

RETENTION OF CHILD CARE STAFF: UNDERSTANDING  
PREDICTORS OF RETENTION WITH  
SURVIVAL ANALYSIS

By

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To the Faculty of Washington State University:

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Abstract

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The purpose of the study was to use survival analysis to determine whether a set of variables significantly predicted employee turnover in child care centers. The sample for the study included data on child care providers ( $N = 3,880$ ) obtained from the Career and Wage Ladder Evaluation study (Boyd & Wandschneider, 2004). Four of the variables emerged from the survival analysis model as significant predictors of turnover: working in an upper level staff position, earning higher hourly wages, longer staff tenure, and working in centers with higher staff morale were all significant variables that decreased the likelihood of employees leaving. The innovative analytic approach of the present study adds to body of literature by examining turnover at multiple time points. The findings of this study have implications for child care administrators and public policy.

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## CHAPTER ONE

### INTRODUCTION

The field of early childhood care and education is receiving unprecedented attention. From economists (Heckman & Masterov, 2007) to government officials (Office of Governor Chris Gregoire, 2006) early childhood education and care has become a high-profile social issue. To quote long-time early childhood scholar Sharon Lynn Kagan and colleagues “Unprecedented in American social history, today’s calls for ECE are wide spread. Hardly a governor, policymaker, police chief or parent does not recognize the importance of the early years” (Kagan, Kauerz & Tarrant, 2008, p. 17). While the message of the importance of quality child care may have reached a new high point, a serious impediment continues to plague the field. The problem lies with the workforce. It continues to be characterized by high levels of turnover, most notably in teaching staff.

The effect of teachers leaving is twofold; it interrupts the care received by the child and is costly to the child care center. Several attempts to intervene on high turnover have focused on increasing wage, with the hopes that wage-supplements might curb high turnover (Park-Jadotte, Golin, & Gault, 2002; Boyd & Wandschneider, 2004; Gable, Rothrauff, Thornburg, & Mauzy, 2007). However, turnover rates have remained fairly constant at 30% (Center for the Child Care Workforce, 2004; Whitebook & Sakai, 2004), indicating that wage is not the only reason teachers leave their jobs.

In addition to wage, low levels of organizational support, lack of benefits, and minimal requirements to enter the field have been identified as factors predicting turnover (e.g. Helburn, 1995). The specific aim of this study is to extend the literature by using survival analysis to better understand employee turnover. Previous research has generally examined the relation

between various predictors (e.g. wage) and turnover (e.g. Whitebook & Sakai, 2004). Although knowing whether the event (i.e. turnover) occurs and understanding why (i.e. predictor variables) are both important contributions from previous research, the present study fills an important gap by examining when turnover occurs. That is, turnover that occurs after 3 months of employment may have very different repercussions than turnover that occurs after 3 years. The question this study sets out to answer is, given a set of predictor variables, when are child care employees most likely to leave their center and why? The second part of the question examines whether a different set of variables predict turnover for employees with shorter tenure than employees with longer tenure in a center.

The significance of the present study is the use of survival analysis to capture the interplay of the timing and predictors of turnover occurring. This is one of only three studies to use survival analysis in the context of child care staff turnover (Gable, Rothrauff, Thornburg, & Mauzy, 2007; Manlove & Guzell, 1997). A strength of the present study is access to a large pre-existing data set collected during the Washington State Career and Wage Ladder evaluation (Boyd & Wandschneider, 2004). Additionally, the dataset includes individual-level covariates (e.g. each employee's hourly wage) as opposed to fixed levels of covariates (e.g. hourly wage greater or less than \$7.20) used in a previous study (Gable et al., 2007).

This study attempts to grasp the why and when of turnover simultaneously. The results may inform directors about possible "risk factors" to help in screening potential employees. Perhaps more importantly, the results may identify a particular point in time that seems to be an especially risky time in an employee's tenure. The results will hopefully inform policy decisions particularly related to wage and entry level requirements.

## CHAPTER TWO

### LITERATURE REVIEW

This review of literature explores the issues of staff retention in child care. As a means of understanding what may contribute to the phenomenon of high turnover, previous research related to this issue will be examined. The ultimate goal of this exploration is the identification of factors which appear to be related to retention of child care professionals.

This chapter first defines the issue of turnover and discusses the prevalence of the issue in the child care field. Next, the negative implications of turnover are stated, followed by the commonly cited predictors of staff turnover. The chapter concludes with a review of efforts to intervene on high turnover rates.

#### Staff Retention and Turnover

The inability to retain staff has long been recognized as a serious problem in child care programs (Hofferth, 1996). Reports indicate the percentage of employees that leave programs each year ranges from 25 to 40% (Center for the Child Care Workforce, 2004). The National Child Care Staffing Study examined centers over a nine year period and found the staff turnover rate to be 31 % (Whitebook, Howes & Phillips, 1998) which is four times greater than the 7% turnover rate of elementary school teachers (Whitebook & Bellm, 1999). Even higher trends in turnover were found in Whitebook and Sakai's (2004) study measuring child care staff departures. In this study of 75 centers, over half of all staff initially observed in 1996 had left their respective centers by the final observations in 2000.

Turnover, in studies such as these, is often operationalized as the percentage of teachers that leave a center within a year. There are three types of turnover commonly referred to within this literature: job turnover, position turnover, and occupational turnover (Whitebook & Bellm,

1999). Job turnover is defined as any teacher or director who leaves a position for a different one within the child care field. Job turnover is often voluntary (e.g. leaving for better wages) but also refers to involuntary turnover (e.g. dismissal from a center). Position turnover refers to teaching staff taking on new positions within a center (e.g. teacher promoted to center director).

Occupational turnover refers to staff leaving the child care field altogether. Concern in the literature regarding retention within child care centers primarily focuses on job turnover and occupational turnover, whereas position turnover is of less of concern (Whitebook & Bellm, 1999). It is interesting to note that these examinations of turnover and retention do not define an optimum length of retention. Probably because turnover has been known to happen very frequently, the emphasis has been placed on retention of any type and does not specify an acceptable level of retention.

#### *Turnover and Program Costs*

Teacher turnover is costly to child care programs. Actual costs increase with advertising for new positions, interviewing, orienting new employees, and conducting background checks and the fingerprinting process (Hale-Jinks, Knopf, & Kemple, 2006). A study by Vandell and Wolfe (2000) showed just how much turnover affects program costs, estimating the departure of 10% of all staff employees to increase the total center costs by 6.8%.

The cost to the remaining staff when co-workers leave is also high, but these costs may not just be in terms of finances. When teachers leave, remaining teachers readjust current roles and often take on more responsibility. Finding a well-qualified replacement is a long process due to the limited number of qualified child care workers entering the field (Hale-Jinks et al., 2006). This lengthy process increases stress in the workplace, lowers staff morale, and increases unstable conditions in the classroom environments.

One study examined turnover in 75 centers and found that replacement staff had significantly ( $p < .01$ ) lower levels of education and early childhood training than the employee they were replacing (Whitebook & Sakai, 2004). Interviews with the remaining staff revealed that turnover was “contagious” with initial turnover increasing turnover rates throughout the center. Allowing unqualified staff to fill positions increased the frustration among the remaining skilled staff and prompted them to leave because of the extra hours they were expected to work in order to compensate for the turnover of fellow providers. The negative turnover cycle acts as a real cost to programs by lowering staff morale.

### *Quality and Child Outcomes*

In addition to being costly for businesses, staff retention in child care has often been of concern because of its implication for quality of care and resulting child development outcomes (Hale-Jinks et al., 2006). It is interesting to note that while concerns about quality of care and resulting child outcomes are a commonly cited factor in attempts to intervene on turnover, few studies have shown an empirical connection between turnover and child outcomes. Three studies have linked high turnover rates with lower quality of care (Whitebook & Sakai, 2004; Whitebook et al., 1990; Helburn, 1995).

In the Whitebook and Sakai (2004) study, quality was rated using the ECERS, but NAEYC accreditation was also examined as an alternative measure of quality. While accreditation does not guarantee high quality, accredited centers have been shown, on average, to exhibit higher quality than non-accredited centers (Whitebook & Sakai, 2004). Whitebook and Sakai (2004) followed 92 centers over two years. In 1994, 55 of the 92 centers involved in the study were seeking accreditation. In 1996 only 23 of the 55 centers had achieved accreditation. Directors who were unsuccessful reported high levels of staff instability as the main reason for

not achieving accreditation. Although turnover was high in all 92 centers that participated in the study, turnover was significantly higher ( $p < .01$ ) in centers that failed to reach accreditation (63 percent) than centers achieving accreditation (46 percent). These results suggest staff turnover diminished the ability to improve child care quality, operationalized here as NAEYC accreditation.

Two of these studies specifically linked low levels of child care quality with poor child outcomes (Helburn, 1995; Whitebook et al., 1990). These studies used the Early Childhood Environment Rating Scale (ECERS) as an instrument for assessing several predictors of program quality (Harms & Clifford, 1980). Examples of items from the ECERS scale commonly used in studies of child care quality include: caregiver to child interactions, language-reasoning, and classroom activities.

The Cost, Quality, and Child Outcomes Study (Helburn, 1995), established a relation between global quality (as measured by ECERS) and turnover. This study compared centers with some turnover, defined as less than or equal to 10%, to centers with higher turnover, defined as greater than 10% ( $N = 401$ ). They found that centers with lower turnover scored higher in quality based on the ECERS scale of 0-7 ( $M = 4.23$ ,  $SD = .90$ ,  $t = 2.72$ ,  $p < .01$ ) than centers with higher levels of turnover ( $M = 3.95$ ,  $SD = .84$ ).

