviors from additional hours in center care. Other studies do not show a relationship between center care usage and mother's reporting problem behavior even after controlling for quality of care and family selection factors for low-income families (Coley et al., 2001; Fuller et al., 2004).

Middle-income or high-income children were found to have increasingly negative behavior the more hours they spent each week in center care (Loeb et al., 2007). Studies have shown that children from middle or high SES families who spend more time in center care are reported as having less favorable socioemotional skills and behavior (NICHD, 2001; NICHD, 2003a). Pertinent information focusing on externalizing behaviors, socioeconomic status, and all types of child care, other than focusing on center care alone, was not available. This may be due to researchers being funded to work on projects examining center care, since center care programs can be funded and can be licensed by the state. With an increase in information, it is easier to make large changes at the center care level as opposed to relative care or nonrelative care in a private home.

### **Questions About Child Care**

The increasing number of children receiving nonparental child care has led parents and psychologists to question the effects of these additional out-of-home experiences on a child's well-being and development (Clarke-Stewart et al., 1994). Although the extent is unknown, experiences children have in child care play at least some role in their social, physical, psychological, and educational development (e.g., Johansen et al., 1996). Type and quality of care may affect the child's early language, mathematics, working memory, emotional regulation, problem behaviors, and peer relationships (Burchinal et al., 2014). Despite the fact that a parent's choice of child care may be a key determinant in their child's school readiness and academic and behavioral success, not all families have access to care that will best enhance the healthy development of their children (Grogan, 2012; Zigler & Hall, 1988). Policymakers need pertinent information in order to better understand the influences of child care so beneficial programs can be made more accessible.

The NICHD Study of Early Child Care is a national longitudinal study that began in the early 1990s as a reaction to the need for well-designed research in order to learn more about child experiences in nonparental child care settings. A goal of the studies was to provide child care information that has practical implications in order to better inform parents, professionals, and policymakers. The NICHD Study of Early Child Care has found so far that child-care quality, quantity, and type relate to children's development. High quality center care is linked to higher cognitive-academic performance while more hours of child care, especially with nonrelatives, was related to more problem behaviors (NICHD, 2003a, 2006; Vandell, Belsky, Burchinal, Steinberg, & Vandergrift, 2010).

### **Summary and Statement of the Problem**

In summary, past studies examining child care and externalizing behaviors have produced conflicting results. The implications of many studies demonstrate that early externalizing behaviors of children will be important predictors of their successful transition to kindergarten and their long term success in school (Entwisle & Alexander, 1993; Li-Grining et al., 2010). In child care research, results, findings, and conclusions that were valid five, 10, or 20 plus years ago may no longer be valid due to our changing society; therefore, new and ongoing research is needed. Literature in this area has displayed the complexity of the links between experience and development. Different types of children may experience different results in different types of settings at different times (Shpancer, 2006). Refer to Appendix A, *Summary of Child Care Types for Children in US under the Age of 5*, for a summary of child care characteristics. Many studies have looked only or primarily at center care and may leave out relative care or nonrelative care in a private home; therefore less is known about relative care and nonrelative care (e.g., Kontos, Howes, Shinn, & Galinsky, 1997; Loeb et al., 2007).

It must also be considered that the quality of care influences externalizing problem behaviors. The higher the quality of care, the less externalizing problems will be observed (NICHD 2003a, 2006). Contradictory results of previous research studies may be due to their differing samples, the types of care they studied, differing variables included in the research design, and the timing of their study in our ever changing society. Some of these studies' limitations included only analyzing child care centers instead of multiple types of care, not analyzing the number of hours of child care each week, and using a data set that may be outdated. The current study examined multiple types of child care, the number of hours of care each week, and utilized the newest Early Childhood Longitudinal Study, Kindergarten: 2011.

This study expanded the literature by determining if an association exists between type of child care (i.e., child care centers, relative care, and nonrelative child care in a private home) and externalizing problem behaviors as rated by the child's kindergarten teacher. Furthermore, the study examined SES as a moderator on the influence of type of child care the year before kindergarten and externalizing behaviors at the end of kindergarten. This study additionally provided up-to-date information to the past decades of child care literature from an updated dataset that is nationally representative of children in the United States. A goal of this study was to gain a better understanding of the existing child care literature by examining specific influences of child care—type of care, SES, amount of time spent in nonparental care the year before kindergarten, and externalizing behaviors at the end of kindergarten in one body of research. This may allow parents, educators, and policymakers to have more pertinent information concerning the implications of child care on the development of behavior problems.

### **Research Hypotheses**

- (1) Children who attended center care only will have greater externalizing behaviors than children who attended other types or combinations of care.
- (2) The effect of center care on externalizing behavior will be greater among children from lower SES families.
- (3) The effect of center care on externalizing behavior will be greater among children who spend more time in care, as measured by hours.

### **Chapter Three: Method**

This study used data from the Early Childhood Longitudinal Study, ECLS-K:2011 to examine the relationship between the type of child care a student attended the year before kindergarten and their externalizing behavior as rated by the child's kindergarten teacher. This data set will be discussed in detail in this chapter. The three hypotheses were examined by conducting an ordinary least-squares (OLS) regression.

#### **Database Overview**

This study used data from the Early Childhood Longitudinal Study, ECLS-K:2011. The ECLS-K:2011 is sponsored by the National Center for Education Statistics (NCES) within the Institute of Education Sciences (IES) of the U.S. Department of Education. This database suits the needs of the study because it covers child development, early learning, and school progress. The information is gathered from multiple sources in order to provide exceptional data on children's early school experiences starting in kindergarten until fifth grade. The database was designed to contain comprehensive and reliable data that could be analyzed in order to better understand children's development and experiences in the elementary grades and how these experiences would relate to development later in life. The data for the ECLS-K:2011 was collected in order to allow researchers, policymakers, and educators to study how factors (i.e., student, home, school, and community) in a child's life influence their cognitive, social, and emotional development (National Center for Education Statistics, n.d.). The ECLS-K:2011 is the third in an important series of longitudinal studies of young children (ECLS-B and ECLS-K). The ECLS-K:2011 was created in order to advance research possibilities by providing updated information and addressing recent changes in education policy that were not measured fully in the previous studies. The ECLS-K:2011 came out more than a decade after the ECLS-K and

allows for cross-cohort comparisons of two nationally-representative kindergarten cohorts who experienced different policy, educational, and demographic environments. Significant changes since ECLS-K included the passage of No Child Left Behind (NCLB) legislation, a rise in school choice, and an increase in English language learners. The ECLS-K:2011 was chosen for the current study due to its rich, reliable data and its longitudinal nature that allowed the researcher to examine if the type of child care, the year before kindergarten, was associated with externalizing problem behaviors at the end of kindergarten.

The data file that was analyzed within the ECLS-K:2011 data set is from the base year, Kindergarten cohort. The ECLS-K:2011 is a longitudinal study (fall of 2011-spring of 2016) that followed a nationally representative sample of children from kindergarten through fifth grade. The study focuses on children's early school experiences, and cognitive, social-emotional, and physical development obtained through multiple sources. The multiple sources include interviews with parents, questionnaires completed by teachers and school administrators, and individual assessments of children. Data collected from the kindergarten year also includes questionnaires completed by before- and after-school care providers (nonparental caregivers). During the base year of data collection (2010-2011 school year), 18,174 kindergarteners from 968 schools and their parents, teachers, school administrators, and before- and after-school care providers participated in the ECLS-K:2011 study (Tourangeau et al., 2015).

**ECLS-K:2011 database sample selection.** Participants in the ECLS-K:2011 study were selected using a multi-stage sample design in order to produce national child-level estimates where there is approximately the same probability for each child to be selected. A three-stage process was used to select the sample. In the first stage of sampling, the country was divided into primary sampling units (PSUs), or geographic areas that are counties based on the 2007

Census Bureau population estimates (3,141 counties in the United States). Ninety PSUs were sampled for inclusion in the ECLS-K:2011 study. In the second stage, samples of public and private schools, or other places that educated children of kindergarten age were selected within the sampled PSUs. Primary sampling units and schools were selected with probability proportional to the population size. This included the desirable oversampling of Asians, Native Hawaiians, and other Pacific Islanders. The 2010 National Assessment of Education Progress (NAEP) assisted in the selection of public and private schools. Public schools were selected from Common Core of Data (2007-07 CCD) and private schools were selected using the Private School Survey (2007-08 PSS). Elementary and secondary schools were sampled from CCD and PSS and were retained for ECLS-K:2011 use if they were a school with a kindergarten program or served five-year-old children and were in the 90 PSUs. The third stage of sampling included selected children who were enrolled in kindergarten and five-year-old children in ungraded classrooms. About 23 students per school were selected using equal probability. In order to give smaller schools a better chance of being selected, public schools with fewer than 23 children and private schools with fewer than 12 were clustered together for sampling (Tourangeau et al., 2015).