Moreover, research on the children who attended the centers involved in the Cost, Quality, and Child Outcomes study (Helburn, 1995) linked poor child outcomes with low quality centers (characterized by high rates of teacher turnover) and better child outcomes with higher quality centers. Specifically, process quality, which refers to the caregiver to child interactions, was a highly significant predictor of children's receptive language ability ( $p < .001$ ). Process quality also significantly predicted pre-math skills, children's perceptions of themselves and

attitude toward child care, and social skills (all significant at the  $p < .05$  level). Although the study's findings of a positive relation between process quality and child outcomes are impressive, there was a lack of control for possible confounds such as SES with the quality of care on child outcomes. Nonetheless, the study's findings have important implications for quality assurance in child care, which includes establishing a stable workforce.

Process quality, with a focus on child-teacher interaction, is logically linked to staff retention. When children are experiencing new teachers frequently, the child-teacher relationship is likely to be affected. Again, it is interesting to note that these and subsequent studies have not examined how frequently children can change teachers and still build relationships that support high process quality

In a similar study, the National Child Care Staffing Study (Whitebook et al., 1990) examined the workforce and classroom environments to assess the quality of child care centers around the nation. The study included 227 child care centers from five large metropolitan areas across the country. Data was collected through classroom observations and interviews with child care directors and staff. The study found that low levels of quality in the classroom had negative effects on child development. Teachers in low quality classrooms had fewer positive interactions with the children and were characterized as insensitive. Children from lower quality classrooms were found to engage less in activities, and "aimlessly wander" through the classroom more frequently than children in higher quality classrooms. Consistent with the finding in the Cost, Quality, and Child Outcomes study, this study also showed lower scores on language and vocabulary tests for children in centers marked with more teacher turnover in the last year (Whitebook et al., 1990).

Further support for the negative effects of teacher turnover was found in an additional study. Data for the study was collected through observations of preschool classrooms ( $N = 521$ ) and found that teacher retention was positively associated with higher process quality scores (Phillipsen, Burchinal, Howes, & Cryer, 1997). This study found that certain structural features of the classrooms (e.g. better teacher relations, lower staff turnover rates and teacher background) were predictive of process quality scores. Teacher turnover was significantly and negatively correlated with teacher sensitivity ( $r = -.14, p < .01$ ), which is a specific measure of process quality on the Caregiver Interaction Scale (Phillipsen et al., 1997).

While not a large body of research, the studies that have been done clearly show a relation between staff turnover and quality of care, which in turn predicts child outcomes. It is interesting to note the level of acceptance of this relation between staff turnover and quality given such a small number of empirical studies to support it (Hale-Jinks et al., 2006; Squires, 2004). The degree of acceptance that turnover is a serious issue is evident by formation of organizations and alliances within the early childhood community aimed at increasing workforce stability. Perhaps this relation has been accepted to some degree on the basis of logic. That is, providing quality child care (as experienced by the child) depends on a consistent adult with whom to form a relationship and who perhaps is also providing a consistent overall environment.

#### Explaining Turnover: Theoretical Perspectives

In the next section of the literature review, I will explore specific predictors of turnover in the child care field. As we undertake this exploration, it is important to note that the large majority of the child care turnover literature is atheoretical. That is, theoretical frameworks have rarely been used to explain why turnover occurs. One exception of this is the use of the



investment theory by Gable, Rothrauff, Thronburg, and Mauzy (2007) to study turnover of staff in child care centers.

Investment theory is largely an outgrowth of the turnover literature and specifically sought to understand the process of why employees leave their jobs. Rusbult and Farrell (1983) propose that job turnover was influenced by job satisfaction and commitment. Satisfaction is defined as occurring when the rewards of the job outweigh the costs. Commitment is a more complex process, whereby commitment increases as satisfaction increases, along with increases in investment (i.e. years in the job or friends in the workplace) and with decreases in alternatives for employment (i.e. few job options outside of current job).

Investment theory has been applied in one study (Gable et al., 2007) of child care professionals and found that job commitment deepened when an employee felt satisfied, such that the rewards (e.g. innovativeness in the job) outweighed the costs (e.g. few conflicts with families) and the employee actively invested (e.g. pursues on-going training) and perceived few other job options (e.g. “I am not qualified for many other profession”).

#### Predictors of Turnover

Although high turnover rates have generated a good deal of research on why employees leave, there is still not a clear consensus in the field on which factors are the most significant predictors of leaving. While low wages seems like the logical explanation for increased staff instability, studies of projects intervening on wages alone have not been found to solve the turnover problem completely. Rather, research shows that turnover is a multi-faceted issue with staff leaving their jobs due to a combination of factors. Within the turnover literature, wages, poor benefits, low levels of educational requirements, and unsupportive workplace conditions are the variables most commonly examined.

## *Wages*

Several studies link wages with job satisfaction (Helburn, 1995; Stremmel, 1990; Phillips, Howes, & Whitebook, 1991; Whitebook et al., 1990). High turnover of child care staff is not surprising when child care wages are compared with average hourly wages of other occupations. The mean hourly wages for child care workers and preschool teachers are \$9.05 and \$12.45 respectively, compared to \$22.62 for kindergarten teachers (U.S. Bureau of Labor Statistics, 2006).

One empirical study examined staff in 227 child care centers to assess predictors of job satisfaction and intention to stay at their center (Phillips et al., 1991). Staff ( $N = 1,309$ ) were given a list of 14 job satisfaction factors and asked to rate each variable on a scale of 1 (i.e. low satisfaction) to 5 (i.e. high satisfaction). The two factors with the lowest levels of satisfaction pertained to wages, “salary and benefits” ( $M = 2.83, SD = .76$ ) and “fairness of salary” ( $M = 2.61, SD = .93$ ). Staff were most satisfied with the daily aspects of their job, such as “co-worker relations” ( $M = 4.19, SD = .65$ ). With regard to staff’s intentions to stay, it is surprising that while two-thirds of all staff stated that they viewed their work as a career versus a temporary job, the average percentage of employee turnover rate for all centers enrolled in this study was 41% (Phillips et al., 1991).

The researchers attributed this disparity to a common theme in the literature that, while child care staff remained passionate and intrinsically satisfied with their work, poor wages and other extrinsic factors forced staff to leave for better paying jobs (Phillips et al., 1991). To determine if wage was the most predictive factor in turnover, several variables were entered into a hierarchal regression analysis. Wages emerged as the strongest negative predictor of 6-month turnover among all staff ( $N=516, p<.001$ ). Whitebook and Sakai (2004) examined teacher

retention in child care centers and found that low wages were associated not only with job turnover but with a higher likelihood of the teacher leaving the early childhood profession altogether. It seems reasonable to conclude that low wages serve as a disincentive for teachers to improve upon existing credentials and as a barrier for directors to hire and retain qualified teachers with early childhood knowledge, thus hampering the overall quality in early childhood classrooms.

### *Benefits*

Another extrinsic job factor closely related to wages is benefits. In the Cost, Quality, and Outcomes study (Helburn, 1995), directors were asked to identify which benefits were provided for full-time teachers, assistant teachers, and part-time employees. Directors were given a health and retirement list including 8 components, such as life insurance and paid maternity/paternity leave; and a working conditions list including 12 components, such as paid sick leave or paid vacations. As expected, full time staff was offered more health benefits and better working conditions than full-time assistants, and full time assistants earned more benefits and better working conditions than part-time employees. Sixty-four percent of the centers in this study extended partially paid health insurance to full time teachers, 49% to full time assistants and 13% to part time employees (Helburn, 1995). The most common benefit offered to staff was reduced fee child care.

One evaluation study (Boyd & Wandschneider, 2004) examined the effect of improving staff benefits. Intervention programs involved in the study were required to implement a set of employee benefits (minimum of 10 paid sick, holiday, and/or vacation days and monthly contributions to employee's health insurance premiums) whereas the comparison centers were not required to implement any benefits beyond the program's normal benefit packages. Overall,

comparison centers implemented considerably fewer benefits than intervention centers. Data collected in first year of the intervention showed that 42% of comparison centers ( $n = 57$ ) offered health insurance, while 79% of intervention centers ( $n = 75$ ) offered health insurance ( $p < .0001$ ). The limited benefits offered at the comparison centers are illustrative of the typical benefit packages offered to child care employees in the state. Although it is difficult to determine to what degree benefits were responsible for retaining employees in this study, the pilot centers did have significantly lower turnover than comparison centers when retention was restricted to the sub sample of new employees hired within the first three months of the study ( $p < .05$ ).

#### *Lack of Educational Requirements*

The educational requirements for employment in the child care field are minimal and inconsistent. While four-year degrees are the minimum requirement for elementary and secondary teachers, most child care teachers are not required to obtain a BA. The general assumption has been that formal education and training are not required for child care employees to do their job. The result is reluctance nationwide to adopt a set of educational requirements for entry into the field. Forty-four states have a state-funded pre-kindergarten program, yet only 23 required classroom teachers to obtain a BA degree (Barnett, 2003). State-funded programs are similar to federally-funded Head Start programs, in that both serve low income children and must meet higher standards than the typical licensing standards for a privately funded child care center. Many children do not qualify for state or federally-funded programs and instead receive child care from centers with lower (if any) pre-service qualifications for staff. Only 12 states have some type of minimal requirement beyond a high school degree (NCCIC, 2006).

However, the assumption that minimal pre-service qualifications are sufficient is changing. Some recent literature has indicated a link between higher teacher education and

increased levels of global quality (Burchinal, Peisner-Feinberg, Pianta, & Howes, 2002). The research has shown that educated teachers, with a BA degree in early childhood education or related field, share more positive beliefs about developmentally appropriate practices and classroom interactions. Further, the research has correlated these beliefs to increases in classroom quality (Barnett, 2003; Arnett, 1989). The research has shifted assumptions and given way to new legislation that puts pressure on early learning environments to instill “school readiness” in young children and has resulted in increased accreditation standards, development of quality rating systems, and increased requirements for teacher education by state. For example, the National Association for the Education of Young Children (NAEYC), an organization that promotes program accreditation (i.e. a strong indicator of program quality) has increased accreditation standards, specifically in regards to teacher education. All lead teachers must have a minimum of an AA degree and 75% of all teaching staff must have a BA in a related field. Further, half of all assistant teachers must have a minimum of a Child Development Associate Credential (CDA) and all assistants who do not, must be enrolled in a CDA program. A CDA is a competency-based, national credential aimed at improving classroom quality through increased teacher qualifications (NAEYC, 2007).

On a national level, the pressure to increase teacher education is evident with the passage of the Head Start School Readiness Act of 2007. This legislation was passed with the assumption that increasing standards, such as staff qualifications will improve school readiness. By 2013, at least half of all Head Start teachers nationwide must have a BA or advanced degree in early childhood education (ECE) or related field and all teaching assistants must have a CDA and be working toward an AA or BA degree in ECE (Administration for Children and Families, 2008).

In Washington state, the creation of a pilot Quality Rating and Improvement System (QRIS) is in place, and has put an emphasis on teacher qualifications. The QRIS is a voluntary rating system that defines center quality on a continuum of five levels, ranging from low quality (e.g. met minimal licensing requirements) to high quality (e.g. achieved accreditation status). Level of quality is based on five categories or indicators of quality. Teacher quality is one of the five categories, and encompasses professional development and educational level of teacher. Nationwide there are numerous pilot projects similar to the QRIS underway, but a much smaller number of states have implemented a quality rating system statewide (Washington Learns, 2006).

Although it seems reasonable to assume that increased educational qualifications build a stronger workforce, empirical studies have failed to reveal a clear consensus on the relation between education and retention. Literature on the relation between education and retention generally falls into two categories: studies that demonstrate a relation of increased education and increased retention (Boyd & Wandschneider, 2004; Whitebook & Sakai, 2004), or studies that report mixed or no relation between employee education and retention (Early, Maxwell, Burchinal, Alva, Bender, & Bryant, 2007).

One evaluation study (Boyd & Wandschneider, 2004) reported a positive relation between teacher education and retention and found that centers which hired employees with specialized degrees in early childhood were more likely to retain employees longer than comparison centers. The overall retention rate of intervention centers from the beginning of the study to the end was 40%. However, when only employees who had earned an Associate's degree or higher in a related field were examined, intervention center retention rates increased to 62% (Boyd & Wandschneider, 2004).

Another study (Whitebook & Sakai, 2004) found that the proportion of highly skilled staff (defined as those having advanced educational and training background) that stayed at a center was related to the turnover climate (defined as the percentage of highly skilled staff that remained at a center). A multiple regression analysis revealed that the presence of other highly educated staff was a significant predictor ( $p < .01$ ) of retention of other highly educated staff. Here, the presence of educated staff increased the retention of other educated staff.

A very recent study (Gable et al., 2007) using survival analysis also reported results suggesting that teacher education and retention may be related. In an examination of the effects of a cash incentive program, teacher retention was increased when teachers received cash incentives, but only when teachers had more than a high school diploma and at least 5 years of experience. Eighty-two percent of teachers receiving cash incentives, and having more than a high school diploma and 5 years experience, were still employed at the end of 20 months, while only 54% of teachers with a high school diploma and less than five years experience were still employed [univariate  $\chi^2$  for log rank (37,  $N = 115$ ) = 8.30,  $p < .01$ ]. These authors used investment theory to frame this research. As such, it makes sense that they combined education level and experience as a predictor of retention. However, doing so makes it difficult to be certain that education is the critical factor here.

A recent meta-analysis (Early et al., 2007) reported mixed results regarding teacher education. In this study, the authors performed a secondary statistical analysis on seven previous studies to determine whether increased teacher education improved classroom quality and maximized child outcomes. The authors found no association between teacher education and quality or child outcomes. Although retention was not an explicit variable reviewed, it is a component of global quality, and some key explanations regarding teacher education and

retention were addressed in the discussion. One possible explanation for the null findings is that high quality teachers with a bachelor's degree may not be compensated sufficiently in prekindergarten settings and elect to leave and teach at the elementary level. Another explanation is that directors may place highly educated teachers into classrooms previously characterized as low quality and serving children with existing cognitive deficits. Therefore, the null findings may be attributed to a negative selection in these studies. The authors conclude that while teacher education is important, it may not be as critical to quality as past research has found (Early et al., 2007).

A reasonable explanation for the division in the literature may be the populations from which research studies have sampled data. For instance, recruiting a large enough sample of teachers with formal education (e.g. bachelor degree) to draw comparisons from or establish statistical significance has rarely been achieved in the empirical literature. There are simply too few child care employees with specialized degrees. Moreover, of the formally educated employees, some have degrees that may be considered outdated, while others are general degrees with no specific relevance to early childhood. For employees who have degrees with an early childhood specialization, there are no consistent guidelines state to state that make the programs equivalent across the university level (Early et al., 2007). Researchers have tried to draw conclusions about teacher education, but due to the limited variability in education and inconsistent definitions, have found it difficult to determine the relation between teacher education and retention.

Consequently, the lack of required education and pre-service qualifications to teach in the field may have allowed teachers into classrooms that are not prepared to provide quality care. The low qualifications may have compromised quality both in terms of care received by the child



and by lowering morale and creating a negative work environment. Due to the minimum staff qualifications, many unqualified teachers may stay in centers simply because there are no requirements to keep them out of these positions.

### *Work Environment*

Along with wages and benefits, the work environment also impacts a teacher's decision to stay or leave (Whitebook & Bellm, 1999). Although not as predictive as wages, job satisfaction was still a significant predictor of turnover ( $p < .001$ ) in the National Child Care Staffing study (Whitebook et al., 1990). Job satisfaction was operationalized here by several factors associated with Jorde-Bloom's (1988) definition of the work environment. Work environment is a multi-faceted construct, including collegiality, professional growth, supervisor support, clarity of rules and authority, the reward system, decision making, goal consensus, task orientation, the physical setting and the degree of emphasis on innovation.

It is interesting to view turnover and a negative work environment as having an interactive influence on one another, such that changes in one domain (either turnover or negative work environment) influence changes in the second domain. Turnover negatively influences the work environment by demanding more resources, namely longer hours, from the teachers who remain in the center. In one sense, teacher morale and workplace performance are compromised as turnover rises. Yet, a negative work environment is likely to prompt employees to leave, thus resulting in increased turnover (Whitebook & Sakai, 2004).

In sum, retaining child care staff is problematic. The literature points to low wages and benefits, poor work climate, the departure of qualified staff, and a lack of educational requirements, as a common set of factors that predict turnover. Research has shown that when

these criteria are fulfilled, child care staff is more likely to stay. Identifying why retention is problematic is critical to understand before attempting to intervene on the problem.

#### Attempts to Intervene

Although individual studies vary on the most integral predictor of turnover, most studies include inadequate compensation as one of the primary reasons child care staff leave a center (Phillips et al., 1991; Helburn, 1995; Whitebook & Sakai, 2004). Based on this assumption, solutions to the turnover problem have usually involved state initiatives or pilot projects with some aspect of compensation as an incentive to curb turnover rates. Attempts have primarily been longitudinal and carried out at the state level.

#### *Alameda Child Development Corps*

Alameda Child Development Corps (a community program funded from the larger California CARES initiative) was developed in response to the high turnover rates and low educational attainment characteristic of the child care workforce in this state (Park-Jadotte et al. 2002). Researchers implemented the initiative with a goal of improved staff stability by providing stipends for a long term goal of enhanced professionalism through improved staff education.

The Alameda Child Development Corps was unique in that staff had to obtain 12 college credits in early childhood education (reduced to 6 credits later in the study) before they were deemed eligible to receive the stipend. The program was based on a seven-tier staff wage structure that varied according to the level of educational attainment and job position of the employee. Stipends ranged from \$500 to \$6000 depending on the tier. This process evaluation provided qualitative information useful for future interventions aimed at reducing turnover. Based on feedback from focus group participants (which included child care workers, center

directors, and educators) retention rates had improved and child care staff sought additional training which was evident by the 19 percent increase in enrollment in relevant courses at local colleges and universities (Park-Jadotte et al., 2002).

### *Caregiver Pay Program*

The Caregiver Pay Program was an outgrowth of the Military Child Care Act to address high staff turnover and inadequate training (Park-Jadotte, et al., 2002). The program compensated child care employees with salaries equivalent to other occupations in the federal system once similar levels of education and training had been achieved. Outcomes of the program showed that wages prior to implementation were low, with a mean hourly wage of \$4.67, which increased by nearly two dollars to \$6.51 by the end of the program. The program also reduced the annual turnover rates from a mean of 47.7% prior to the implementation to 24% post-implementation (Park-Jadotte, et al., 2002). The inherent nature of military jobs (i.e. high incidence of military transfers) makes this decrease of staff turnover even more significant.

### *Child Care WAGE\$*

Child Care WAGE\$ is a permanent program developed in North Carolina that provides financial incentives to child care employees who stay with their employers and obtain additional education (Park-Jadotte, et al., 2002). Child care workers who remain at the same site for six months receive semi-annual stipends (ranging from \$200-\$4,000 dependent upon education, experience, and job position). Additional funds could be received if the participants documented additional educational achievements. The state turnover rate of child care workers was 31% during the year that the WAGE\$ pilot program was implemented. In one year, the turnover rate of child care workers dropped to 18% (Park-Jadotte, et al., 2002). Researchers gathered qualitative data through an annual “satisfaction survey” distributed to participants who stayed

and left their jobs. The two most prevalent reasons why respondents left were either job offers outside of the child care field or job offers with better benefits.