**ECLS-K:2011 database sample weight development.** Since the ECLS-K:2011 did not choose children in a simple random selection, sample weights were developed by the database researchers in order to compensate for a sample design that may over or under represent certain parts of the population. Some samples may oversample certain subsets of the population, such as an ethnic or racial minority in order to have enough cases to analyze. Once this subsample is combined with the larger sample, the overestimation must be diluted by using sample weights. Weighting produces samples that are nationally representative of children in the United States.

Weights are provided at the child and school levels for the base year. The development of the sample weights was done in three stages. In the first stage of the weighting process, weights equal to the inverse probability of the selection of primary sampling units were assigned. In the second stage of the weighting process, weights were assigned to the schools sampled within the primary sampling units, or counties. In the third stage of the weighting process, weights were provided for each student. The weight was calculated by the school nonresponse-adjusted weight multiplied by the within-school child weight. Asian, Native Hawaiian, and other Pacific Islander (API) children were oversampled. To combat this oversampling, the within-school child weight was calculated separately for API children. The within-school child weight is the total number of API kindergarten children in the school divided by number of API kindergarten children sampled in the school. Replicate weight, constructed with using a jackknife replication (a method for estimation of variance) were used by the ECLS-K:2011 researchers to estimate the standard error of survey estimates (Tourangeau et al., 2015).

**ECLS-K:2011 database data collection.** When participating students were in kindergarten during 2010-2011 (base year), data collection began. In this base year, data collection included students receiving direct child assessments individually, with cognitive and physical measurement components. Parent interviews were conducted during the kindergarten year during the fall and spring. The parent interviews took about 45 minutes and were mostly conducted over the telephone with the person in the household who knew about the child's education, health, and child care (Tourangeau et al., 2015).

In the fall and spring of the kindergarten year, children's general classroom teachers completed a teacher-reported questionnaire about themselves, their classroom, as well as a questionnaire that asked questions about individual children in the classroom who are part of the

ECLS-K:2011 study. The teacher-level questionnaire focused on collecting information about children's classroom experiences since they related to children's academic and social development. The child-level questionnaire collected information about each individual child and their experiences and performance in class. Questions included the teacher's assessment of the child's academic and cognitive abilities, behaviors, social skills, and relationship with the teacher, as well as information about parents' involvement at school and program placements and services that each child may have received. Similarly, in the spring of kindergarten year, special education teachers of students with Individualized Education Programs (IEP) or Individualized Family Service Plans (IFSP) completed a self-administered teacher questionnaire and one about the individual child in the study. In the spring, a school administrator questionnaire was completed. Additionally, a before- and after-school care questionnaire was completed in the spring. It was completed by the individual identified in the fall parent interview. This self-administered questionnaire focused on the child's child care arrangement and the child care provider's background (Tourangeau et al., 2015).

### **Participants**

During the base year of ECLS-K:2011 data collection (2010-2011 school year), 18,174 kindergarteners from 968 schools and their parents, teachers, school administrators, and before- and after-school care providers participated in the ECLS-K:2011 study (Tourangeau et al., 2015). Although the entire ECLS-K:2011 sample includes 18,174 children, the sample for this study included 13,544 children. The reduction of students was due to particular students being excluded from the study if they did not meet specific criteria. Children who had a regular nonparental child care arrangement (i.e., child care centers, relative care, or non-relative care in a private home) the year before kindergarten that involved at least 10 hours per week in care were

included. Several previous studies about child care used a sample of children who had at least one regular care arrangement for at least 10 hours per week (Belsky et al., 2007; NICHD, 2001; Tang et al., 2012). Participation selection was based on attending child care the year before kindergarten rather than being a specific age. Children who did not receive nonparental child care were excluded from the sample. Additionally, children who were not first time kindergarteners were excluded from the sample. Children whose parents filled out the fall 2010 parent interview and whose kindergarten teachers who filled out the spring classroom teacher-child level questionnaire were included in the sample.

All descriptive demographic information for the sample used in this study is described fully in Table 1. In this current study of 13,544 children, as can be seen in the table, boys and girls each made up about half of the sample. White (46%) was the race category that was largest, followed by Hispanic (25%) and Black (13%). Most children in the sample attended center care only (56%), followed by the relative and center care combination (20%). Children's ages when they entered kindergarten ranged from four to seven years old. Since SES was a composite variable, poverty status, household income, and parents' highest level of education were included in order for the reader to get a better understanding of families' financial status. The poverty statuses of the children's families were as follows: below the poverty threshold (23.87%); at or above the poverty threshold, but below 200% of the poverty threshold (21.69%); and at or above 200% of the poverty threshold (54.45%). Interestingly, the poverty rate and the number of families in poverty were 11.8 percent in the United States in 2011 (DeNavas-Walt, Proctor, & Smith, 2012), so this study had a higher percentage of lower poverty families. The household income of the children's families was broken up into 18 salary ranges and appears to be relatively normally distributed. Parents' education was divided up into eight education

categories. The highest percentage of parents had attended some college (24.36%), followed by parents who had a high school diploma/equivalent (23.60%).

### **Measures and Variables**

Variables in the study included nonparental care arrangements during the year prior to kindergarten; number of hours spent receiving nonparental care; the age, sex, SES, and race/ethnicity of the child; and externalizing problem behaviors. In this study, control variables were utilized in order to lessen the effect of confounding variables. Control variables in this study included age, sex, SES, and race. All of the descriptions of the following variables were found in the *User's Manual for the ECLS-K:2011 Kindergarten Data File and Electronic Codebook, Public Version* (Tourangeau et al., 2015).

**Nonparental care arrangements during the year prior to kindergarten.** During the fall 2010 parent interview, parents provided information about nonparental care arrangements that their child experienced during the year prior to kindergarten. If parents did not provide this information in fall 2010, a reduced set of questions about nonparental care the year before kindergarten was asked in the spring 2011 parent interview.

The type of care a child attended is the independent variable and is nominal. The values represent distinct categories that have no order. New variables for the types of care the child attended were created and then dummy variables were utilized. Child care variables indicate the type of care and number of hours the child spent in care during the year prior to kindergarten. The types of care include relative care, nonrelative care in a private home, center-based care, and any combination of these three types of care. For instance one child might have only spent time in relative care, while another child spent time in relative care and center care, while another child spent time every week in center, relative, and nonrelative care in a private home. Center

care was used as the reference category for comparison with the other types of child care in analyses.

***Time in care.*** A variable was created for the total hours of child care by adding up all of the hours of care a child received each week from center, nonrelative, and relative care. A sensitivity analysis (not shown here) was conducted in order to determine whether categorizing the number of hours of care is appropriate or if the number of hours must be examined as a continuous variable in order to get pertinent and accurate findings. A sensitivity analysis is used to examine how *sensitive* a model is to change when different parameters of the model are utilized. By making changes to important variables and observing the outcome, a sensitivity analysis looks to answer which parts of the equation are the best predictors (Flowers, 2013). It was determined that using continuous hours better fit the analyses. Observing the frequency did not suggest any natural breaks in the data which would suggest the use of categorical hours.

In this study, the number of hours a child attended care the year before kindergarten ranged from 10 hours to 150 hours per week. The average number of hours children attended care each week was 33.89 hours. For the analyses, the variable representing the number of hours the child has attended care was mean centered. Mean centering takes place by subtracting the mean score of the variable from the variable. The result of this is a new variable with a mean of zero and a standard deviation equal to the original standard deviation. This reduces unnecessary collinearity and creates a zero point for continuous scales that do not already have one. Additionally, centering allows for easier and more detailed interpretation (Keith, 2015).

**Age.** In the fall of base year (2010), the child's parent reported their child's date of birth which provided the child's age. In this study, the child's month and year of birth were each

variables that when examined together provided the child's age in years when they entered kindergarten.

**Sex.** The child's sex was collected from multiple sources, including the child's school and stored in the Field Management System (FMS), reported by parents in the fall parent interview, and confirmed by parents in the spring parent interview. The FMS was used by researchers to collect information in one place from multiple levels, such as school level, teacher level, and child level. The child's sex was derived from these three sources, placing priority to the spring 2011 parent interview, then the fall 2010 parent interview, and then the FMS. If discrepancies occurred, the ECLS-K:2011 looked to other data sources collected to rectify the discrepancy. The child's first name was examined if discrepancies occurred. If the FMS value for the child's sex and the parent interview value were different and there was only one parent interview, or in instances when there were two parent interviews that were inconsistent, children's first names were examined to see if the FMS value appeared to be more accurate than the parent report.