### *Career and Wage Ladder*

The Washington State Career and Wage Ladder (CWL) addressed the low compensation and high turnover rates of child care workers across the state by creating financial incentives to stay in the field and increase educational attainments (Boyd & Wandschneider, 2004). Pilot centers were selected and implemented wage increases commensurate with the employee's level of education and job position. Employees in pilot centers also received increased benefits of ten paid leave days and minimum monthly contribution payments to employee's health plans.

The difference in retention rates in pilot centers versus comparison centers became statistically significant when the employee's hire date was considered. When comparing the subgroup of employees hired at the beginning of the CWL, pilot employees worked an average 3.5 months longer than comparison employees ( $p=.0027$ ). A statistically significant difference was also found in educational attainment between pilot and comparison centers ( $p=.0007$ ). There was a positive relation between higher education and better retention such that the overall retention rates, from the beginning of the study to the end, for all employees in pilot center, was 40%; however, for those that completed 15-45 ECE credits, retention rates increased to 59%. It is reasonable to believe that pilot centers increased their ability to attract better qualified employees which led to better retention rates during the CWL study.

### *Workforce Incentive Program*

A more recent cash incentive program was the Workforce Incentive Program (WIN). WIN was a private/public research initiative within the state of Missouri and spanned from May 2002 through May 2006 (Gable et al., 2007). The primary goal was to reduce child care staff

turnover (especially among educated and experienced staff), with a second goal of increasing motivation among individuals to seek additional education and professional development.

Annual incentives ranged from \$500 to \$2,500 based on educational attainment.

An evaluation study found that the program's incentives did make a difference in increasing retention rates, but not across all participants. Cash incentives had more of an effect on teachers than directors and specifically for teachers who identified with one of the three following two-variable combinations: teacher had more than a high school degree and hourly wage was above \$7.20, teacher had five or more years of experience and wage was above \$7.20, and teacher had more than a high school degree coupled with five or more years of experience. All three of these variable combinations lend support to the investment theory which posits that when an employee strikes a balance between the costs and benefits of a job, there is greater investment and the appeal of alternative jobs lessen (Rusbult & Farrell, 1983). This ultimately results in retention of employees who are more invested in their job. In the WIN project, teachers who obtained more education, had more experience working, and were more adequately compensated, were more likely to stay. This study provides further support to the idea that intervening on wage alone will not solve the turnover problem completely. Instead, reducing staff turnover requires a multifaceted approach. While there have been attempts by several states to intervene on poor retention, the problem still exists.

#### Present Study

The present study makes an important contribution to the child care literature by examining which individual and center-level variables are most predictive of staff turnover. The literature has recently recognized turnover as a multifaceted issue influenced by more than just a

single variable, such as wage alone. However, the literature has not specified what variable or sets of variables are most influential to staff leaving.

The following study contributes to the literature by using survival analysis to examine turnover. This statistical approach allows the present study to take into account the timing of turnover and to look at whether certain variables are better predictors of employees who leave after a short tenure versus employees who turnover after a long tenure in the field. The overarching research question that will guide the study is whether there is a set of variables which best characterize staff who are retained and staff who leave their child care center. The study's research question was exploratory. Therefore, there were no directional hypotheses on which predictor would best explain staff staying or leaving a center.

## CHAPTER THREE

### METHOD

#### Original Data Source: CWL Evaluation Study

##### *Purpose*

The present study will use data collected in the Washington State Career and Wage Ladder (CWL) Pilot Project. This project was initially funded (for the duration of one year) by Governor Gary Locke in 1999 using money from the Temporary Assistance for Needy Families funds and was later re-funded with additional TANF funds and extended through June of 2003, for a total of 3 years (Boyd & Wandschneider, 2004). The purpose of the original study was to assess whether participation in the program improved employee wages, benefits, retention, educational attainment, and professional attitudes.

##### *Design*

The CWL evaluation was longitudinal and employed a quasi-experimental comparison design of two different groups of child care centers, 1) pilot project centers (chosen by the Department of Social and Health Services) and 2) comparison centers matched on several center descriptors (chosen by the evaluation and research team at Washington State University).

##### *Sample*

Data was collected on all employees from participating centers. The total number of employees was approximately 3,800 (Boyd & Wandschneider, 2004). The majority of study participants were female (93%) and ranged in age from 18-60+ years. Nearly half of the sample (45%) fell into the age range of 21-30 years. Employee ethnicity was more likely to be Caucasian (76%) than any other reported ethnicity. The employees in pilot and comparison

centers were similar across all demographic variables with no statistically significant differences found.

### *Data*

A longitudinal survey method was used to obtain director-reported data on eligible center employees. The data was collected in 7 surveys over a three-year period. Directors reported on retention, education, position, wage, and benefits, of each employee. In addition, directors reported on center-level characteristics. Examples of these descriptors included licensed capacity, NAEYC accreditation status, and number of DSHS children enrolled in care.

## The Present Study

### *Sample*

The sample for the present study consists of all employees from Pilot and Comparison centers that participated in all 7 waves of the CWL evaluation study. The sample closely parallels the size and demographics of the original study's sample. The total number of employee observations for the present study's analysis is 3,880 employees from 175 centers. The sample ranged in age from 18 – 60+ years, with almost half of the sample in 21 – 30 year category ( $n = 1,682$ ). The average length of time employees had been employed in their current center was 3.7 years ( $SD = 3.2$ , range = .25-34.01).

The sample is predominantly female, with only 6% of the sample male. In regards to education, three quarters of the sample had not taken any specialized early childhood coursework ( $n = 3,054$ ). The percent of employees in each educational category are as follows: 20% had a high school degree or less, 42% had completed the State Training and Registry System (STARS is an on-going training requirement for all Washington state child care providers), 11% had some college ECE credits (i.e. 15-30 credits), 9% had a Child Development Associate (equivalent to



45 ECE credits), 9% had an Associate's Degree (an AA degree is equivalent to 135 ECE credits), and 9% had a Bachelor's or Master's degree in ECE.

The sample represented a range of employee positions and wages. Employees were categorized into five possible positions based off of the employee's initial reporting (i.e. the first wave of data available for the employee) due to minimal variation across the 7 waves. The percentage of employees in each position is listed along with the mean hourly wage (i.e. based off of the initial reporting for each employee) that corresponds with each position. Forty-four percent of the sample was employed in the lowest category as a classroom aide and earned an average of \$7.76 an hour. Forty-five percent of employees were lead teachers earning \$8.79 an hour on average. Two percent were site coordinators earning an average of \$10.45 an hour, 4% program supervisors earning an average of \$11.18 an hour, and 5% were directors, assistant directors, or owners that earned an average of \$12.53 an hour.

The child care centers included in the study varied by size and location. In terms of child capacity, centers ranged from small centers caring for 13 children to larger centers caring for 168 children ( $M = 68.6$ ,  $SD = 32.6$ ). Centers were distributed across the state and in counties of differing populations. Fifty-two percent of the centers were located in larger metropolitan counties, 32% in smaller urban counties, and 16% in rural counties. One quarter of the sample ( $n = 964$ ) worked in centers that were NAEYC accredited at some point during the study.

### *Variables*

Based on the commonly cited predictors in the turnover literature and the data available in the Career and Wage Ladder data set, six predictors were selected and entered into the present study's statistical model: education, position, wage, morale, benefits, and tenure. Wage, education, and position are employee-level variables. Morale and benefits are center level

variables that are within-center constants (i.e. all employees within center are assigned the same value) and capture an aspect of Jorde-Bloom's (1988) definition of work environment.

Most variables were reported at all waves, but some were reported at one time point only. In the following subsections, each of the six predictor variables selected for the present study's analysis are discussed separately. The variable is first introduced and followed by a brief description of how the variable was originally measured in the CWL study. In addition, a frequency distribution is presented for each variable. Data for these frequency distributions was based on initial reporting for each employee. It is important to note that for the survival analysis, data on variables across all waves were used.

*Education.* Directors reported on employee education level, using a forced choice format with 10 possible education levels (ranging from less than high school degree to master's degree and beyond) from which to choose. The large number of education categories had been established for pilot implementation of the Career and Wage Ladder insuring incentives for even small steps in education. The present study collapsed the 10 possible levels of employee education into a categorical variable consisting of 6 levels: less than or equal to a high school degree, completed STARS training (required upon 90 days of hire in a licensed Washington State child care center), some (i.e. 15-30) ECE college credits, CDA (i.e. equivalent to 45 ECE college credits), AA degree or 135 ECE college credits, and BA or MA in ECE or related field.

The frequency of employees in each educational category is reported in Table 1. The majority of the employees in the sample (42%) had STARS basic training in addition to a high school degree. Only 11% had some college credit specifically in ECE, 9% had a CDA or 45 ECE credits, 9% an AA degree in ECE, and 9% a BA or MA degree in ECE.

*Position.* The position variable refers to the hierarchal position titles of all employees at the center. Employee position was reported on at all waves of data collection by center directors selecting from a list of 5 possible position titles that best represented the employee’s current position. The present study collapsed the position variable into 4 possible levels: classroom aide,

Table 1

*Frequency and Percent of Sample in Position and Education Variables*

Variable Category	Frequency of Sample	Percent of Sample
Education ( $N = 3,861$ )		
1. High school degree or less	754	20
2. STARS certified	1625	42
3. 15-30 ECE credits	429	11
4. CDA or 45 ECE credits	363	9
5. AA or 135 ECE credits	354	9
6. BA or MA in ECE	336	9
Position ( $N = 3,849$ )		
1. Aide	1705	44
2. Lead Teacher	1753	45
3. Site Coordinator	62	2
4. Program Supervisor	135	4
5. Director, Asst. Director, Owner	194	5

lead teacher, middle management (i.e. site coordinator or program supervisor), and director (i.e. includes assistant directors, center directors, and owners).

The frequency of employees for each position is reported in Table 1. The majority of the employees in the sample are either assistant teachers (44%) or lead teachers (45%). Remaining staff are employed in managerial or administrative roles. Two percent are site coordinators (i.e. coordinators of programs with centers in multiple sites), 4% were program managers, and 5% were directors, assistant directors, or owners.

*Wage.* Directors were asked to report the employee’s hourly wage for each wave of the study in which the employee was working. Wages were reported as a dollar figure. Note that for employees who were hired midway through the study (e.g. wave 3), wage will be reported in the initial wave that the employee was hired (e.g. wave 3) and then continuously for each subsequent wave unless employee left before the end of the study. Wage is a time-varying covariate, meaning that value may change over the course of the study.

Table 2

*Descriptive Statistics for Wage, Tenure, Morale, and Benefits Variables*

Variable	Mean	SD	Range	
			Minimum	Maximum
Wage	8.64	1.93	6.50	23.61
Tenure	3.70	3.19	.25	34.02
Morale	6.37	1.02	3.00	8.00
Benefits	6.76	2.02	0.00	11.00

*Note.* Morale was measured on a scale of 1-8, but actual scores ranged from 3-8.

Descriptive statistics for the wage variable are reported in Table 2. The average hourly wage for the sample was \$8.64 with a  $SD = \$1.93$ . The lowest wage reported is \$6.50 and the highest hourly wage was \$23.61.

*Morale.* Center directors were asked to indicate on a Likert scale of 1 to 8 (1 = low morale, 8 = high morale) which level most accurately represented the morale at their center over the past year. Thus, all employees at a particular center received the same morale score. Further, morale was only reported on at 3 time points in the CWL study. The present study selected the morale scores from wave 5 because of the format of the question (i.e. “Rate the morale of your staff this year”) provided an assessment of current morale, not change in morale as did the morale question in wave 2 (i.e. “compare your staff morale to morale a year ago”). This preferred format was also used in wave 7, but because directors knew of the ending of the pilot project at the time of this data collection, it influenced the morale scores in a negative way, and thus, was not chosen as the measure of morale for the present study.

The descriptive statistics for center morale are reported in Table 2. The average morale score for centers was approximately 6.37,  $SD = 1.02$ . Although the original scale had a range of 1-8, there were no directors who scored their centers as having staff morale below 3.

*Benefits.* Center directors were asked to specify, from a list of 11 possible benefits, which benefits were offered in their center. The list of possible benefits included paid sick days, vacation days, holidays, health insurance, life insurance, retirement plan, maternity leave, reduced fee child care, time off for educational pursuit or additional training, paid ECE credits, and paid compensation for over time. The present study created a cumulative benefit variable, which assigned a score for the total number of possible benefits (e.g. if employees worked at a center that offered no benefits, then benefits = 0; if employee worked at a center that offered 5 of

the benefits, then benefits = 5). Thus, all employees at a particular center were assigned the same benefit score. There is a benefit score for each employee at all 7 waves of data collection. The benefit variable was a time-varying covariate, which means the number of benefits an employee had over the course of the study may have fluctuated.

Descriptive statistics for the benefit variable are reported in Table 2. The average number of benefits reported was 6.76,  $SD = 2.02$ , with some directors reporting offering no benefits (i.e. benefits = 0) and some directors reporting all possible benefits (i.e. benefits = 11) offered.

*Tenure.* Tenure refers to the employee's duration of employment at the center. All employees included in the present study have a hire date and an end date. Employees that were still employed at the end of the CWL evaluation study were assigned an artificial end date, May 2003, synonymous with the final data collection point. In survival analysis, this is referred to as a censored case. The variable simply represents the difference between an employee's hire date and end date. Although this variable does not account for total years of employment in the field, it uses the employee's hire date to determine how long they were employed at the current center. The average tenure was 3.7 years,  $SD = 3.19$  (refer to Table 2). There was wide range of employee tenure with some working less than a year (i.e. 4 months) and others with tenure of 34 years.

### *Statistical Analyses*

I used survival analysis for the present study. Survival analysis is useful when there are a group of predictor variables and the timing of some event occurring is of interest. Survival analysis was traditionally used in the medical field to study the timing of deaths given different treatment or risk scenarios. The analytic technique is now used in multiple fields to study the

occurrence and timing of events at several time points longitudinally (Allison, 1995). Survival analysis allows for examination of a trend while simultaneously considering the predictor variables, as well as the actual timing of the event.

The Cox proportional hazard model is a survival analytic procedure that allows for determining the hazard rate (i.e. turnover) of child care providers, given particular predictor variables (characteristics of the person—like educational level, wage, etc.). Cox's hazard models are fixed proportions of one employee's hazard (i.e. likelihood of leaving) over any other's employee's hazard (Allison, 1995).

Using Cox regression, the survivor distribution function (i.e. likelihood of employee still being employed at the subsequent wave of data collection) is estimated using the Proportional Hazard Regression (PHREG) procedure of the SAS statistical package. The first step of the present study's analyses included entering the five predictor variables into a full statistical model using the proportional hazard regression (PHREG) model. The PHREG procedure is similar to a traditional logistic-regression model, in that all independent variables are entered into a full model to test for significant effects on some dependent variable. Variables are deemed significant when their chi-square values are below the  $p < .05$  significance level.

A unique feature of the PHREG method is the ability to include time-dependent covariates in the model, meaning that the values of covariates may fluctuate across the duration of the study (Allison, 1995). PHREG is particularly useful for examining the timing of an event (i.e. employee leaving center) as predicted by variables that may change in value over time. Consider the example of wage. Choosing to stay at a center may be prompted by an increase in wage over the years. Conversely, a stagnant wage that does not increase over time may prompt an employee to leave for other jobs with higher wages. Allowing time-varying covariates to be

entered into the model is a unique feature of the PHREG procedure. It is important to note that the present study includes both time-varying covariates and discrete variables. PHREG can simultaneously predict time-dependent covariates (i.e. changing values) and discrete covariates (i.e. unchanging values) effects on the hazard event occurring.

One disadvantage of PHREG procedure is its lack of ability to provide survival curves or graphic depictions of the hazard function (i.e. occurrence of turnover). Therefore, the second step in the analyses will include running separate analyses on each of the covariates from the full model. Using PROC LIFETEST, another survival analytic procedure, survival curves will be plotted to graphically represent the length of survival (i.e. retention) based on some variable. For example, a survival curve will be produced to show the length of tenure for each position compared to employees in another position category. The curve illustrates survival percentage on the 'y' axis, and tenure (i.e. in years) along the 'x' axis. These survival curves provide ease of interpretation of the percent of employees in a specific category still retained at any length of tenure (e.g. 25% of classroom aides have tenures of 5 years or more). The survival curves are useful for considering the time at which an event (i.e. turnover) reaches a significant decline. Knowing when turnover reaches some level (e.g. 3 months versus 3 years) is helpful for planning interventions to address the problem.



## CHAPTER FOUR

### RESULTS

The purpose of this study was to examine several employment variables as possible predictors that explain variance in child care staff turnover rates. To understand which predictor variables were related to the hazard event (i.e. employee turnover) all five predictor variables were entered into the full model using a regression method in survival analysis. The five predictor variables were all tested for significance of the hazard event (i.e. turnover) occurring.

Additional analyses were performed to produce a survival curve for each of the five variables from the full model: education, position, wage, morale and benefits. The survival curves are graphic depictions of an interaction between the variable (i.e. broken down by category) and length of employee tenure. A survival curve was not produced for the variable tenure, because tenure was the dependent variable in the curves.

In regards to the full model, the model fit statistics indicate that the variables entered into the full model were a good fit, ( $\chi^2 = 466.31, N = 3,582, df 6, p < .0001$ ). The null hypothesis was rejected, indicating that at least one or more of the variables was a significant predictor of the hazard event occurring. Some of the variables in the model had unevenly distributed scores, so, log-transformations were performed to normalize the distributions. However, analyses that included the log-transformed variables did not significantly change the model. For this reason, the present study will report the model without the log-transformations for clarity in interpreting the hazard ratios. Results from the full model for each predictor variable are discussed below and separated into sections by variable. Following the explanation of each variable's predictive power in the full model will be a discussion of the variable's survival curve.

Table 3

*Full Model of Variables Predicting Turnover (N = 3,582)*

Variable	<i>df</i>	Parameter Estimate	<i>SE</i>	$x^2$	<i>p</i>	HR
Education	1	0.010	0.02	0.37	0.5500	1.01
Position	1	-0.140	0.04	13.85	0.0002	0.87
Wage	1	-0.060	0.02	6.77	0.0090	0.94
Tenure	1	-0.200	0.02	154.03	< .0001	0.82
Morale	1	-0.100	0.02	15.44	< .0001	0.91
Benefits	1	0.002	0.01	0.04	0.8524	1.00

Note. *HR* = untransformed hazard ratio. Transformed hazard ratios are done by subtracting the value from 1 and then multiplying by 100 (Allison, 1995).