**Socioeconomic status (SES).** Statistical procedures performed by the ECLS-K:2011 statisticians allowed for the SES composite to be constructed. The SES composite represents the SES of the household at the time of data collection. There are five components that made up the SES variable: Household income; Parent 1/guardian's education; Parent 2/guardian's education; Parent 1/guardian's occupation prestige score; and Parent 2/guardian's occupational prestige score. Parent 1 is the mother and Parent 2 is the father in households that contained both a mother and a father. The SES variable was mean centered by the ECLS-K:2011 researchers (mean centering is described in *Time in care* section on previous page). SES was measured at the household level using data from parents who completed the parent interview in fall 2010 or

spring 2011. The SES variable is a continuous variable with families' scores ranging from -2.33 to 2.6, with a mean score of .00. The larger the score is, the higher the SES of the family. Since SES is a composite variable, it is difficult for the reader to examine this score in a meaningful way. Families' poverty status was included in order for the reader to quickly and easily gain an understanding of the financial status of the participants. The following sections describe the components the ECLS-K:2011 researchers utilized in order to compute a continuous SES score. Although the current study did not analyze these components individually, understanding what comprises SES will allow the reader to better understand SES as a whole.

***Household income and poverty.*** Household income was reported by the parent in spring 2011. Parents were asked to report their income by broad range (\$25,000 or less or more than \$25,000) and by a more detailed range of categories described in Table 1. If parent respondents reported a household income that was close to or lower than 200 percent of the U.S. Census Bureau poverty threshold for a household of its size, the parent was asked to report their exact household income to the nearest \$1,000. Not all parents were asked to report their exact income, so the midpoint of the detailed income range was used to figure the household's level of poverty in these cases.

***Parents' highest level of education.*** Parent/guardian's education was reported by the parent in fall 2010. For nonrespondents, education information was collected in spring 2011. Parents' highest level of education is the highest level of education achieved by each individual parent, or by one parent or guardian in a single-parent household. This variable reflects the education level of both parent (i.e., birth, adoptive, step-, and foster) and nonparent guardians. If educational information was missing from the parent interview, the ECLS-K:2011 researchers, conducted a statistical procedure, called imputation, which replaced the missing data with

substituted values. Each parent is coded into one of the following categories: 8<sup>th</sup> grade or below, 9<sup>th</sup>-12<sup>th</sup> grade, high school diploma/equivalent, vocational/tech program, some college, bachelor's degree, graduate/professional school-no degree, and master's degree or higher, based on their highest educational level obtained.

***Parent occupation.*** Another component of SES is parent occupation. Parent/guardian's occupation was reported by the parent in the fall 2010. Occupational information was not collected in the spring 2011 for nonrespondents. Several measures regarding parents' occupation were collected in order to determine an overall parent occupation rating. These measures were reported by parents' on the parent interview. Work status of each parent including number of hours worked each week was determined by the ECLS-K:2011 researchers. Name of employer, type of business or industry, job title, and important activities of the job were collected to contribute to this measure. Work status was coded as the number of hours each parent worked or if they were looking for a job. Job activities were coded based on information about the employer, type of business or industry, job title and duties on the job. Lastly, job prestige was recoded to reflect the average of the 1989 General Social Survey prestige scores.

***Race/Ethnicity.*** This composite variable takes into account the race/ethnicity of the child. This variable was developed from information collected from parents in the parent interview or the school if parent reported information was missing. Parents were asked to report that their children belonged to one or more of the following races: White, Black or African American, American Indian or Alaska Native, Asian, and Native Hawaiian or other Pacific Islander. One additional variable was created to identify those who had indicated that their child belonged to more than one race category. Data was also collected about the child's ethnicity. Specifically, parents were asked whether or not their child was Hispanic. A child is classified as

Hispanic if a parent indicated the child's ethnicity was Hispanic regardless of a race being identified. The race/ethnicity composite variable was created by ECLS-K:2011 researchers from data set from the six race dichotomous variables and the Hispanic ethnicity variable.

In this study, new variables were created from the race categories--White, non-Hispanic; Black, non-Hispanic; Hispanic; Asian non-Hispanic; and Other Race. A specific set of rules were followed to determine what race category a child would fall into if more than one race category was identified. To be assigned under the White category, the child had to be White, non-Hispanic (not Hispanic, not Black, not Asian, and not any other race). To be assigned to the Black category, the child had to be Black/African-American, not Hispanic (not Hispanic, not White, not Asian, and not any other race). To be assigned to the Hispanic category, the child had to be Hispanic (race specified or race not specified). In order to be assigned to the Asian category, the child had to be Asian, non-Hispanic (not Black or not Hispanic). In order to be assigned to the Other Race category, the child was Native Hawaiian/Pacific islander non-Hispanic; American Indian/Alaska Native, non-Hispanic; two or more races, non-Hispanic; or race not ascertained (not Hispanic, not Black, not Asian). White, not Hispanic was used as the reference category in this analysis and was used for comparison with the other races. This means that all of the other races were compared to White, non-Hispanic children. Race/ethnicity was examined in all of the models in order to make sure it was not a confound so it would not adversely affect the relationship between the dependent and independent variable (per Furlong, Lovelace, & Lovelace, 2000).

**Externalizing problem behaviors.** For this study, the dependent variable is externalizing problem behaviors. This dependent variable, kindergarten teachers' ratings of externalizing behavior is an interval scale or continuous because the externalizing behavior

scores are standard scores. The self-administered child-level teacher questionnaire is based on items from the Social Skills Rating System (SSRS). The SSRS is a set of standardized, norm-referenced scales that provide a multirater assessment of student social behaviors (Gresham & Elliott, 1990). The ECLS-K:2011 parent questionnaire that was completed is comprised of some verbatim items from the SSRS and some modified items.

In the fall and spring of Kindergarten base year, teachers reported social skills and behaviors of their individual students. There were four scales rated by teachers: self-control (4 items), interpersonal skills (5 items), externalizing problem behaviors (5 items), and internalizing problem behaviors (4 items). A four-option frequency scale ranging from *Never (1)* to *Very Often (4)* was used. Teachers were also given the option of specifying they had not had the opportunity to observe the described behavior. For this study, the Teacher-Reported Externalizing Problem Behavior subscale was analyzed. This subscale rates the prevalence the child argues, fights, gets angry, acts impulsively, and disturbs ongoing activities (Claessens, 2012; Gresham & Elliott, 1990).

According to the ECLS-K:2011 user's manual, due to copyright restrictions, data for the individual items in this scale were not included in the ECLS-K:2011 data file. Therefore, the overall subscale score that is comprised of the total of all items was analyzed. The score on this scale is the mean rating on the items included in the subscale (while the SSRS finds the score by adding the items). The teacher needed to have at least answered four of the five items in order for externalizing problem behaviors score to be calculated. If teachers did not have the opportunity to observe two or more behaviors, then they did not answer at least four of the five items necessary for an externalizing problem behaviors score to be calculated. The ECLS:K-2011 researchers did not discuss in their manual how to interpret individual scores. However,

higher scores indicated the child exhibited externalizing problem behaviors more often. In the current study, the ratings of externalizing behaviors ranged from 1 to 4, with the larger the number, the greater the rating of externalizing behaviors. The mean rating of externalizing problem behaviors for this sample was 1.66. In this study, the majority of students were rated by their teacher as having a score of one to less than two (69.76%). Students who were rated as having a mean score from two to less than three made up 24.50% of the sample population, and children with a score of three to four made up the least amount of the population (5.73%).

The Teacher-Reported Externalizing Problem Behavior subscale had an internal consistency reliability coefficient of .88. The SSRS Teacher Form Elementary Level Externalizing subscale and the Child Behavior Checklist (CBCL) Teacher Report Form Externalizing scores are highly correlated ( $r = .75$ ). This relatively high correlation between the SSRS and CBCL provide evidence of criterion-related validity for the SSRS Externalizing Problem Behaviors subscale (Gresham & Elliott, 1990).

### **Analyses**

Using the Early Childhood Longitudinal Study (ECLS-K:2011) data set and the statistical package Stata (Acock, 2014), three hypotheses were analyzed. This study examined if an association exists between type of child care that a child attended the year before kindergarten and externalizing problem behaviors as rated by the child's kindergarten teacher. Additionally, it examined this association with total hours of weekly care and SES of the family as moderators.