#### Education

Education emerged as a positive but non-significant predictor of turnover ( $x^2 = .53$ , 1 *df*,  $p = .47$ , *ns*). Although education was not a significant predictor of turnover, there was a moderately high correlation (refer to Table 4) between education and wage and position. It could be that higher positions and better wages are both proxies for higher education

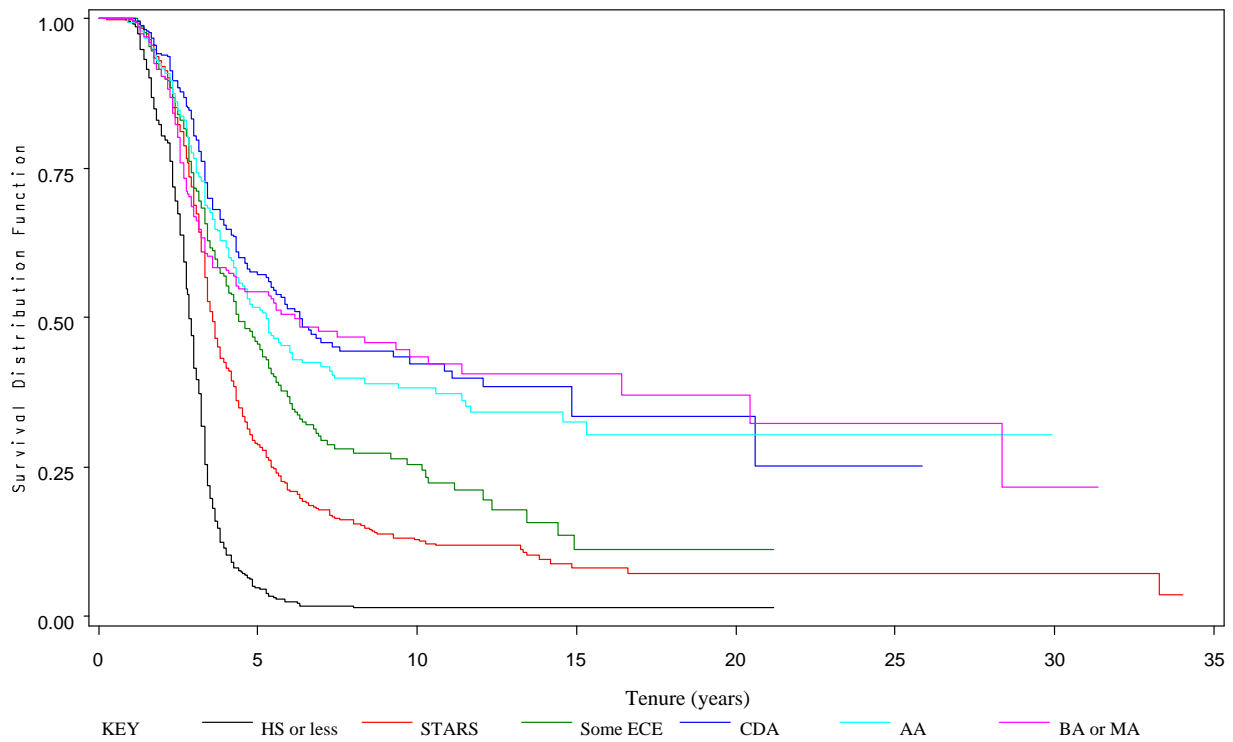
A survival curve examined the interplay between employee education and tenure. The survival curves followed the hierarchal trend of the education positions such that the employees with the least education left much sooner than employees with more education (see Figure 1). The difference in length of retention for each educational level was statistically significant ( $x^2 = 556.53$ , 5 *df*,  $p < .0001$ ). The divergence in tenure becomes clear after five years; turnover was likely to have happened for employees with a high school degree or less (i.e. about 5% remained) whereas nearly 60% of employees with a CDA, AA or BA were still employed.

Table 4

*Correlations Between Predictor Variables*

Variable	1	2	3	4	5	6
1. Wage	—	.61***	.02	.41***	.61***	.21***
2. Education	—	—	.01	.20***	.46***	.10***
3. Morale	—	—	—	.07***	-.04*	.05**
4. Tenure	—	—	—	—	.35***	.03
5. Position	—	—	—	—	—	-.01
6. Benefits	—	—	—	—	—	—

*Note.* \* $p < .01.$ , \*\* $p < .001.$ , \*\*\* $p < .0001.$



*Figure 1.* Survival curve of employees in each education category.

## Employee Position

In the full model, position emerged as a significant and negative predictor of turnover ( $\chi^2 = 13.54, 1 \text{ df}, p < .001$ ). As position level increased, the likelihood of leaving decreased. The hazard ratio allows a detailed understanding of this relation, so that, for each increase in employee position (i.e. “moving up the career ladder”) the likelihood of having left by any given wave of data collection decreased by 16%.

The position variable was initially categorized into 5 levels to determine how tenure varied by different employee positions. However, due to the very small number of employees in the site coordinator and program manager positions, these two positions were collapsed into one category for the survival curve. The results followed the same hierarchal trend as the survival curve for wage; so that employees in higher positions stayed longer than employees in lower positions (see figure 2). The difference in length of tenure across the four positions was statistically significant ( $\chi^2 = 533.86, 3 \text{ df}, p < .0001$ ). For example, nearly 80% of employees who were directors were retained at five years out, whereas only 15% of assistant teachers had tenures as long as 5 years.

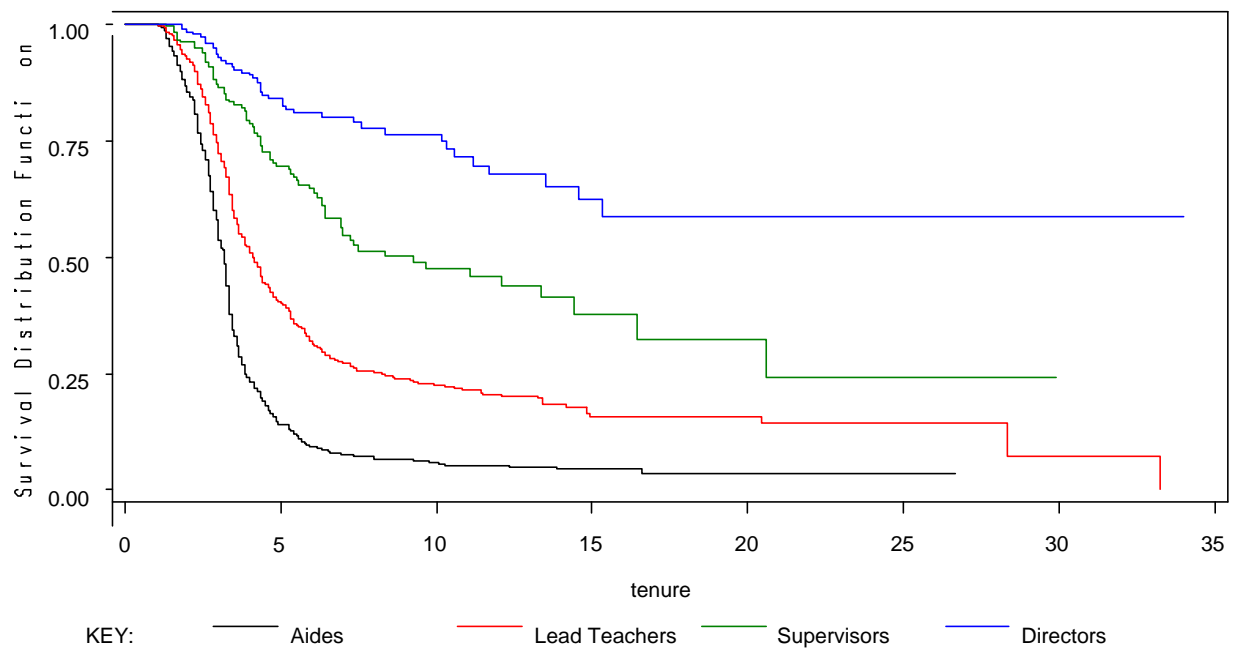


Figure 2. Survival curve of employees in each position category.

### Wage

Wage emerged as a significant and negative predictor of turnover ( $\chi^2 = 5.90, 1 df, p < .05$ ) indicating that as wage increased, the likelihood of leaving the center decreased: for every one dollar increase in hourly wage, the likelihood of having left at that wave, or subsequent waves of data collection, decreased by 6%.

For the survival curve, wage was split into three categories: less than \$10, \$10 - \$15, and greater than \$15. Again, employees in the higher wage category stayed much longer than employees in the lower wage categories (see Figure 3) and this difference was statistically significant ( $\chi^2 = 266.92, 2 df, p < .0001$ ). Only 25% of employees in the lowest wage category had tenures of 5 years, whereas 90% of employees in the highest wage category had tenures of 5 years. The disparity is even greater at 10 years, with nearly 85% of directors still retained, but only about 12% of assistants still retained.

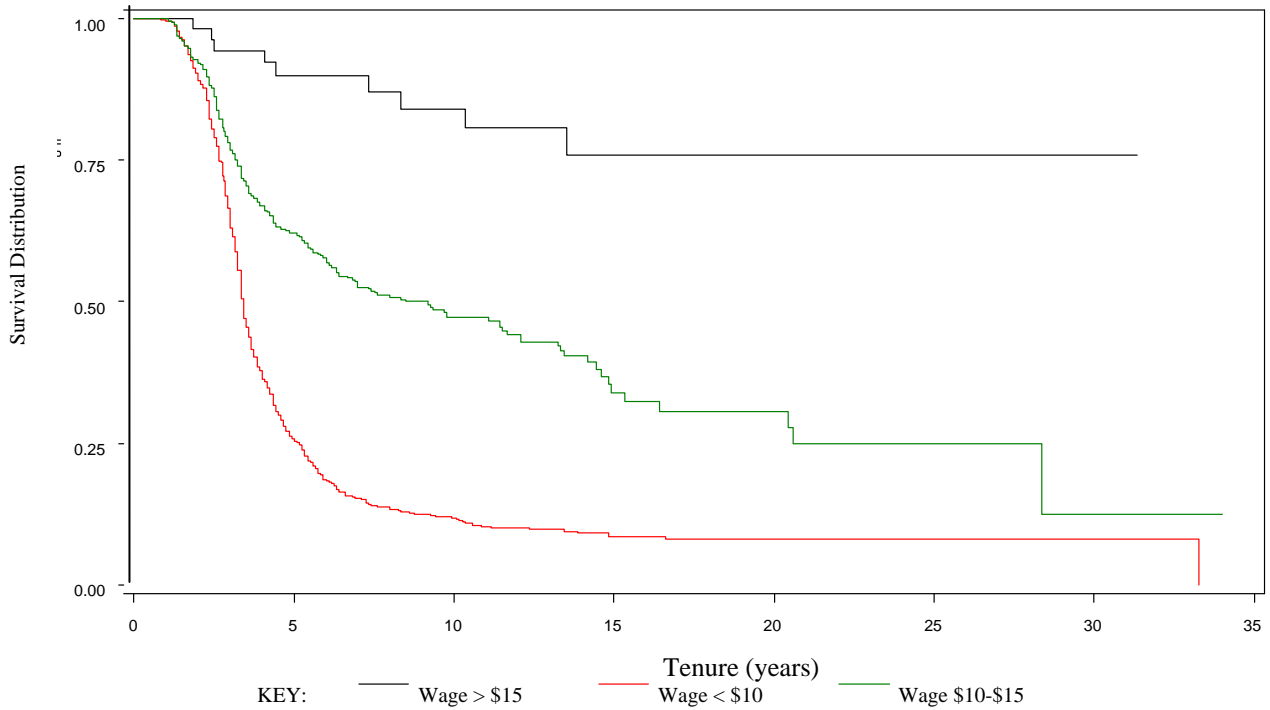


Figure 3. Survival curve of employees in three wage categories

### Morale

Morale emerged as a significant predictor of turnover ( $\chi^2 = 15.76, 1 df, p < .0001$ ). It was a negative relation, indicating that as center morale increased, the likelihood of leaving declined. Specifically, for every one unit increase on the morale scale, the employee was 10% less likely to leave at any subsequent wave of data collection. Morale was the second strongest predictor of the hazard event occurring.

The survival curve shows the length of tenure for employees in high morale centers and the tenure for employees in low morale centers (see figure 4.). It is interesting that while the two categories' curves do not look remarkably different, the length of tenure for the two groups are statistically significant and different ( $\chi^2 = 20.21, 1 df, p < .0001$ ).

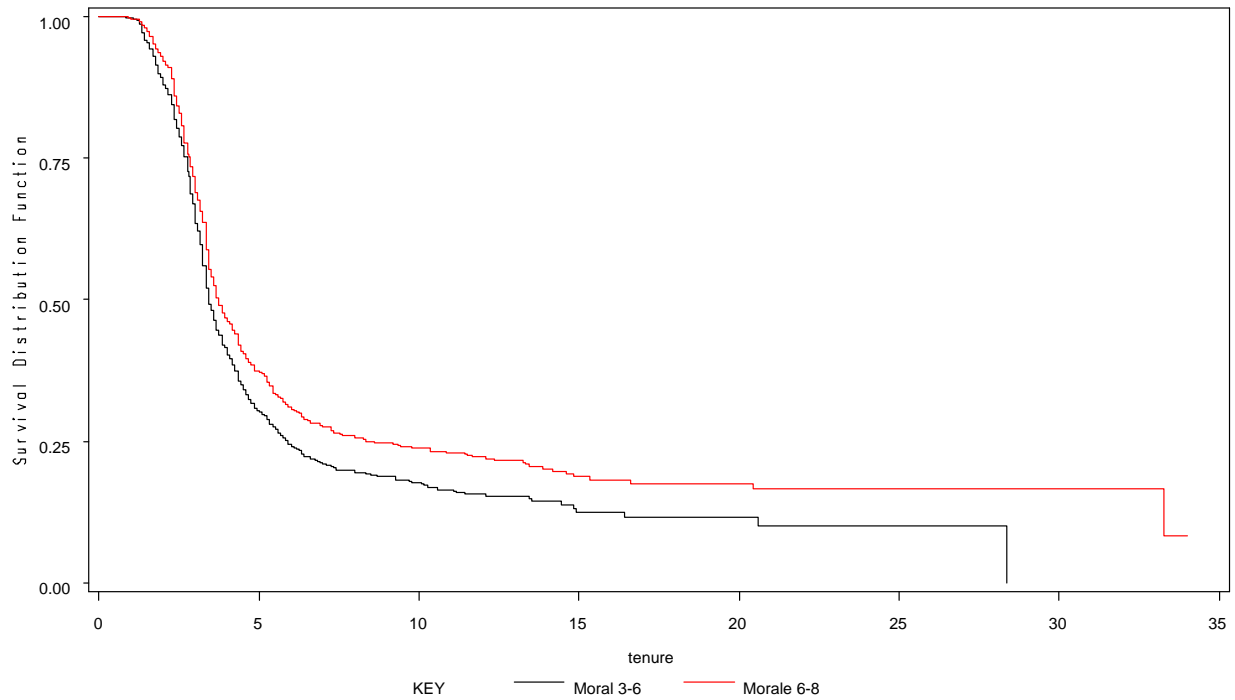
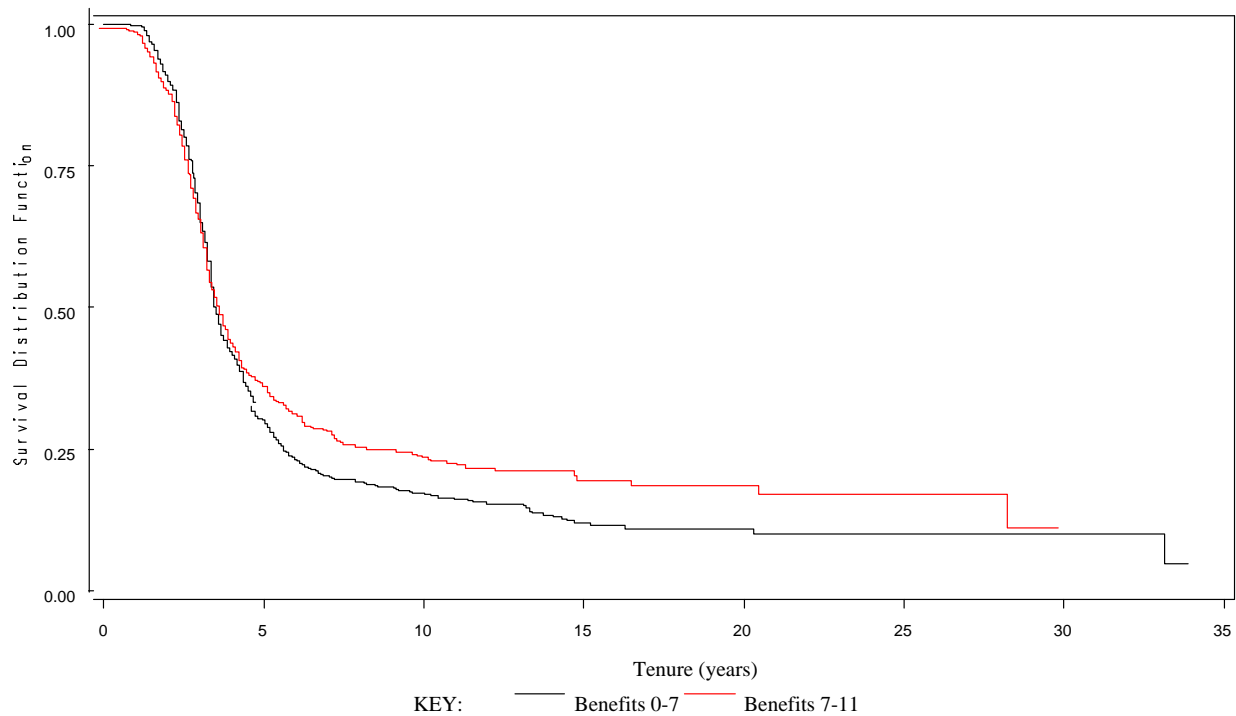


Figure 4. Survival curve of employee retention based on low and high morale.

### Benefits

Center-level benefits emerged as a positive but non-significant predictor of turnover ( $\chi^2 = .04, 1 df, p = .84, ns$ ). For the survival curve, benefits was first split at the mean into two groups, low benefits (i.e. received less than 6 possible benefits from the list) and high benefits (i.e. received 6 or more of the possible benefits) and then plotted to examine employee's tenure with benefits entered in as the independent variable (see figure 5). It is interesting that up until 5 years, there is not a noticeable difference between retention rates of employees in low or high benefit centers. However, with the Lifetest procedure, the length of retention for employees with high versus low benefits was statistically significant ( $\chi^2 = 11.17, 1 df, p < .001$ ).



*Figure 5. Survival curve of employee retention based on low or high benefits.*

### Tenure

Tenure emerged as a significant and negative predictor of survival ( $\chi^2 = 142.90, 1 df, p < .0001$ ). Since tenure referred to the length of time an employee had worked at the center, the relation can be understood as follows: the longer an employee had worked at a center, the less likely they were to leave. Based on the hazard ratio, for each additional year an employee stayed at a center, the likelihood of leaving at any subsequent wave of data collection decreased by 18%. Of all six variables, tenure was the strongest predictor of the hazard event occurring.