Since the ECLS-K: 2011 had a stratified three-stage sampling design, this complex sampling design needed to be taken into account. Stata was selected because it includes commands for complex survey data. A problem with complex survey design is that standard deviations are often underestimated. Replicate weight, constructed using a jackknife replication,

was used to estimate the standard error of survey estimates. Statistical analyses should not be conducted using software packages that assume the data was collected using simple random sampling because the standard errors calculated will be incorrect (Tourangeau et al., 2015).

**Multiple imputation.** Missing values or missing data may occur for a number of reasons when working with participants. For instance, a participant may decide to withdraw from a study midway through data collection or an interviewer could accidentally skip a section of a questionnaire. One option is for researchers to simply drop any participants who have missing values. This approach creates a loss of information which will reduce the sample size of the study and can introduce biases (Acock, 2014). In order to avoid losing these cases, a useful strategy called multiple imputation was used in this study through Stata. Multiple imputations replaced the missing values so these participants could still be used in analyses (per Keith, 2015). Missing values were replaced through this statistical procedure by using auxiliary variables to help explain the patterns of missing values and to help predict the value of the missing values (Acock, 2014).

**Ordinary least-squares regression (OLS).** To analyze the hypotheses, OLS regression was used because it is appropriate to use with a continuous dependent variable. An assumption when using OLS regression is that there is a linear relationship between the two variables being analyzed, in this case type of care setting and externalizing problem behavior (Hutcheson, 2011).

**Moderation.** The second and third hypotheses involved moderation. Moderation occurs when a relationship between two variables depends on a third variable. A variable that identifies conditions under which a given predictor is related to an outcome is called a moderator. Moderation implies an interaction effect. Introducing a moderator variable (such as SES) may change the direction or magnitude of the relationship between two variables (such as type of

child care and externalizing problem behaviors) (Elite Research LLC, 2004). A moderation effect can impact the relationship between the variables in a few different ways. The moderation effect could enhance, where increasing the moderator (SES) would increase the effect of the predictor (type of child care attended the year before kindergarten) on the outcome (externalizing problem behaviors in the spring of kindergarten year). The moderation effect could buffer, where increasing the moderator (SES) would decrease the effect of the predictor (type of child care attended the year before kindergarten) on the outcome (externalizing problem behaviors in the spring of Kindergarten year). Finally, the moderation effect could be antagonistic, where increasing the moderator (SES) would reverse the effect of the predictor (type of child care attended the year before kindergarten) on the outcome (externalizing problem behaviors in the spring of Kindergarten year) (Elite Research LLC, 2004).

In order to examine if there was an interaction effect, interaction terms were created. In this study, new variables were created. In Model 2, the different types and combinations of care were multiplied by the SES variable to create a new interaction variable to be used in analyses. In Model 3, the total hours of care variable was mean centered, and then the different types and combinations of care were multiplied by the total number of hours of weekly care centered variable to get the interaction term.

### Chapter Four: Results

As mentioned above, the relations between type of child care and externalizing behaviors were analyzed using OLS regression. SES and number of hours in care were examined as moderator variables. Several control variables were also examined.

#### Findings Related to Control Variables

Since the results of the control variables across the three models are almost identical, the results of Model 1 are discussed. In this study, male children had a statistically significant higher rate of externalizing problem behaviors than female children ( $B = .271; p < .001$ ). Children from higher SES families had statistically significant fewer externalizing behaviors than children from lower SES families ( $B = -.079; p < .001$ ). With regard to race, White was used as the reference category for comparisons with the other races. Children who were Black ( $B = .138; p < .001$ ) had statistically significant more externalizing behaviors than children who were White. Children who were Hispanic ( $B = -.089; p < .001$ ) or Asian ( $B = -.143; p < .001$ ) had statistically significant less externalizing behaviors than children who were White. Children who were categorized under Other Race ( $B = .031; p = .189$ ) did not differ significantly when compared to White children. The more hours a child spent in care each week, the greater their ratings of externalizing problem behaviors ( $B = .004; p < .001$ ).

Putting this all together, students had more of a chance of having greater externalizing problem behaviors if they were male, came from a lower SES family, were Black, and spent more time in child care. Protective factors of externalizing behaviors included being female, coming from a higher SES family, and being either Hispanic or Asian. Regression results of all the variables associated with teacher reported externalizing problem behaviors are presented in Table 2. See Table 3 for a correlation matrix of the relationships between the variables.

**Model 1**

Model 1 displays an analysis designed to test hypothesis 1. The first hypothesis examined the association between the type of child care a child attended the year prior to kindergarten and externalizing behaviors in the spring of their kindergarten year as reported by the kindergarten teacher. This was analyzed using an ordinary least-squares (OLS) regression. Externalizing behaviors were regressed on the total hours of care, SES, four race dummy variables (Black, Hispanic, Asian, Other Race), sex, age, and the six combinations of child care (i.e., relative care only; nonrelative care only; relative and nonrelative care; relative and center care; nonrelative and center care; and relative, nonrelative, and center care). Refer to Figure 1, *Hypothesis Model 1*, for a visual model of the hypothesis.

Model 1 explained about 8.2% of the variance in externalizing problem behaviors ( $R^2 = .082$ ). Center care only was used as the reference category, and was compared to the other types of care. Children who attended relative care only ( $B = -.113$ ;  $p < .001$ ); relative and center care ( $B = -.103$ ;  $p < .001$ ); nonrelative and center care ( $B = -.080$ ;  $p = .007$ ); relative, center, and nonrelative care ( $B = -.184$ ;  $p < .001$ ); nonrelative care only ( $B = -.115$ ;  $p = .005$ ); and relative and nonrelative care ( $B = -.195$ ;  $p = .005$ ) showed significantly fewer externalizing problems than children in center care only. Attending relative and nonrelative care was the type of care that provided the least amount of externalizing problem behaviors when compared to center care only. This can be seen in Model 1 by examining the B coefficient in relative and nonrelative care, as it was the B furthest from center care only ( $B = -.195$ ). Children who attended only center care the year before kindergarten had more externalizing behaviors than children who attended any of the other different types of care and care combinations that were studied, therefore supporting Hypothesis 1.

**Model 2**

Model 2 displays an analysis designed to test hypothesis 2. The second hypothesis examined the association between the type of child care a child attended the year prior to kindergarten and externalizing behaviors in the spring of their kindergarten year as reported by the kindergarten teacher when SES was examined as a moderator. For Model 2, interaction terms were created between type of care and SES. A moderation analysis, a regression, was conducted to assess if SES moderates the relationship between type of child care and externalizing problem behaviors. It was hypothesized that the effect of center care on externalizing behavior will be greater among children from lower SES families. The second hypothesis was also analyzed using OLS regression. Externalizing behaviors were regressed on the total hours of care, SES, four race dummy variables (Black, Hispanic, Asian, Other Race), sex, age, the six combinations of child care (relative care only; nonrelative care only; relative and nonrelative care; relative and center care; nonrelative and center care; and relative, nonrelative, and center care), and the six types of care combinations and SES interaction terms that were created for each type of care. Refer to Figure 2, *Hypothesis Model 2*, for a visual model of this hypothesis.

Model 2 explained about 8.3% of the variance in externalizing problem behaviors ( $R^2=.083$ ). There was a .001 change in  $R^2$  from Model 1 to Model 2. Model 2 only explains about 0.1% more of the variance in externalizing problem behaviors than Model 1. Center care only was used as the reference category and was compared to the other types and combinations of child care. As mentioned previously, children from higher SES families exhibited statistically significant fewer externalizing behaviors than children from lower SES families. When SES was examined as a moderator of the relationship between type of care and externalizing problem

behaviors, the only type of care that was found to be statistically significant was attending relative and center care ( $B = -.050$ ;  $p = .029$ ). The effect of SES was greater for children in center care only than children who attended relative and center care. Hypothesis 2 was only partially supported; there was evidence of an interaction effect for children who attended relative and center care. SES had a slightly smaller effect for children who attended relative and center care than children who attended center care only. Please refer to Figure 3 to see a graphical representation of the results of Model 2. Figure 3 demonstrates that when SES was used as a moderator, children who attended relative and center care had significantly fewer externalizing behaviors than children who attended center care only.

### **Model 3**

Model 3 displays an analysis designed to test hypothesis 3. The third hypothesis examined the association between the type of child care a child attended the year prior to kindergarten and externalizing behaviors in the spring of their kindergarten year as reported by the kindergarten teacher when number of hours of weekly care was examined as a moderator. The third hypothesis was analyzed using OLS regression. Interaction terms were created between type of care and number of hours of care each week. A moderation analysis, a regression, was conducted to assess if number of hours of care each week moderates the relationship between type of child care and externalizing problem behaviors. Externalizing behaviors were regressed on the total hours of care, SES, four race dummy variables (Black, Hispanic, Asian, Other Race), sex, age, the six combinations of child care (i.e., relative care only; nonrelative care only; relative and nonrelative care; relative and center care; nonrelative and center care; and relative, nonrelative, and center care), and the six types of care combinations

and total hours interaction terms that were created for each type of care. Refer to Figure 4, *Hypothesis Model 3*, for a visual model of this hypothesis.

It was hypothesized that the effect of center care on externalizing behavior will be greater among children who spend more time in care. Model 3 explained about 8.5% of the variance in externalizing problem behaviors ( $R^2 = .085$ ). There was a .002 change in  $R^2$  from Model 2 to Model 3. Model 3 only explains about 0.2% more of the variance in externalizing problem behaviors than Model 2. The total hours a child spent in care each week was the addition that was made in Model 3. Center care only was used as the reference category and was used to make comparisons to the other types of child care. As previously mentioned, the more hours a child spent each week in care, the greater their ratings of externalizing problem behaviors. When the effects of the interaction between type of care and hours were examined, there was less of an effect on externalizing behaviors for children who attended relative care only ( $B = -.007$ ;  $p = .001$ ) and relative and center care ( $B = -.003$ ;  $p = .007$ ) compared to children who attended center care only. Attending nonrelative care only; relative and nonrelative care; nonrelative and center care; and relative, nonrelative, and center care were not found to be significant at the .05 level. The effect of hours on externalizing behavior was least among children who attended relative care only. The effect of total hours on externalizing behavior is greatest among children who attend center care only; therefore the hypothesis was partially supported. Children attending center care only had more externalizing behaviors than children who attended relative care only and relative and center care, but no differences than the other types and combinations of care. The effect of hours on externalizing behaviors is slightly less for children who attended relative care only and relative and center care. This finding is demonstrated by examining the B coefficients in Model 3. Children who attended relative care only and relative and center care

(the types of care that had significant findings) had B coefficients that were negative, thereby demonstrating that children who attended center care only had greater ratings of externalizing behaviors. Please refer to Figure 5 to see a graphical representation of the results of Model 3. Figure 5 demonstrates that the more hours of nonparental care a child attends, the greater than externalizing problem behavior. Also, when total hours of weekly care was used as a moderator, children who attended relative only and relative and center care showed significantly fewer externalizing behaviors than children who attended center care only. The lines on the figure appear to overlap one another due to the different types of care having very similar B coefficients.

### **Chapter Five: Discussion**

This study examined the association between child care experiences the year before kindergarten and externalizing problem behavior outcomes in the spring of the child's kindergarten year. The goal of this research was to improve upon existing child care literature by examining specific influences of child care—type of care, SES, amount of time spent in nonparental care each week the year before kindergarten—and externalizing behaviors at the end of kindergarten in one body of research. A discussion of the findings as they relate to and extend prior research is further described below.

A major strength of this study was using the ECLS:K-2011 database. This database has up-to-date data that is nationally representative of children in the United States and has a large sample size. This current study went one step further than past studies by not only examining more than just center care, but by studying multiple child care settings and care combinations. Previous studies determined the care groups by looking at what type of care the child attended the most hours per week. For instance, if a child attended 20 hours of relative care and 15 hours of center care, they would be assigned to the relative care category. In the current study, if a child attended 20 hours of relative care and 15 hours of center care, they were assigned to be in the relative and center care category. This study did not simply ignore the secondary or tertiary types of care the child attended each week; it included multiple care arrangements. Additionally, the study examined total hours of care per week and SES as potential moderators of the influence of type of child care the year before kindergarten on externalizing behaviors during the spring of kindergarten while including a large number of controls in all of the analyses.

### **Type of Child Care and Externalizing Problem Behaviors**

Although past studies examining the type of child care and externalizing behaviors have produced conflicting results, many studies found a link between attending center care and having increased externalizing behaviors (Belsky et al., 2007; Claessens, 2012; Coley et al., 2013; Dmitrieva et al., 2007; Loeb et al., 2007; Magnuson et al., 2007a, 2007b; McCartney et al., 2010). Past researchers have also found a link between child care and problem behavior in group-based child care, but not in individual child care (McCartney et al., 2010, Morrissey, 2010). Consistent with these prior studies, the current study found that children who attended center care only had more externalizing behaviors than children who attended other types or combinations of care. The link between group-based child care and problem behaviors may be due to children having to share caregiver attention or children imitating and learning problem behaviors from other children. Since center care is the type of care that is most likely to have large groups of peers, this may be the reason for these findings.

Since this study examined all of the types and combinations of child care, more detailed findings emerged. Interestingly, children who attended center care in conjunction with another type of care (i.e., center care and nonrelative care) and all of the three care types combined (i.e., center, relative, and nonrelative care) had lower ratings of externalizing problem behaviors than children who attended center care only. It seems that spending time in other types of care in addition to center care may act as a buffer that prevents the child's externalizing behaviors. This may be due to the fact that if a child attends center care and another type of care, they may be spending less time in center care overall.

Additionally, children in relative care have fewer interactions (both positive and negative) with peers. They also spend more time interacting with adults and more time being

occupied possibility due to the fact that there are generally fewer children cared for concurrently (Dowsett et al., 2008). With fewer children and more adult attention, children may have less of a chance to learn negative behaviors from peers and receive more immediate responses from caregivers, therefore reducing the need to exhibit externalizing behaviors. Like relative care, nonrelative care typically has fewer children than center care, allowing children to receive more individual adult attention. Like relative care, nonrelative care's setting takes place in either the child's home or the caregivers home, usually in a comfortable home-like setting (Clarke-Stewart et al., 1994; Zigler & Hall, 1988). In this study, children who attended the relative and nonrelative care combination showed the fewest externalizing behaviors compared to children attending center care only. However, there were no statistical tests completed in order to determine whether this level of externalizing behavior was significantly different than the other groups besides the reference category, center care only.

### **Type of Child Care, Externalizing Problem Behaviors, and SES as a Moderator**

After reviewing past child care literature, it was apparent there were differences in findings between type of care a child attends, externalizing behavior, and SES. Some studies found that attending center care has been helpful (Votruba-Drzal et al., 2004) or neutral (Loeb et al., 2007) for developing low income or low-SES children's socioemotional skills and behavior. Another study found that children living in poverty, had parents with low education, or were welfare recipients who attended center care had higher levels of externalizing behaviors than children who were more advantaged (Magnuson et al., 2007a). Without examining type of child care, many studies have found that children from lower SES families are more likely to exhibit externalizing behaviors than children from families with higher SES (e.g., Achenbach et al., 1991; Dodge et al., 1995; Webster-Stratton & Hammond, 1998). Due to the above findings, this

study hypothesized that the effect of center care on externalizing behavior would be greater among children from lower SES families. This study found that SES had less of an effect on externalizing behavior among children who attended relative and center care than children who attended center care only. This present study also confirmed many studies' findings that children from lower SES families are more likely to exhibit externalizing behaviors than children from families with higher SES.

### **Type of Child care, Externalizing Problem Behaviors, and Total Hours of Weekly Care as a Moderator**

Many studies have determined that the more hours a child spends in any type of nonmaternal child care the more externalizing problems and conflict they had with adults as reported by mothers, caregivers, and teachers (e.g., Averdijk et al., 2011; Belsky et al., 2007; NICHD, 2002, 2003a, 2004). One study found that children who spent about 30 hours on average in any type of child care had more externalizing problem behaviors than children in part-time care (10 or less hours) as rated by teachers (Belsky et al., 2007). Concurringly, another study found that children who spent more than 30 hours a week in center care had worse behavior according to teachers than children who were in part-time center care (Loeb et al., 2007). Other studies have examined specific types of care and found that spending more time in center care can have the most detrimental effects on children's display of externalizing behaviors. These studies found that children who spent a greater percentage of care hours in center care were rated by their caregivers and teachers to show more behavior problems and less self-control than students who had not experienced center care (e.g., Belsky et al., 2007; Coley et al., 2013; Dowsett et al., 2008; Magnuson et al., 2007a; NICHD, 2002, 2003a, 2004).