### Additional Analyses

Due to the unusually long tenure of some employees, a follow up analysis was performed to examine predictors of turnover for employees with a more typical length of employment.



Employees with tenure of five years or less were selected ( $N = 2,943$ ) and used to test the fit of the model. The same predictor variables that were used in the model for the full sample were used to predict turnover in the smaller sample. Certain variables changed in terms of chi-square value or significance level for predicting turnover (see Table 5). For employees with shorter tenure, wage became more significant in predicting turnover ( $x^2 = 6.95, 1 df, p < .01$ ) and position became non-significant ( $x^2 = 3.11, 1 df, p = .07$ ). Tenure remained the most significant predictor, but its chi-square value decreased by more than half, and morale decreased slightly in significance ( $x^2 = 12.32, 1 df, p < .001$ ). Benefits and education remained non-significant.

Table 5

*Full Model of Variables Predicting Turnover for Staff with “Realistic” Tenure ( $N = 2,943$ )*

Variable	<i>df</i>	Parameter Estimate	<i>SE</i>	$x^2$	<i>p</i>	<i>HR</i>
Education	1	1.01	0.02	0.81	0.3672	1.02
Position	1	-0.10	0.05	3.11	0.0777	0.91
Wage	1	-0.08	0.03	6.95	0.0084	0.93
Tenure	1	-0.32	0.04	61.03	< .0001	0.73
Morale	1	-0.10	0.03	12.32	0.0004	0.91
Benefits	1	-0.00	0.01	0.09	0.77	1.00

Note. *HR* = untransformed hazard ratio. Transformed hazard ratios are done by subtracting the value from 1 and then multiplying by 100 (Allison, 1995).

## CHAPTER FIVE

### DISCUSSION

This study used survival analysis to determine the significance of a set of variables in predicting child care staff turnover and further examined categorical levels within predictor variables to see how varying levels affected employee retention. The study's main research question of what best predicts turnover was posed with regard to the high turnover rates in the child care sector, with a goal of better understanding what promotes retention. Predictors of retention for the whole sample will be presented first, followed by the predictors of retention for the subgroup of employees with shorter tenure, and concluding with a discussion of the implications of these findings and limitations of the study.

#### Predictors of Retention for Full Sample

The full sample includes all employees with a wide range of characteristics, including length of tenure. Bear in mind that tenure in the current study only refers to tenure within a center, which begs the question of whether long tenure of some employees in the sample is indicative of even longer tenures in the field. Higher hourly wages, better staff positions, better staff morale, and longer tenure in the field all significantly reduced the likelihood of the employee leaving.

Tenure emerged as the most predictive variable, and follows the logic of the investment theory that staying in a center for longer periods increases investment in the center and decreases the likelihood of leaving (Gable et al., 2007). Application of this theory to the present study's findings would be that employees who had worked at the same center for many years (some with tenure greater than 30 years) and had invested many resources, namely time, were then much less likely to leave. With few requirements to enter in, the child care field has allowed

unqualified employees to teach who may be otherwise unqualified for alternative professions and thus remain in child care due to a lack of prospective job options. If this is the case, unqualified staff may remain in centers regardless of other predictor variables (e.g. higher wages), and the field must decide whether retention of these employees is really the goal.

Morale was the next most important predictor in terms of retention. It is important to interpret this finding with caution, given how the variable was measured. Directors reported on overall morale of staff based on an eight-point Likert scale, with only two anchors given for the extreme scores. It is difficult to assess staff morale for an entire center based on one scale and reported on by one individual. It is interesting to note that no directors gave their centers a score below 3 and leads one to wonder whether scores would have changed if morale was rated by employees. However, limitations aside, morale was chosen because it was the one variable that closely tapped into work environment. Even though it was a director-reported variable, it did significantly predict employee tenure. So, it is likely that the variable was measuring something positive about the work environment. While this question may actually have measured director morale, it was an important predictor of retention. That is, the way a director feels can create a climate that is either satisfying or not for the employee. Therefore, centers with better morale may be better able to retain employees who could earn comparable wages or hold comparable positions in another child care center.

One difficulty with the measurement of the morale variable is the direction of effects. My study asserts that centers with better morale have higher retention. However, it is possible that centers with higher retention have better morale. That is, directors who reported higher morale scores may be more optimistic about the day-to-day operations of the center because they are

less burdened with turnover and staffing issues; whereas, the low morale scores may have less to do with the actual center morale, and instead, a measure of the director's own personal morale.

It is interesting to note that employee education was not a significant predictor of retention. It was also the only employee-level variable that emerged from the full model with a positive relation to retention, such that if an employee's level of education increased, so did the risk of leaving. Two explanations are provided for the findings regarding education and retention.

First, education was moderately correlated with position and wage, and these correlations may explain the non-significance of employee education in the regression equation. This correlation suggests shared variance in explaining retention and it was wage and position that "absorbed" the prediction of retention leaving little additional variance to be explained by education.

Second, in regard to the positive correlation of employee education and turnover, it could be that as employees became more educated the compensation was inadequate for retention. In regard to compensation, employees in the Career and Wage Ladder pilot centers earned a 25 cent increase in hourly wage for improvements in education and training. It could be that the wage incentive was not sufficient to retain the most highly educated employees. That is, even if an employee gained additional education, it is difficult to say whether such a small increase in hourly wage would be enough to retain these employees. Low level of education is the status quo in the field and earning low wages make additional education even more unlikely. Further, when educated employees left it may have caused a domino effect, prompting other educated staff to leave. We know from the literature that being employed in centers with other highly educated

staff is an important element of workplace satisfaction that promotes retention (Whitebook & Sakai, 2004).

#### Predictors of Retention for the Sample with Shorter Tenure

Employees with tenure under five years are more similar in length of time in a job of typical child care employees. Knowing whether the same set of predictors remained significant for this sub-sample was an important follow-up analysis. When the present study analyzed only employees with shorter tenure in the full model, a similar set of findings emerged with tenure still the strongest predictor of retention. Compared to the full sample, wage increased slightly in importance, tenure and morale dropped in chi-square value but remained significant, and position (although approaching significance) dropped out as a significant predictor of retention for employees working five years or less.

In line with the investment theory, employees with less than 5 years of tenure are less vested in their job and more likely to leave if better wages are offered at another child care center. It makes sense that position dropped out as a significant predictor, because it was unlikely that these employees were there long enough to move beyond an assistant or lead teaching position in the time they were at the center. Tenure remained the most significant predictor. In terms of the hazard ratio, it seems that tenure became even more salient for retaining employees with shorter tenure. Shorter tenured employees have less to “lose” in terms of years invested if they leave for a job in another center. For these employees, staying for one more year at a center has a significant impact on the likelihood of staying for subsequent years.

Wages were more slightly more of an important factor to retaining shorter tenure employees. Wages must be sufficient to attract well-qualified staff and competitive enough to keep qualified employees from leaving for other jobs. Thus, it seems important for the field to

address what level of retention is of concern, and then address an intervention that promotes this level of retention.

### Limitations

As with most research, the present study is not without limitations. Since the study used data from a pre-existing data source, there were restrictions on what the present study could analyze. All of the variables were reported on by directors, which may limit accuracy when variables concerned individual employees (e.g. educational pursuit). Further, some measures (i.e. benefits) may not accurately reflect individual employee's levels, because variables were reported for a center rather than individual employees. For example, if a center offered benefits commensurate with employee position, there was no way to distinguish this in the present study. Benefits were reported as a center-level variable and assigned the same number of benefits to all employees of a center.

The morale variable was used as a measure of workplace environment but has limitations in the present study. The variable was reported on by center directors and was assessed at three different time points. However, only morale scores from wave 5 were used, and it is difficult to say the extent to which these morale scores applied to center morale at all other time points. Further, director-reported morale is a subjective measure, and this makes it difficult to compare one director's concept of "good morale" to any other's concept of "good morale."

### Conclusions and Implications

The study's findings have implications for administrators who hire the staff and on a more macro-level, for the legislators who make policies that impact the field. It is clear that turnover is a complex issue that demands a multi-faceted intervention, rather than a single solution (e.g. increasing wages). Further, even if there were a single solution, it would not apply

to all employees, because we know different incentives are needed to retain employees at varying levels.

The strongest predictor of retention in the present study was tenure. It is a bit surprising given the lack of attention tenure has received in the literature. This is not necessarily a positive finding if the employees who are staying are only doing so out of a lack of alternative job options. If this is the case, the field must think about who is being retained, and if retention of all employees should be the ultimate goal. Rather, the field must focus their attention on increasing retention among the qualified employees while improving the credentials of the less qualified.

Morale, position, and wages also emerged as significant predictors of retention. It may be that these incentives for retention apply to the better qualified employees who do have alternative job options. In line with the investment theory, keeping employees in the field is directly related to the costs of staying (i.e. earning a degree before entering a profession makes leaving much more of a cost) and benefits of staying (i.e. the longer an employee stays incentives must increase). This makes a strong case for raising the standards to enter the field and providing fair compensation, such as wages and benefits, for employees that meet or exceed the qualifications.

The findings of the present study have implications for the current dialogue in public policy concerning child care standards. This study makes a contribution by providing concrete figures of how much intervention is needed to produce a certain percent of retention. However, future research is needed to replicate the findings to gain a better understanding of what the hazard ratio statistics actually mean. This will prevent “over inflation” of one variable as more important to predicting retention than others when planning future interventions. The study’s simultaneous analysis of timing and the various predictors associated with turnover make a significant contribution to the existing body of literature. More research is needed that uses

similar statistical analyses allowing for a thorough investigation into the multi-faceted issue of turnover in the child care field.



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