Findings from the current study support and add to these previous findings. When compared to center care only, the effects of total hours on externalizing behaviors were lower for children who attended relative care only and relative and center care. Since center care is usually the type of care to have the largest number of children attending care at the same time, the more hours spent in this type of care, the more chance children have to learn externalizing behaviors from peers by modeling (McCartney et al., 2010, Morrissey, 2010). Relative care, typically, has the least amount of children being cared for in the same place; therefore caregivers may be able to practice better behavior management skills in this type of care. Even if children do spend many hours of care in relative care, there may be less of a chance to learn externalizing behaviors from peers since there are usually fewer peers present in this type of care, and relatives can provide more individual attention to each child, therefore preventing these modeling behaviors. Interestingly, children who did attend center care, but in conjunction with relative care (center and relative care), had fewer externalizing behaviors than children who attended center care only. Spending time with relatives may have acted as a buffer to help lessen the effects of hours in center care on externalizing behavior. This may be due to the fact that if a child attends center care and relative care, they may be spending less time in center care overall. Additionally, spending time with a relative, a caregiver who has more of an invested interest in the child's well-being, may positively affect the child's behavioral development. This buffer of attending another form of care in addition to center care was also seen in Model 1 when type of care and externalizing behaviors were examined without any moderators. It should be noted that even though the interactions with relative care only and relative and center care were significant, they were small enough that they may not have practical significance.

### **Limitations and Future Research**

Although this study had strengths, this study also had several limitations. The data that was analyzed was nonexperimental, as there was not a random assignment of children. The findings presented are correlational, therefore do not allow for causal inferences (Shpancer, 2006).

Previous research found that the quality of child care, in addition to the type of child care, the child attends impacts a child's development (Belsky, 2009; Peisner-Feinberg et al. 2001; Tsao, 2015). Child care quality was not measured in the ECLS:K-2011 database; therefore, child care quality could not be examined in this study. There are likely to be quality differences between the three types of care (i.e., center, relative, nonrelative), as well as within each type of care, that could impact externalizing behaviors. An important component of child care quality is the ratio of children to caregivers. Knowing the number of children who received care in the setting at the same time as the child may help to examine the influence of peer behavior modeling. Future research could focus on how type, quality, and quantity of care impacts externalizing problem behaviors.

Additionally, this study examined the type of child care the child attended the year before kindergarten only, and did not take into account how the other years of care, or the number of years attended impacted their externalizing behaviors. Future studies may want to examine a child's complete history of child care, instead of just examining the year before kindergarten.

This study also did not examine if children's externalizing behavior would continue after the spring of their kindergarten year, something that could be studied in the future. Future research may want to examine whether effects are temporary or are long-term. Future research

may find that that nonparental child care influences an individual's externalizing behaviors even after elementary or high school, and into adulthood.

Another possible limitation of this study is the teacher ratings of externalizing behavior. The ECLS:K-2011 had teachers complete a five-item scale based on the Social Skills Rating System (SSRS) in order to determine ratings of externalizing behavior. Although the SSRS is highly correlated with other scales measuring externalizing behavior, a more comprehensive measure of behavior may impact findings. Behavioral ratings are always subjective and teacher biases might impact current findings. For instance, teachers' judgments may be influenced by knowing the SES of children and their families. Teachers may know a child is from a lower SES family and therefore, the teacher may rate them as having more externalizing behaviors. Studies in the future may want to measure externalizing behavior by utilizing questionnaires other than ones based on the SSRS and that are completed by multiple raters. Behavioral observations by multiple raters may give an even more accurate depiction of a child's externalizing problem behaviors.

### **Implications**

Experiences during child care play a role in a child's social, physical, psychological, and educational development (e.g., Johansen et al., 1996). As more and more children are receiving nonparental care, parents and psychologists are looking to better understand how child care impacts children's well-being and development (Clarke-Stewart et al., 1994). Even though the choice of the setting a parent selects for their child's care is vital to their child's academic and behavioral success, not all families have equal access to the type and quality of care that will be best for their children (Grogan, 2012; Zigler & Hall, 1988). Many parents look toward research in order to educate themselves to make informed decisions when selecting nonparental care for

their children. Results from this study demonstrated that children who attended center care only had higher ratings of externalizing behaviors than children who attended other types and combinations of care. Attending center care may not be the best type of care to promote well-behaved children. If a parent chooses to send a child to center care due to preference or its accessibility, parents may want to incorporate an additional type of weekly care that may act as a buffer. Relative care may be a good choice alone or in conjunction with center care since the effects of total hours on externalizing behaviors were lower for children who attended care in these two settings combined when compared to center care only.

Many past researchers have primarily studied center care only. Policymakers need an increase in relevant information about the influences of all types and combinations of child care settings. Child care that falls under the center care umbrella, such as Head Start, is the type of care that is most likely to receive government funding. Families who utilize child care subsidies from the government use center care at higher rates than families who do not use or receive government subsidies (Crosby, Gennetian, & Huston, 2005; Early & Burchinal, 2001; Kim & Fram, 2009). The type of care funded by the government might not necessarily be the best type of care to meet the behavioral needs of children. If policymakers have more information regarding the types of care children attend and externalizing behaviors, more types of care may be made accessible to families. The government could provide subsidies for types of care other than center care. Such subsidies could help families select care that is provided by a relative or a nonrelative in a private home. Since an important implication of this study is that the effects of center care are buffered when children attend another form of care in combination with center care, such subsidies would allow parents to receive financial assistance for more than this one type of care arrangement.

Center care is now and may likely continue to be the most widely used type of child care for children who are approaching kindergarten age (Coley et al., 2014; Early & Burchinal, 2001). Therefore, one must look at the reasons why attending center care in conjunction with another form of care results in less externalizing behaviors than just attending center alone so that improvements can be made. First and foremost, children benefit from caring adult attention. Lowering center care teacher to student ratios may help enable the teacher to give each child more one on one positive attention. Lower ratios would likely result in teachers who are less stressed and more able to be sensitive to children's needs. Positive attention for positive actions at young ages may promote good behavioral habits, therefore preventing children from seeking adult attention through negative behaviors. Additionally, if caregivers are given continuous training and education in child development, externalizing behaviors, and how to reward/discipline, they will be better able to support the emotional well-being of children.

### **Summary**

This study may provide parents, researchers, and policymakers more up-to-date findings to consider concerning the implications of child care on the development of behavior problems, especially when making decisions about type and quantity of child care. This study found that children who attended center care only were rated to have higher levels of externalizing behavior than children who attended other forms or types of care. When SES was introduced to see its influence on this relationship, it was found that children from higher SES families who attended relative and center care had fewer externalizing behaviors than children who attended center care only. When the total hours of care a child attended each week before Kindergarten was introduced to see how it impacted the relationship between type of care and externalizing behaviors, it was found that children who attend more hours of center care had higher levels of

externalizing behavior, and children who attended relative care only, and relative and center care showed fewer externalizing behaviors than children who attended center care only. This study's findings are important for several groups of people. Parents have more information available to them when they are selecting nonparental care for their children. Policymakers may better understand the influences of nonparental care settings on children's behavior, therefore allowing for more types of care to be made available through governmental child care subsidies.

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Table 1

*Descriptive Information about the Sample*

Variable	n	%	Mean	SD
Age (Birth Year) <sup>a</sup>				
6 or 7 years old (2003/2004)	3,920	28.97		
4 or 5 years old (2005/2006)	9,612	71.03		
Sex			.51	.50
Male	6,634	50.87		
Female	6,869	49.13		
Poverty Status				
Below Poverty Threshold	2,357	23.87		
At or Above Poverty Threshold, Below 200% of Threshold	2,142	21.69		
At or Above 200% of Poverty Threshold	5,377	54.45		
Household Income				
\$5,000 or less	272	2.75		
\$5,0001 to \$10,000	398	4.03		
\$10,001 to \$15,000	569	5.76		
\$15,001 to \$20,000	648	6.56		
\$20,001 to \$25,000	728	7.37		
\$25,001 to \$30,000	534	5.41		
\$30,001 to \$35,000	481	4.87		
\$35,001 to \$40,000	459	4.65		
\$40,001 to \$45,000	328	3.32		
\$45,001 to \$50,000	347	3.51		
\$50,001 to \$55,000	307	3.11		
\$55,001 to \$60,000	284	2.88		
\$60,001 to \$65,000	334	3.38		
\$65,001 to \$70,000	283	2.86		
\$70,001 to \$75,000	362	3.66		
\$75,001 to \$100,000	1,306	13.22		
\$100,001 to \$200,000	1,768	17.90		
\$200,001 or more	470	4.76		
Parents' Highest Level of Education (Parent 1 & Parent 2)				
8 <sup>th</sup> grade or Below	888	4.39		
9 <sup>th</sup> -12 <sup>th</sup> Grade	1,563	7.72		
High School Diploma/Equivalent	4,777	23.60		
Vocational/Tech Program	1,075	5.31		
Some College	4,931	24.36		
Bachelor's Degree	4,036	19.94		
Graduate/Professional School- No Degree	324	1.60		
Master's Degree or Higher	2,647	13.08		

Table 1 Continued

*Descriptive Information about the Sample*

Variable	n	%	Mean	SD
<b>Race</b>				
White	6,179	45.62		
Black	1,817	13.42		
Hispanic	3,411	25.18		
Asian	1,262	9.32		
Other Race	875	6.46		
<b>Type of Care Attended Year Before Kindergarten</b>				
Center Care Only	4,896	55.59		
Relative Care Only	865	9.82		
Nonrelative Care Only	273	3.10		
Relative & Nonrelative Care	88	1.00		
Relative & Center Care	1,770	20.10		
Nonrelative & Center Only	703	7.98		
Relative, Center, & Nonrelative Care	213	2.42		
Teacher Rated Externalizing Problem Behavior, spring of kindergarten year	11,753		1.66 <sup>b</sup>	.65

*Note.* N = 13,544. SD = Standard Deviation. Due to limitations of Stata's missing imputation procedures, the frequency of variables had to be collected before missing imputation was conducted, therefore not all frequencies may add up to 13,544 participants.

<sup>a</sup>Age upon entering kindergarten was calculated from the child's birth year. Children who were born in 2003/2004 were 6 or 7 years old and children who were born in 2005/2006 were 4 or 5 years old when they entered kindergarten. <sup>b</sup>The externalizing problem behavior composite ranged from 1 to 4, with large number signifying greater externalizing behaviors.

Table 2

OLS Regression Regarding Main Variables and Teacher Reported Externalizing Problem Behaviors

Variable	Model 1			Model 2			Model 3		
	B	S.E.	P	B	S.E.	P	B	S.E.	P
Constant	1.340	.04	.001***	1.341	.04	.001***	1.335	.04	.001***
Age	0.082	.02	.001***	0.082	.02	.001***	0.081	.02	.001***
Sex	0.271	.01	.001***	0.271	.01	.001***	0.271	.01	.001***
Socioeconomic Status (SES)	-0.079	.01	.001***	-0.070	.01	.001***	-0.079	.01	.001***
Race									
Black	0.138	.02	.001***	0.138	.02	.001***	0.137	.02	.001***
Hispanic	-0.089	.02	.001***	-0.088	.02	.001***	-0.088	.02	.001***
Asian	-0.143	.02	.001***	-0.143	.02	.001***	-0.144	.02	.001***
Other Race	0.031	.02	.189	0.031	.02	.185	0.031	.02	.183
Total Hours in Care/Week Year Before Kindergarten	0.004	.00	.001***	0.004	.00	.001***	0.005	.00	.001***
Type of Care Attended Year Before Kindergarten									
Relative Care Only	-0.113	.03	.001***	-0.124	.03	.001***	-0.068	.03	.027*
Nonrelative Care Only	-0.115	.04	.005*	-0.115	.04	.005**	-0.077	.05	.154
Relative & Nonrelative Care	-0.195	.07	.005*	-0.177	.07	.015*	-0.074	.10	.458
Relative & Center Care	-0.103	.02	.001***	-0.102	.02	.001***	-0.056	.03	.040*
Nonrelative & Center Care	-0.080	.03	.007**	-0.073	.03	.018*	-0.100	.04	.012*
Relative, Center, & Nonrelative Care	-0.184	.05	.001***	-0.180	.05	.001***	-0.113	.07	.116
Interaction: Type of Care & SES									
Relative Care Only * SES				-0.041	.04	.260			
Nonrelative Care Only * SES				-0.019	.05	.723			
Relative & Nonrelative Care * SES				0.085	.12	.476			
Relative & Center Care * SES				-0.050	.02	.029*			
Nonrelative & Center * SES				-0.030	.03	.354			
Relative, Nonrelative, & Center Hours * SES				-0.024	.07	.716			
Interaction: Type of Care & Total Hours Care/Week									
Relative Care Only * Hours							-0.007	.00	.001**
Nonrelative Care Only * Hours							-0.004	.00	.228
Relative & Nonrelative Care * Hours							-0.006	.00	.053
Relative & Center Care * Hours							-0.003	.00	.007**
Nonrelative & Center Care * Hours							0.000	.00	.994
Relative, Nonrelative, & Center Care * Hours							-0.003	.00	.103
R <sup>2</sup>	0.082			0.083			0.085		

Note. There is no commonly accepted way to produce beta when using missing imputation, so B was interpreted. All of the models examined type of care and externalizing behaviors. Model 2 introduces SES as a moderator. Model 3 introduces total hours of care/week as a moderator. \*P<.05. \*\*P<.01. \*\*\*P<.001.

Table 3

## Correlations Between Variables

Variable	1	2	3	4	5	6	7	8	9	10
1. Center Care Only	----									
2. Relative Care Only	-.197***	----								
3. Nonrelative Care Only	-.108***	-.038***	----							
4. Relative & Nonrelative Care	-.061***	-.021*	-.012	----						
5. Relative & Center Care	-.292***	-.101***	-.056***	-.031***	----					
6. Nonrelative & Center Care	-.176***	-.061***	-.034***	-.019*	-.091***	----				
7. Relative, Center, & Nonrelative	-.095***	-.033***	-.018*	-.010	-.049***	-.030***	----			
8. SES	.112***	-.117***	.004	-.019*	.014	.090***	.037***	----		
9. # Hours of Weekly Care	-.415***	-.046***	.003	.074***	.296***	.231***	.202***	-.026*	----	
10. Externalizing Behavior	.024*	-.029*	-.019*	-.015	-.019*	.001	-.014	-.105***	.076***	----

Note. \*P<.05. \*\*P<.01. \*\*\*P<.001.

*Figure 1. Hypothesis Model 1: Type of Child Care and Externalizing Problem Behaviors.*



Figure 2. Hypothesis Model 2: Type of Child Care, Externalizing Problem Behaviors, and SES as a moderator.

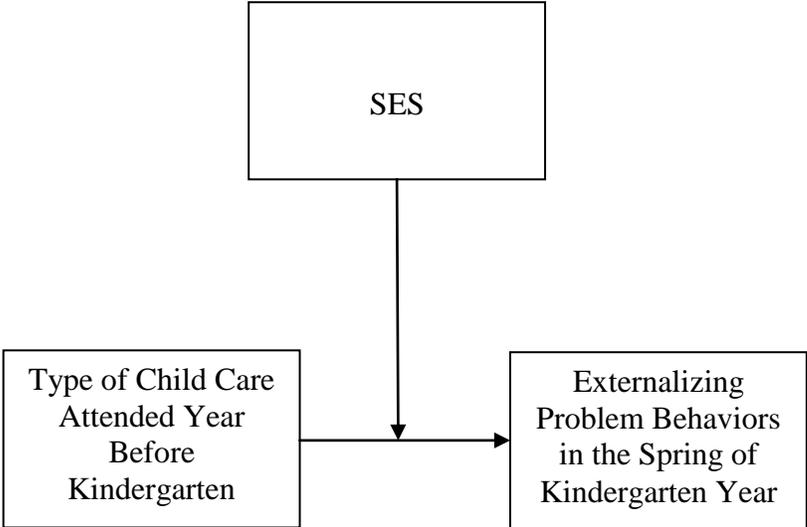


Figure 3. Model 2: Interaction Between Type of Care and SES

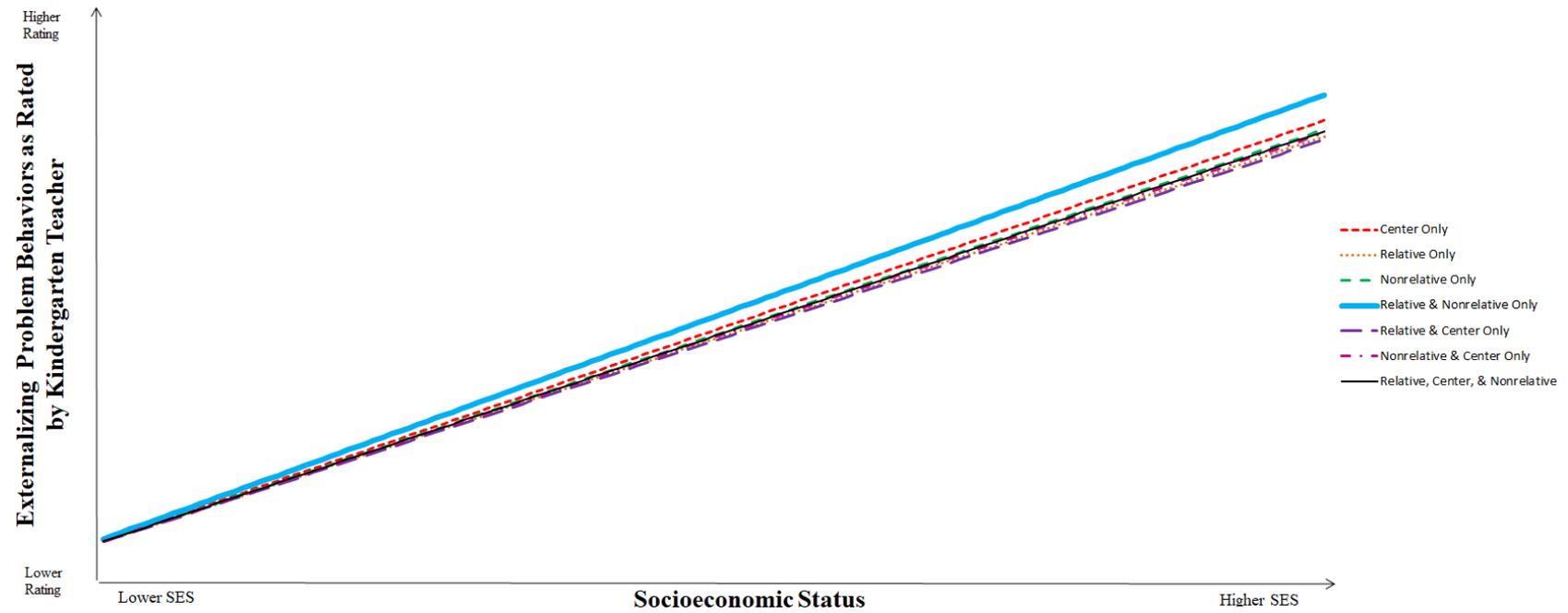


Figure 4. Hypothesis Model 3: Type of Child Care, Externalizing Problem Behaviors, and Number of Hours of Care as a moderator.

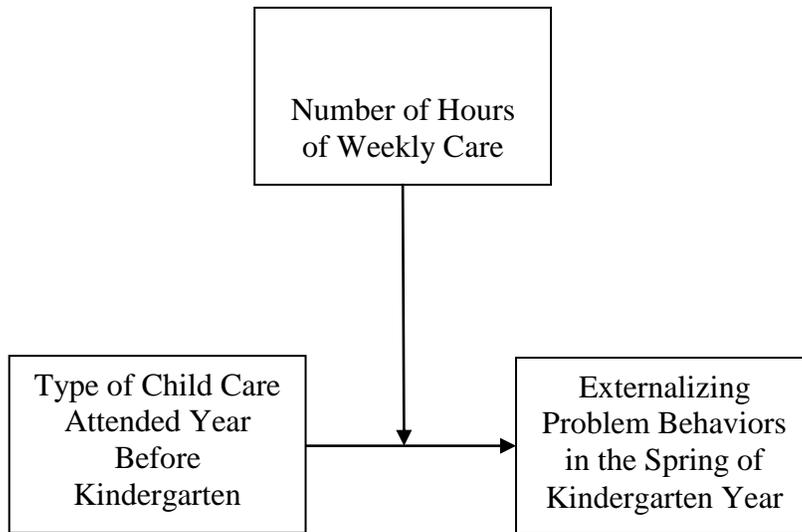
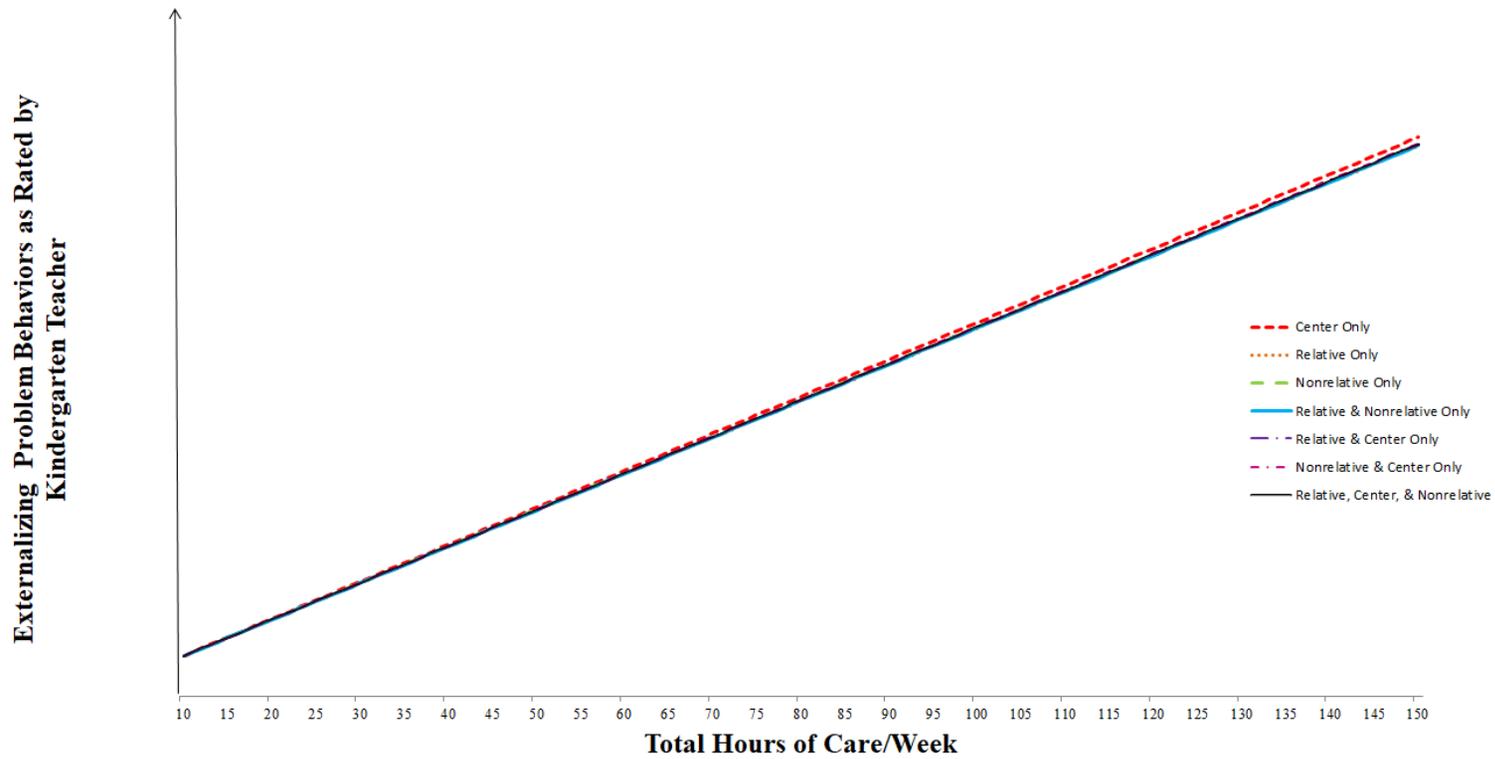


Figure 5. Model 3: Interaction Between Type of Care and Total Number of Hours of Care/Week



Note. Although it appears there are only two lines on this graph, there are seven types of care presented. Some of these lines overlap.

## Appendix A

*Summary of Child Care Types for Children in US Under the Age of 5*

Child Care Types	# of US Children <sup>a</sup>	% of Children in Care	Characteristics of Care	Common Family Characteristics
Center	4,797,000	23.5	Educational setting; many materials; structured activities; many peer interactions	High-income; Middle and high SES; receiving subsidies; emphasis on education; Caucasian; Black
Relative	8,585,000	42.1	Free play; more experience interacting with adults; less experience interacting with peers	Low-income; less-educated; flexibility; non-White (Hispanic, Black)
Non-relative in a private home	2,286,000	11.2	Easily accessible; interact with children of varying ages; child-initiated activities	Higher income; several children

*Note.* Information summarized from resources in literature review.

<sup>a</sup> = Rounded to nearest thousand.

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